

Customer Information

Customer Name	Nederlands Instituut voor Zeeonderzoek		
Customer ID	KONINK0003	Account Engineer	
Account References	D&B-415072669		
Customer NAICS/SIC			
Policy Number			

Location Information

Location Name	Nederlands Instituut voor Zeeonderzoek		
Address	Landsdiep 4 Den Hoorn, Netherlands		
Latitude	53.00281	Longitude	4.78703
Location ID	00001-Nederlands Instituut voor Zeeonderzoek-KONINK0003		
NAICS/SIC	541380 - Testing Laboratories / 8734 - Testing Laboratories		
GI Property Pricing Code	541380 - Testing Laboratories / 8734 - Testing Laboratories / 2		
GI Property Hazard Grade	2		
GC Property Pricing Code	8734 - Testing Laboratories		

Assignment Information

Assignment ID	UP-065888-0001	Service Request ID	UP-065888
Assignment Type	Risk Assessment - Revisit	Primary LOB	Property
Assignment Locale	On-site	Reviewer	Doede de Waij
Field Assignee	Frank Wassenaar	Customer Due Date	01-May-17
On-Site Date	10-Apr-2017	Underwriter Requester	Odile Swankhuizen
Next Visit Date		Program Engineer	Frank Wassenaar

Overall Opinion of Risk

Scope and Purpose

A revisit was conducted on April 10th, 2017 at the Koninklijk Nederlands Instituut voor Zeeonderzoek facility (NIOZ) in 't Horntje, Texel, The Netherlands.
The purpose of the visit was to perform a risk assessment by Zurich Risk Engineering for Property Damage, Business Interruption and Extended Perils, to evaluate risk improvement action from the previous visit in 2013 and to provide new risk improvement actions if necessary.
The information in this report is based on discussions with representatives of the NIOZ and Aon and upon a plant tour.

Major changes since the previous visit in 2013

The workshop and several laboratories have been renovated.

Understanding the Risks at this Location

The general construction is of concrete and masonry/ non-combustible walls and concrete roofs with combustible plastic foam insulation on top. The built up ground floor area measures approx. 10,000 m². There is a ground floor level with for the main part one story floor and partly three story floors. There are no reliable internal fire separations. A number of separations in corridors can be rated 30 minutes fire resistant.

The housekeeping conditions are good. Hot work procedures are adequate supported by a hot work permit form. The state of repair of utility equipment like for electricity and gas supply is good. Safety procedures are fully implemented and can be rated as good.

Process hazards are limited to laboratory scale with electrically heated stoves and climate chambers with adequate safeguards, small scale wood working and welding as well as storage of small amounts of flammable liquids in adequate safety cabinets, fume cupboards and a detached dedicated building. The fire load is generally low to moderate and enhanced in some of the storage areas and in the wood working department.

All buildings have been provided with lightning conductors, according to the Dutch standard NEN 1014, class LP2. The system is inspected annually by contractor.

Strong points

- Good safety procedures
- Adequate smoke detection installed
- Good housekeeping conditions and smoking behavior
- Electrical installation monitored according NEN 3140 including thermo graphic imaging

Weak point

- Quite some private equipment on site

Participants

- 1 Johan Bolt, Manager Finance NIOZ
- 2 Biem Trap, Facility Management Coordinator NIOZ
- 3 Jan Peter Bloemendaal, Meeûs Groningen
- 4 Martinus Tuik, Meeûs Groningen
- 5 Luuk Mulders, Stagiaire Zurich Underwrigng
- 6 Frank Wassenaar - Zurich Risk Engineering

Status Risk Improvement Action from the previous visit in 2013

No. 00001 Extend automatic fire detection in workshop

This risk improvement action has been implemented and will be removed from the report.

No. 00002 Hot work permit

This risk improvement action has been implemented and will be removed from the report.

No. 00003 Remove private equipment

This risk improvement action is still applicable and will be repeated in the report.

No. 00004 Avoid extension cords

This item is now part of the risk evaluation process, is regarded as implemented and will be removed from the report.

00005 Fire separation building G2

This building will be demolished, risk improvement action has been withdrawn.

Business Description

Property

Location and fire separations

The building complex is located in the harbor area of the isle of Texel. Exposures are located not closer than approx.150 meters distance. These exposures can be classified as slight.

Constructions and fire separations

Construction table

#	Occupancy	Ground floor m²	Floors	Year built	Supporting Structure	Wall construction	Roof construction
A – F and G2	Workshops, laboratories & auditorium	9,000	2/3	1974	Concrete	Brick & Mineral wool	Concrete & polyurethane foam

G1	Laboratories	500	1	1990	Wood	Wood & plastic foam	Wood & polyurethane foam
H O I	Storage sheds	100	1	1990	Steel	Steel	Steel
N	Workshop	400	1	1990	Steel	Steel & mineral wool	Steel & polyurethane foam

There are no reliable fire separations. The buildings A to G1 are interconnected by corridors made of masonry and concrete roofs with plastic foam on top. The length of the corridors is 6-7 meters. Door openings are protected by self-closing fire doors with a fire resistance of 30 minutes and triggered by the fire alarm. Inside the corridors is no fire load. The corridors with separation doors can be classified as 30 minutes fire resistant.

Each building part has its own air treatment system without interconnection to other building parts.

Building A has been provided with a basement.

Occupancy

General

The Koninklijk Nederlands Instituut voor Zeeonderzoek facility (NIOZ) is the national oceanographic institution for the Netherlands with a division on the island of Texel and in the Village of Yerseke. The main business is to gain and communicate scientific knowledge on seas and oceans in cooperation with universities and institutions in The Netherlands. NIOZ facilitates and supports fundamental as well as applied marine research and education in the Netherlands and Europe.

Main occupation

The complex comprises offices, workshops, laboratories and small storage areas. In the workshops equipment and apparatus is being developed and built/ assembled. Workshops comprises small scale wood working machines, electronic workshops and small scale electrically welding.

Workshops

The main workshop area is located in building #A and #N. Currently part of the workshops are renovated. In a small woodworking department some wood working machines are located like circular, plate, trimmer and gang sawing machines and a thicknesser, provided with adequate exhaustion to a small inside dust filter section. In a dedicated area welding activities takes place.

In building N assembling of components takes place making equipment for research projects in the open sea. The workshops looked clean and tidy.

Laboratories

Laboratories are located on ground floor level and first floor level in buildings #B to #F, #G1 and #G2. Most of the laboratories are involved in microbiological research and investigation for algae, bacteria, grazers and viruses in the open sea environment. The laboratories in buildings #B to #F have small electrically heated low temperature stoves (up to 60°C) which are provided with adequate safeguards (maximum temperature thermostats) and operating during labor time only. In building F several cremation type ovens are located operating at temperatures up to 450 °C.

In buildings #G1 and #G2 a number of large climate chambers for research en study of behaviors of life stock like for instance algae and viruses. Some of these studies can last for several years.

In building #G1 a water treatment installation is located. Sea water is pumped in and filtered using a number of sand beds. The filtered water is conditioned and stored in smaller tanks and is used for research and studies.

Clean rooms

In a part of buildings #B and #D standalone small sized clean rooms are located with a classification of ISO 7 (class 10,000 particles per cubic meter). The air treatment for these cleanroom are dedicated and provided with Hepa filter sections.

Auditorium

For presentations and colleges an auditorium with modern presentation facilities has been located in a part of building D. The capacity is approx. 200 persons.

Various

In the basement area of building #A several freezer (-80°C) are located for conservation and storage of research materials.

The technical equipment like for air treatment, climate chambers and freezers are provided with technical failure alarms. Technical support staff is continuously consigned, 7 day a week for immediate response in case of a technical failure.

A diesel driven emergency generator is available with a capacity 250kVA which starts automatically in case of a power outage. This emergency diesel generator set is monthly tested.

Nuclear sources

Small amounts of nuclear sources are present on site in building E, at ground floor level in a dedicated vault. Radio-isotopes are used to for dating sediments and for estimating biogeochemical rates. The storage, handling and disposal are by legally demanded qualified radiation experts and meet the Dutch Nuclear Legislation.

Employees

The total number of employees covering both this Texel and the Yerseke locations is approx. 340 of which approx. 240 are located here in Texel.

Operations take place in dayshift and some in the evening until approx. 10 pm.

Protection

Fire

The volunteer fire brigade of Texel is familiar with the site and can access the site within 15 minutes. Water for firefighting can be obtained from a 3,000 m³ water basin with an electrically driven fire pump with a capacity of 1,600 liters/min. at 6 bar pressure. The pump feeds a water main around the buildings with underground hydrants. The fire pump starts automatically upon the fire alarm.

An adequate quantity of annually inspected manual extinguishers and hose reels is present in all buildings. A sufficient number of employees receive annual training in the use of manual firefighting equipment. Manual push buttons are installed throughout the buildings.

Automatic fire detection has been installed as selective detection for building A and almost complete covering detection for the other buildings. The design and projection is according to NEN 2535. Each detector covers an area of maximum 80 m².

The automatic fire detection system is annually checked by a contractor.

The fire alarm is transmitted to the fire brigade by guarded line.

The fire prevention and protection measures has to be classified as substandard and can improve to good after extension of the fire detection system into building A.

Burglary

The site is partly fenced off at the back side. Complete covering electronic intrusion detection has been installed utilizing motion detectors. In the evening a private watchmen organization makes a closing round after which the intrusion alarm is activated.

The intruder alarm is transmitted to employees of NIOZ.

The intrusion protection measures can be classified as reasonably good.

Business interruption/ extra costs

The NOIZ is subsidized by the Nederlandse Organisatie voor Wetenschappelijk Onderzoek (NWO). Furthermore assignments are generated by third party companies.

Extra costs are insured up to EUR 1.5 million over a period of 12 months.

After a major calamity like an uncontrolled roof fire, reconstruction/ renovation of the building will take about at least 12 months.

There is a central server room in building #B with a back-up in building G1. Computer data are well backed-up.

Risk Grading Overview (Overall score: 0 – 50 = Excellent, 51 – 100 = Good, 101 – 150 = Fair, > 150 = Poor)					
Peril	As Is		To Be		Percentile Rank*
Property - Fire	62	Good	62	Good	30%
Property - BI	99	Good	99	Good	55%

*Example: "Percentile = 35%" means that the assessed risk is among the 35% best risks of the peril specific benchmark.

Risk Grading Detail and Assessment			
Risk Category/Risk Factor	Comments	Rating	
Property - Fire (Jul 11)		As Is	To Be
Construction		117	117
Fire Divisions	PML MUSD < 20 and fire stopped by fire separation, most appropriate fire separations.	A	A
Building Combustibility	Combustible PUR foam on roofs, no quick burning plastics. Combustible constructions.	C	C
Risk Improvement Action Number: none			
Management Programs		69	69
Hot Work / Contractor Controls	Good safety procedure and supported with a hot work permit form. Typical exposure and good controls.	B	B
Housekeeping and Smoking Controls	Good housekeeping conditions and smoking only at dedicated locations. Typical exposure and good controls.	B	B
Training Employees Regarding Safety	Training Employees Annual training for first intervention team including hands-on for manual firefighting equipment. Typical exposure with good training and information.	B	B
Maintenance Procedures	Scheduled maintenance to buildings and equipment. Maintenance by own technical staff supported by contractors. Typical exposure with scheduled maintenance.	B	B
Management Practices	Well embedded safety procedures, dedicated safety officer appointed and good safety culture. Management has a positive attitude for safety and loss prevention. Program implemented are 5S. Typical exposure with good management practices.	B	B
Risk Improvement Action Number: none			
Fixed Fire Detection and Protection		166	166
Fixed Fire Protection Including Sprinklers	No sprinkler, PML reduction MUSD > 10 and < 20. Less than appropriate fixed protection.	C	C
Fire Detection	Selective, in office block according to NEN 2535 utilizing point detectors, typical exposure and fair controls.	C	C
Risk Improvement Action Number: none			
Utility and Incidental Hazards		8	8
Electrical Systems and Equipment	NEN 3140 monitoring, including infrared scanning, typical exposure and very good system management.	A	A
Heating and Cooling	Well maintained systems based on water convection, Typical exposure and very good controls.	A	A
Incidental Hazards	No adverse conditions noticed. Typical exposure and good controls.	B	B
Risk Improvement Action Number: none			
Process Hazards		12	12
Control of Process Hazards	Light hazard category, very low exposure and very good controls.	A	A
Flammable Liquids, Gases & Dusts Fire and Explosion	Limited amounts and well stored in according PGS 15 standards for packed hazardous goods. Typical exposure and good controls.	B	B
Risk Improvement Action Number: none			

External Exposures / Arson		26	26
External Exposures	None within 40 meters. Very low 3rd party exposure.	A	A
Arson	Good labor relationship, Typical exposure and very good controls.	B	B
Yard Storage	At safe distance. Moderate yard storage exposure.	B	B
Risk Improvement Action Number: none			
Manual Fire Fighting		69	69
Fire Team	First intervention team. The number of hand extinguishers is adequate and they are annually checked. A sufficient number of employees are well trained in the use of hand extinguishers, hose reels and in using the private hydrants. Low exposure, very good controls.	B	B
Fire Brigade and Water Supply	Volunteer fire brigade with approx. 10 minutes response time, open water nearby and underground hydrants in public road. Moderate manual fire extinguishment challenge and good controls.	B	B
Risk Improvement Action Number: none			
RE Factor		Not applied	
Property - BI (Oct 11)		As Is	To Be
Susceptibility to Business Interruption		73	73
Property Fire Risk Grading	Grading property fire, low susceptibility.	B	B
Risk Improvement Action Number: none			
Standard Features/Resources of Site		99	99
Building and Structure	9 months reconstruction time. Medium exposure, fair controls.	C	C
Equipment	3-9 months replacement time. Medium exposure, fair controls.	C	C
Own Utilities	Matter of few months to replace, low exposure and very good controls.	A	A
Process Control	No dependency on process supports. Very low exposure and very good controls.	A	A
Process Support	Dependency on process supports by utilizing very specialized labratory equipment. High exposure and good controls.	C	C
Stock, Work in Progress and Bought-in Component/Sub-assemblies	Continuous flow but some specialties like samples from the ocean. Low exposure and good controls.	B	B
Risk Improvement Action Number: none			
Overall Resilience of Site		122	122
Overall Resilience of Site (without Off-Site Alternatives)	None but several buildings connected in a long strig with separation in between. Medium exposure, good controls.	C	C
Spare Capacity within the Group	Single location, medium exposure, good controls.	B	B
Assistance From External Companies	Very limited leeway present at extra cost. Medium exposure and fair controls.	C	C
Seasonal Influences	None or low seasonality.	A	A
Risk Improvement Action Number: none			
External Influences		57	57
Interdependencies within the Group	Single location, medium exposure and good controls.	B	B
Contingent Business Interruption	Special CBI issue is the location on an island with ferry accessibility, bad weather condistion could cause delays, low exposure and good controls.	C	C
Restoration of 3rd Party Utilities	Matter of hours to restore, very reliable grid for power and gas supply. Several owned diesel aggregates for power generation. Low exposure and very good controls.	A	A

Market Position / Consequences	Exclusive market position.	A	A
Risk Improvement Action Number: none			
Management of Business Resilience		161	161
Business Continuity Management	Good knowledge but no formal plan. Limited Business Continuity Management.	C	C
Risk Improvement Action Number: none			
RE Factor		Not applied	

Insured Property Values (Euro)			
Total Site Building Value	55,000,000	Annual Gross Profit / Gross Earnings	1,500,000
Total Site Contents Value	42,000,000	Indemnity Period	12
Total Site Stock Value	0	Annual Turnover	0
Total Site Other Value	2,000,000		
Total Site Value	99,000,000		
Comments			

Property Loss Scenario - EML (Euro)				
Title	Worst case		Peril Conditions	PD / BI
Total PD Loss	69,300,000		PD Loss %	70%
Total BI Loss	1,500,000		BI Loss %	100%
Total Loss	70,800,000		Annual Gross Profit at Risk	1,500,000
Loss of Rent %		Revenue %	Extra Expense %	
Comments	A fire during idle hours in building F with the fire detection system impaired. With delayed fire fighting the fire would spread out to building G2 and G1 and E and F. The fire could be stopped with delayed intervention at building D due to the distance the fire has to travel in, with smoke and soot damage to adjacent buildings. The effect for the premier risk BI amount is 100%.			

Property Loss Scenario - PML (Euro)				
Title	Normal conditions		Peril Conditions	PD / BI
Total PD Loss	14,850,000		PD Loss %	15%
Total BI Loss	1,500,000		BI Loss %	100%
Total Loss	16,350,000		Annual Gross Profit at Risk	1,500,000
Loss of Rent %		Revenue %	Extra Expense %	
Comments	A fire during idle hours in the wooden building G2 being detected by the fire/smoke detection system. With adequate follow up of the fire brigade the fire could be limited buildings G1, G2 and F as the fire separations in corridors will limited the spread of fire. The effect for the premier risk BI amount is 100%.			

Loss History

Year	Month	Amount	Description
2015		EUR 3050	Small fire.
2016		EUR 5930	Burglary lightning arresting equipment.
2017		EUR3000	Windstorm

Risk Improvement Actions (Property)

RIA ID	RIA Number	Priority	Title				
00003		Important	Private equipment				
Completion Status	Underwriter Decision	Customer Category	Follow-up Requested	Escalation Due Date	Target Implementation Date	Compliance Weeks (UK)	Cost Classification
Under query		N/A	No				No / Low Cost & Human Element

Description:
At several locations private equipment is used like toasters, water cookers and radios. Private equipment is in many cases discarded equipment from home and due to bad quality such equipment could be the source of short circuit and even fire.

Private equipment should be excluded as much as possible by providing such equipment as new in case of regular need and use. If private equipment is taken from home and used, such equipment should be subject to regular quality checks in line with NEN 3140.

Natural Hazards and Additional Perils

Peril	Comment	Rating
Exposure only perils		
Theft	Office equipment	Low
Flood - Water Bodies	Diked area	Low
Flood - Precipitation (Pluvial)	Good drain systems	Low
Earthquake	Munich Re; Zone 0 MM V and below	None/Very Low
Tropical Storm	Munich Re; No hazard	None/Very Low
Extratropical Storm (Winter Storm)	Munich Re; Zone 3 121-160 km/hour	High
Stand-alone perils		
Water and Sprinkler Damage	Standard systems	Low
Impact / Collision	Some truck movements	Low
Terrorism	No threat	None/Very Low
Aircraft	No airport nearby	None/Very Low
Flood by Earth Movement	Stable soil	Low
Subsidence	Stable soil	Low
Lightning	Munich Re; 1-4 lightning strikes/km2/year	Low
Hailstorm	Munich Re; Zone 2	Low

Tornado	Munich Re; Munich Re; Zone 3	Low
Distance to Active Volcano	Munich Re; Munich Re; Zone 2	None/Very Low
Landslide	Flat area, no hazard	None/Very Low

Building Information									
Reference	Building Condition	Roof Condition	Roof Cover Year	Base-ments	% Fire Detection	% Sprink-lered	% Sprinklers Needed	% Modern Material of Constructi on	Total Floor Area
Occupancy									
Construction Description									
Primary Characteristics									
Construction Class	<No Data>								
Year Built	Year of Upgrade	Number of Buildings (>1 if a group of buildings)		Number of Stories - Above Ground		Floors Occupied			

