



DDRE – NDRF Conference
9th to 11th March, 2005
in Copenhagen



25 ARP, 2005

Proceedings of
DDRE – NDRF Conference on
Reclamation of Land Contaminated by Munitions-Related Activity
an Open Conference on
- Transfer of Land from Military to Civilian Use -

This conference was organized by Danish Defence Research Establishment (DDRE) and Nordic Demining Research Forum (NDRF) in co-operation with EUCLID RTP 14.12 Project and took place at Svanemøllens Kaserne in Copenhagen from 9th to 11th March, 2005.

This document includes the actual conference programme and the list of participants.

The document does not include papers of the presentations given at the conference. The papers which have been made available for NDRF can be found in the database associated to the [NDRF HomePage](#). Links to each of the papers are included in the programme tables of this document. A total list of documents including this one can also be downloaded via the “Document” entry on the HomePage using Keyword “WS05”.

The documents are in PDF-format. Therefore, presentations which contained animations do not include these in the up-loaded version.

For detailed questions to each of the papers, please refer directly to the author or the person who gave the presentation in question. Addresses, phone numbers and e-mail addresses are included in the participants’ list.

The conference took place in Copenhagen from 9th to 11th March, 2005

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Background

The recent political and technological development in the world has caused changes in military structures in Europe, North America and in parts of Asia. These changes respond to the reduced demand for military training areas. Besides, land has become a highly demanded asset, especially in developed densely populated countries. As a result of these tendencies, large areas previously used as shooting areas or military training areas are currently being or will in the future be transferred to civilian application and used for urban development or recreational purposes.

The presence in these sites of non-exploded ammunition items and potentially explosive materials makes it necessary to apply special clearing measures in order to ensure a safe future use of the sites. Currently, applied approaches within other related fields (e.g. soil pollution) suggest that the clearance level should be determined by risk-based considerations and be dependant on the future application of the sites.

Traditionally, ammunition clearance of areas which have previously been used for military training has been carried out using demining procedures taken from humanitarian mine clearance of areas affected by armed conflicts. However, the conditions for old military training areas differ essentially from the situation in a mined area or in a battlefield. Training areas are normally easily accessible and more homogeneous. Normally, there is a more detailed knowledge about which kind of unexploded ammunition and remains thereof to expect as well as about their distribution.

This detailed knowledge about the training fields and the nature and distribution of the contamination ought to result in a better-defined clearing approach when the future application is taken into account. A more application-oriented clearing strategy will result in improved and more cost-effective clearance as compared to those of traditional mine clearing operations.

Programme: 9th March, 2005

Time:	Subject:	
09.00	Registration and Morning Coffee	
10.00 – 10.30	Welcome	Peter Lawætz, DDRE (DK) Bjarne Haugstad, NDRF
10.30 – 10.40	Introduction to DDRE-NDRF Seminar 2005	Ole Nymann, NDRF
10.40 – 11.30	(1) Key Notes	
	Transfer of Land from Military to Civilian Use. Why? – How big is the task? – What have we done up till now? – What is the cost implication?	Lt col Lars-Olof Nilson, Swedish Armed Forces HQ
	Reclamation of Land Conterminated by Munitions related activities	Bjarne Haugstad FFI (NO)
11.30 – 12.30	Lunch	
12.30 – 13.30	(2) The Stakeholders: Views, Demands and Experiences from Future Users	Session Chairman Bjarne Haugstad, FFI (NO)
12.30 – 12.50	Forests and Recreational Areas	K. Waage Sørensen Jægersborg Skovdistrikt (DK)
12.50 – 13.10	From Military Training Area to Golf Course. The Farum Barracks Case	Lars Peter Wilhelmsen GB4 ApS (DK)
13.10 – 13.30	Discussion	
13.30 – 14.45	(3) Operations and How the Transfer of Land from Military Use to Civilian Application Is Organized Today	Session Chairman Bjarne Haugstad, FFI (NO)
13.30 – 13.45	Transfer of Hjerkin Shooting Range to Civilian Application	Odd-Erik Martinsen Forsvarsbygg (NO)
13.45 – 14.00	Contractors' Experience from EOD in the Netherlands	Huibert van Driel Saricon (NL)
14.00 - 14.15	Experience from Trails in Falun, Gävle and Eksjö	Lt col Lars-Olof Nilson, Swedish Armed Forces HQ
14.15 – 14.30	Contractors Experience from EOD in Germany	
14.30 – 14.45	Discussion	
14.45 – 15.00	Coffee Break	
15.00– 16.30	(4) Methods and Techniques	Session Chairman Ole Nymann, NDRF
15.00 – 15.15	Survey and Detection	Peter Skjellerup, Rambøll (DK)
15.15 – 15.30	Mapping and Recording	Roelof Westerhof, TNO (NL)
15.30 – 15.45	Methods and Techniques	Anders Tengbom SWEDEC (SE)
15.45 – 16.00	EUCLID Project CEPA 14.12.:WP 3200 Testing of Equipment. Assessment of UXO Survey Techniques	Nico van Ham TNO (NL)
16.00 – 16.30	Discussion	
16.30	Bus Departure for the Conference Dinner	

Programme: 10th March, 2005

Time:	Subject:	
09.00 – 10.30	(5) Risk Management and Priority	Session Chairman Thore Bäckman, SWEDEC (SE)
09.00 – 09.20	Risk Analysis at Hjerkind Firing Range	Ove Dullum NDRE (NO)
09.20 – 09.40	Risk Assessment: EUCLID Project CEPA 14.12	Inés García NIRAS-DEMEX (DK)
09.40 – 10.10	A Bayesian Based Analysis of the Consequences of Different Clearance Approaches	Peter Westrin FOI (SE)
10.10 – 10.30	How Dangerous are Munitions and Remains thereof Found at the Military Training Areas?	Terry Osborn Per Aarsleff A/S (DK)
10.30 – 11.00	Coffee Break	
11.00 – 11.20	Techniques for the Remediation and Monitoring of Ammunition-related Contaminant Sources	Alain Creemers TNO (NL)
11.20 – 12.15	Discussion	
12.15 – 13.00	Lunch	
13.00 – 17.30	(6) Amager Shooting Range	Session Chairman Klaus Waage Sørensen Jægersborg Skovdistrikt (DK)
13.00 – 13.20	The Shooting Range: Past and Future	Flemming Caspersen Rambøll Ørestadsselskabet (DK)
13.30	Bus Departure for Amager Shooting Range and Tour of the Range	
15.30 – 15.50	Clearing Programme and Plan for Development of the Area	Flemming Caspersen Rambøll Ørestadsselskabet (DK)
15.50 – 16.10	Clearing the Land	Svend Michael Olsen DANDEC (DK)
16.10 – 16.30	Machines for Clearing Operations in Former Shooting Ranges	Gert Daugaard A/S Hydrema (DK)
16.30 – 16.50	Estimation of Remnants of Ammunition after Clearing at Western Amager	Anders F. Johnsen DDRE (DK)
	General Discussion	
17.30	Return to Copenhagen	

Programme: 11th March, 2005

Time:	Subject:	
09.00 – 10.30	(7) Integrated Management and Total Quality Management, Including Product Liability	Session Chairman Viggo Lemche, DDRE (DK)
09.00 – 09.20	Integrated Management of Clearance Operations	Erik K. Lauritzen NIRAS-DEMEX (DK)
09.20 – 09.40	ISO 9001:2002 – A Tool to Control Quality and Cost	Jesper Halmind, Det Norske Veritas A/S (DK)
09.40 – 10.00	Legal Aspects	Tod Erik Faye-Schjøll Forsvarsbygg (NO)
10.00 – 10.30	Discussion	
10.30 – 10.45	Coffee Break	
10.45 – 11.00	Mine Action and UXO Activities in Chile	Elir Rojas Mines-UXO Field Research Program (Chile)
11.00 – 11.45	(8) Conclusions and Proposals	Session Chairman Ole Nymann, NDRF
	Incorporate Ammunition Pollution into the Administration of Environmental Pollution. (Recommendation 1)	Elizabeth Stensberg, Storstrøms Amt Tod Erik Faye-Schjøll Forsvarsbygg (NO)
	Balance between Protection of Environment and Demand for Human Safety.	Lars-Olof Nilson HQ (SE)
	To Establish a Set of Risk Assessment Methods. The Results of the Use of these Methods Must be Presented to the Authorities in a Way that Enables them to Decide which is the Most Suitable Clearance Strategy in a Specific Case. (Recommendation 2)	Ove Dullum NDRE (NO) Inés García Sánchez NIRAS-DEMEX (DK) Peter Westrin FOI (SE) Svend Michael Olsen DANDEC (DK)
11.45 – 12.00	Closing of the Seminar	DDRE NDRF
12.00 – 13.00	Lunch	

Questions Addressed during the Seminar

A number of questions were raised during the Seminar. Some of them are listed below. The list does not contain all questions and the questions listed were not treated to the same level of detail. The list does not indicate a level of priorities but is merely meant as an inspiration for further discussions.

1. What is the magnitude of the clearance task?
2. Do we have or use technology for cost-efficient application driven clearance?
3. Is knowledge about the threat sufficient?
4. Are the organizational tools sufficient for handling an application driven clearance?
5. Is the administration geared to serve the clearance operation and future users (second generation users)?
6. Do we have guarantee, liability, and insurance schemes matching the operation?
7. Is prediction of after clearance risk perceived as confident?
8. Does demand for saving environment conflict with human safety?
9. How can we / must we treat shooting ranges in the future in order to avoid too high expenses when these areas are to be transferred to civilian use?
10. Can other kinds of pollution be treated simultaneously with the clearance?

Recommendations from the Conference

Making two major recommendations concluded the conference:

1. Organisation and Administration:

All military land either in the process of being transferred or planned to be transferred to civilian use ought to be registered and administered as all other areas in civilian use. This means that pollution of ammunition and toxic elements must be recorded and the area properly mapped in accordance with standard environmental procedures and entered in the public registers normally used for this purpose. Furthermore, when application oriented clearance has been performed in a specific area or part thereof, details must be recorded by the public registration authorities in order to make future landowners able to retrieve the information and take this into account should the future landowner decide to change the use of the land as compared to the use for which it was originally cleared.

2. Sufficient Clearance and Risk Assessment:

In order to make the transfer of land from military to civilian use efficient and more cost effective, it is necessary to define a sufficient level of clearance for each application. Adequate and proven risk assessment tools must support this judgement. Therefore a set of risk assessment methods must be developed and maintained. The results of the use of these methods must be presented to the authorities in a way that enables them to decide which is the most suitable clearance strategy in a specific case.

Pictures from the Conference

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