Environmental Protection Authority
Te Mana Rauhī Taiao

New Zealand Government

Approval

Application number	NOC04013
Application type	To Import into Containment any New Organism under section 40(1)(a) of the Hazardous Substances and New Organisms (HSNO) Act 1996, made in accordance with section 259 for the approval of existing new microorganisms.
Applicant	Institute of Geological and Nuclear Sciences (GNS)
Date Application received	23/08/2004
Consideration date	24/09/2004
Decision-made by	Associate Professor Marie Dziadek (Chair) Dr George Clark Mr Neil Walter
Purpose of the Application	To import sediments and fluids that may contain unidentified and potentially novel microorganisms from hydrothermal marine vents and adjacent areas, for the purpose of biodiversity, ecology and biotechnology studies
New organism approved	See list in Table 1

The application was lodged pursuant to section 40(1)(a) of the Act and was determined in accordance with section 45, having regard to the matters specified in section 44 and other matters relevant to the purpose of the Act, as specified under Part II of the Act.

The application to import into containment the following organisms is **approved**, with controls (as detailed in Appendix 1), having been considered in accordance with the relevant provisions of the HSNO Act 1996 and the HSNO (Methodology) Order 1998:
Prokaryotic microorganisms present in soils/sediments and fluids taken from hydrothermal vent systems including, but not limited to, the organisms listed in Table 1.

18 October 2004

Associate Professor Marie Dziadek (Chair) **Date**

Special Committee of the Authority

Amendment November 2006

Changes to controls:

- Addition of footnotes to the containment facility references and the Australian/New Zealand containment facility references to "future proof" the decision
- Standardise the wording of the breach of containment control
- Removal of the control regarding inspection of facilities by the Authority, its agent or enforcement officers
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6 September 2007

Dr Max Suckling (Chair)
New Organisms Standing Committee

Date

Amendment August 2011

Deletion of control 6.1 requiring any person using the approval to forward to ERMA New Zealand any publication in which any unidentified organism imported under this approval is assigned a taxonomic classification.

Alteration of the wording of the control regarding what to do if at a risk group 2 organism is identified.

30 August 2011

Richard Wood (Chair)
New Organisms Standing Committee

Date

Re-make of the decision September 2021

In accordance with section 13 of the Interpretation Act 1999, the Committee re-makes the decision and declines to grant a containment approval for *Thermococcus waiotapuensis*. The decision to decline was made on the basis that it was present in New Zealand before 29 July 1998 and, therefore, is not a new organism for the purposes of the HSNO Act (APP204249).

Environmental Protection Authority
Te Mana Rauhī Taiao

7 September 2021

Dr Nick Fletcher
Chair, Decision-making Committee
Environmental Protection Authority

Date

Appendix 1: Controls

In order to satisfactorily address the matters detailed in the Third Schedule Part II: Containment controls for new organisms excluding genetically modified organisms of the Act, and other matters in order to give effect to the purpose of the Act, the approved organism is subject to the following controls[1]:

1. To limit the likelihood of any accidental release of any organism or any viable genetic material[2]:

1.1 The approved organism shall be imported into, and maintained within a containment facility which complies with these controls.

1.2 The construction, operation, and management of the containment facility shall be in accordance with the:

a) Ministry of Agriculture and Forestry (MAF)/ERMA New Zealand Standard 154.03.028[3]: Containment Facilities for Microorganisms (the Standard).

b) Australian New Zealand Standard AS/NZS 2243:3 2002[3] Safety in Laboratories: Part 3: (Microbiological aspects and containment facilities).

c) Physical Containment Level 1 (PC1) requirements of the above Standards.

1.3 The person responsible for a particular research area and/or the person responsible for the operation of the containment facility shall inform all personnel involved in the handling of the organisms of the Authority's controls.

1.4 The containment facilities shall be approved by Ministry of Agriculture and Forestry (MAF), in accordance with section 39 of the Biosecurity Act and the Standard.

2. To exclude unauthorised people from the facility:

2.1 The identification of entrances, numbers of and access to entrances, and the security requirements for the entrances and the facility shall be in compliance with the standards listed in Control 1.2.

3. To control the effects of any accidental release or escape of an organism:

3.1 Construction and operation of the containment facility shall comply with the requirements of the standards listed in Control 1.2 relating to the control of the effects of any accidental release or escape of an organism.

3.2 If a breach of containment occurs, the facility operator must ensure that the MAF Inspector responsible for supervision of the facility has received notification of the breach within 24 hours.

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[1] Bold headings refer to matters to be addressed by containment controls for new organisms excluding genetically modified organisms, specified in the Third Schedule (Part II) of the HSNO Act 1996.

[2] Viable Genetic Material is biological material that can be resuscitated to grow into tissues or organisms. It can be defined to mean biological material capable of growth even though resuscitation procedures may be required, eg when organisms or parts thereof are sublethally damaged by being frozen, dried, heated, or affected by chemical.

[3] Any reference to this standard in these controls refers to any subsequent version approved or endorsed by ERMA New Zealand

3.3 In the event of any breach of containment of the organism, the contingency plan for the attempted retrieval or destruction of any viable material of the organism that has escaped shall be implemented immediately. The contingency plan shall be included in the containment manual in accordance with the requirements of standards listed in Control 1.2.

3.4 The applicant shall comply with the requirements of the standards listed in control 1.2 relating to the maintenance of records demonstrating compliance with the Standard, as required by the quality assurance programme, and documented in the containment manual.

4. Inspection and monitoring requirements for containment facilities:

4.1 The inspection and monitoring requirements for the containment facility shall be in compliance with the standards listed in control 1.2.

4.2 The containment manuals shall be updated, as necessary, to address the implementation of the controls imposed by this approval, in accordance with the Standard.

5. Qualifications required of the persons responsible for implementing these controls:

5.1 The training of personnel working in the facility shall be in compliance with the standards listed in Control 1.2.

6. Additional controls

6.1 In the event that an organism is found to be a risk group 2 organism the EPA and the MAF Inspector responsible for supervision of the facility must be notified immediately and all research involving the organism must cease. The organism can be held in storage for up to one year while a new approval is sought. If a new approval is not obtained within a year, the organism must be destroyed.

Table 1: List of approved organisms

Approval Code	Taxonomic Name	Authority
NOC002295	*Aquifex pyrophilus*	Huber *et al.,* 1992
NOC002296	*Balnearium lithotrophicum*	Takai *et al.,* 2003
NOC002297	*Caminibacter hydrogeniphilus*	Alain *et al.,* 2002
NOC002298	*Caminibacter profundus*	Miroshnichenko *et al.,* 2004
NOC002299	*Caminicella sporogenes*	Alain *et al.,* 2002
NOC002300	*Carboxydothermus restrictus*	Svetlichnyi *et al.,* 1994
NOC002301	*Catenococcus thiocyclus*	Sorokin, 1994
NOC002302	*Clostridium caminithermale*	Brisbarre *et al.,* 2003
NOC002303	*Deferribacter abyssi*	Miroshnichenko *et al.,* 2003
NOC002304	*Deferribacter desulfuricans*	Takai *et al.,* 2003
NOC002305	*Desulfacinum hydrothermale*	Sievert and Kuever, 2000
NOC002306	*Desulfonauticus submarinus*	Audiffrin *et al.,* 2003
NOC002307	*Desulfurobacterium crinifex*	Alain *et al.,* 2003
NOC002308	*Desulfurobacterium thermolithotrophum*	L'Haridon *et al.,* 1998
NOC002309	*Ferroglobus placidus*	Hafenbradl *et al.,* 1997
NOC002310	*Geothermobacter ehrlichii*	Kashefi *et al.,* 2003
NOC002313	*Halomonas neptunia*	Kaye *et al.,* 2004
NOC002314	*Halomonas sulfidaeris*	Kaye *et al.,* 2004
NOC002311	*Halomonas axialensis*	Kaye *et al.,* 2004
NOC002312	*Halomonas hydrothermalis*	Kaye *et al.,* 2004
NOC002315	*Halothiobacillus hydrothermalis*	Durand *et al.,* 1997
NOC002316	*Halothiobacillus kellyi*	Sievert *et al.,* 2000
NOC002317	*Hyperthermus butylicus*	Zillig *et al.,* 1990
NOC002318	*Idiomarina loihiensis*	Donachie *et al.,* 2003
NOC002319	*Ignicoccus pacificius*	Huber and Stetter, 2000
NOC002320	*Marinithermus hydrothermalis*	Sako *et al.,* 2003
NOC002322	*Marinitoga piezophila*	Alain *et al.,* 2002
NOC002321	*Marinitoga camini*	Wery et al., 2001
NOC002325	*Methanocaldococcus infernus*	Jeanthon *et al.,* 1998
NOC002327	*Methanocaldococcus vulcanius*	Jeanthon *et al.,* 1999
NOC002323	*Methanocaldococcus fervens*	(Jeanthon et al., 1999) Whitman, 2002
NOC002324	*Methanocaldococcus indicus*	L'Haridon *et al.,* 2003
NOC002326	*Methanocaldococcus jannaschii*	Jones *et al.,* 1984

Approval Code	Taxonomic Name	Authority
NOC002331	*Methanotorris igneus*	Burggraf *et al.,* 1990
NOC002328	*Methanopyrus kandleri*	Kurr *et al.,* 1992
NOC002329	*Methanothermococcus okinawensis*	Takai *et al.,* 2002
NOC002330	*Methanothermococcus thermolithotrophicus*	Huber *et al.,* 1984
NOC002332	*Nanoarchaeum equitans*	Huber *et al.,* 2003
NOC002333	*Oceanithermus profundus*	Miroshnichenko *et al.,* 2003
NOC002334	*Palaeococcus ferrophilus*	Takai *et al.,* 2000
NOC002337	*Persephonella marina*	Götz *et al.,* 2002
NOC002335	*Persephonella guaymasensis*	Götz *et al.,* 2002
NOC002336	*Persephonella hydrogeniphila*	Nakagawa *et al.,* 2003
NOC002339	*Pyrococcus horikoshii*	González *et al.,* 1999
NOC000991	*Pyrococcus woesei*	Zillig, 1988
NOC000990	*Pyrococcus furiosus*	Fiala and Stetter, 1986
NOC002341	*Pyrodictium brockii*	Stetter *et al.,* 1984
NOC002342	*Pyrodictium occultum*	Stetter *et al.,* 1984
NOC002340	*Pyrodictium abyssi*	Pley and Stetter, 1991
NOC002343	*Pyrolobus fumarii*	Blöchl *et al.,* 1999
NOC002344	*Rhodothermus marinus*	Alfredsson *et al.,* 1995
NOC002346	*Staphylothermus marinus*	Fiala *et* al., 1986
NOC002345	*Staphylothermus hellenicus*	Arab *et al.,* 2000
NOC002347	*Stetteria hydrogenophila*	Jochimsen *et al.,* 1997
NOC002349	*Tepidibacter thalassicus*	Slobodkin *et al.,* 2003
NOC002348	*Tepidibacter formicigenes*	Urios *et al.,* 2004
NOC002350	*Thermaerobacter marianensis*	Takai *et al.,* 1999
NOC002351	*Thermaerobacter nagasakiensis*	Nunoura *et al.,* 2002
NOC002352	*Thermoanaerobacter siderophilus*	Slobodkin *et al.,* 1999
NOC002367	*Thermococcus profundus*	Kobayashi and Horikoshi, 1995
NOC002359	*Thermococcus chitonophagus*	Huber and Stetter, 1996
NOC002356	*Thermococcus alcaliphilus*	Keller *et al.,* 1995
NOC002366	*Thermococcus peptonophilus*	González *et al.,* 1996
NOC002363	*Thermococcus guaymasensis*	Canganella *et al.,* 1998
NOC002358	*Thermococcus barophilus*	Marteinsson *et al.,* 1999
NOC002354	*Thermococcus aegaeus*	Arab *et al.,* 2000
NOC002369	*Thermococcus stetteri*	Miroshnichenko, 1990
NOC001013	*Thermococcus celer*	Zillig, 1983

Approval Code	Taxonomic Name	Authority
NOC002364	*Thermococcus litoralis*	Neuner *et al.,* 2001
NOC002365	*Thermococcus pacificus*	Miroshnichenko *et al.,* 1998
NOC002362	*Thermococcus gorgonarius*	Miroshnichenko *et al.,* 1998
NOC002353	*Thermococcus acidaminovorans*	Dirmeier *et al.,* 2001
NOC002368	*Thermococcus siculi*	Grote *et al.,* 2000
NOC002355	*Thermococcus aggregans*	Canganella *et al.,* 1998
NOC002360	*Thermococcus fumicolans*	Godfroy and Meunier, 1996
NOC002357	*Thermococcus atlanticus*	Cambon-Bonavita *et al.,* 2003
NOC002361	*Thermococcus gammatolerans*	Jolivet *et al.,* 2003
NOC002371	*Thermodesulfatator indicus*	Moussard *et al.,* 2004
NOC002372	*Thermodesulfobacterium hydrogeniphilum*	Jeanthon *et al.,* 2002
NOC002373	*Thermosipho japonicus*	Takai and Horikoshi, 2000
NOC001018	*Thermotoga maritima*	Huber *et al.*, 1986
NOC001019	*Thermotoga neapolitana*	Jannasch *et al.,* 1989
NOC002375	*Thermovibrio ruber*	Huber *et al.,* 2002
NOC002374	*Thermovibrio ammonificans*	Vetriani *et al.,* 2004
NOC002376	*Thiomicrospira crunogena*	Jannasch *et al.,* 1985
NOC002377	*Vulcanithermus mediatlanticus*	Miroshnichenko *et al.,* 2003
NOC002338	Prokaryotic microorganisms present in soils/sediments and fluids taken from hydrothermal vent systems	