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Description of document: Marine Corps Systems Command (MARCORSYSCOM) records re: Non-lethal technologies (2010) and Controlled Lachrymating Agents, 1997-1998

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HQ RDECOM00 (FOIA officer)  
ATTN AMSRD-CCF  
4305 Susquehanna Avenue  
Room 321  
Aberdeen Proving Ground, MD, 21005-5001  
Fax: (410) 306-1398  
Email: [kelly.d.knapp.civ@mail.mil](mailto:kelly.d.knapp.civ@mail.mil)

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DEPARTMENT OF THE ARMY  
US ARMY RESEARCH, DEVELOPMENT AND ENGINEERING COMMAND  
5183 BLACKHAWK ROAD  
ABERDEEN PROVING GROUND MD 21010-5424

March 17, 2008

Office of Chief Counsel/FOIA

Re: RDECOM FOIA #08-008 and #08-014

This letter will serve as final response to your FOIA requests dated October 6, 2007 to MARCORSYSCOM for papers on NL Technology 2010 and Controlled Lachrymating Agents. A portion of those documents (8 pages) fell under the purview of the Edgewood Chemical and Biological Center and were referred to this office for release determination. The documents were subject to FOIA exemptions (b)(3) and (b)(6) and are being provided to you in a redacted format.

FOIA exemption (b)(3) allows for the withholding that which a statute specifically exempts from disclosure and permits no discretion. The applicable statute in this instance is 10 U.S.C.2305 (g), "Protection of Contractor Submitted Proposals" and FOIA exemption (b)(6) protects the personal privacy of Government employees and allows for the withholding of those names not in the public eye.

There were no assessable fees associated with the processing of your request.

If you consider this response to be an adverse action, you may administratively appeal in writing to the Secretary of the Army. Since all appeals must first go through the Initial Denial Authority, (Mr. Patrick R. Sheldon, of this office), any such appeal should be addressed to this office for forwarding to the Army General Counsel, which is the U.S. Army's appellant authority. You are advised that any appeal filed should reach the appellant authority no later than 60 days following receipt of this letter.

Any questions regarding the processing of your request can be directed to the undersigned at 410-436-2289 or [deborah.dennis@us.army.mil](mailto:deborah.dennis@us.army.mil).

Regards,

Deborah A. Dennis  
FOIA Officer, RDECOM

# NONLETHAL TECH 2010

NONLETHAL  
TECH 2010  
TECHNOLOGY  
FORECASTING

## TASKS

1. DEVELOP CRITICAL TECH LIST
2. STUDY APPLICATION TO MOOTW
3. STUDY APPLICATION TO MOUT
4. MAP OUT DEVELOPMENT STEPS
5. DOCUMENT/SEMINAR

POTENTIAL USERS:  
MILITARY POLICE, MARINES, SOF,  
NAVY, AIR FORCE

DELIVERABLES:  
MONTHLY PROGRESS REPORTS  
ORAL SEMINAR  
FINAL WRITTEN REPORT

## SCHEDULE:

| TASK | MONTHS AFTER START |   |   |         |   |    |   |
|------|--------------------|---|---|---------|---|----|---|
|      | 0                  | 1 | 2 | 3       | 4 | 5  | 6 |
| 1    | XXX                |   |   |         |   |    |   |
| 2    | XXXXXXXXXX         |   |   |         |   |    |   |
| 3    | XXXXXXXXXX         |   |   |         |   |    |   |
| 4    |                    |   |   | XXXXXXX |   |    |   |
| 5    |                    |   |   |         |   | XX |   |

COSTS:  
FY 98 \$50K

## NONLETHAL TECHNOLOGY - 2010

### **Proposed Concept:**

Over the past five years, calls for proposals for nonlethal technologies have inspired a number of novel suggestions. However, due to the repeated solicitations by the user community, much of what is proposed is found to be somewhat repetitive. Technology push from the same research centers with vested interests in their particular areas of expertise have become disconcertingly familiar. A new approach to defining nonlethal technology R&D is needed - one that will allow for concept generation outside of this box.

A fresh approach allowing a scientifically neutral analysis of the potential for nonlethal developments is provided by technology forecasting methods. A study is therefore proposed with the dual goals of a) compiling a critical listing of potential nonlethal technologies that could be developed by 2010 in response to current user needs, and b) mapping out the development steps necessary to carry the current state of the art to the projected future. The primary deliverable from this proposal is not hardware or even technology demonstrations - it is the generation of potentially new ideas and the outline of their road to development. If just one idea generated by this process is found valuable to the user community, then the conduct of this proposed task will be well worth the relatively low cost of program execution.

### **Technical Description:**

To ensure that personal interests are not influential in the description of the resultant concepts, the recommendations should be separated from the interests of the individuals describing them. Also crucial to the successful conduct of this proposal is the identification of a team of experts capable of gathering and evaluating forecasts throughout a number of science, technology and engineering fields. For these reasons, a professional consulting group specializing in technology forecasting is proposed to conduct this study. Although technical forecasting might be considered as an esoteric field to the uninitiated, successful internationally recognized experts have served in both commercial and academic capacities for over 40 years.

As to the construction of the report itself, initial considerations have broken the recommendations down into two main study groups. The first area of study would be concerned with the nonlethal conduct of specific military operations other than war, such as:

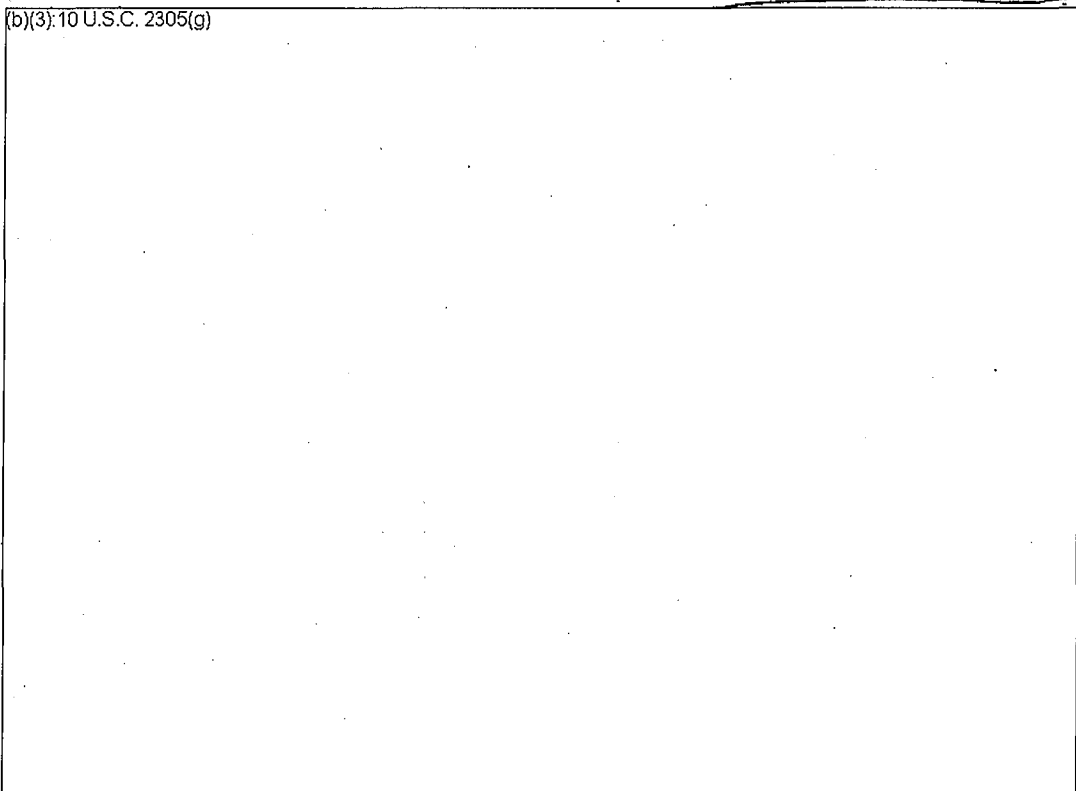
- \* Arms control
- \* DOD support to counterdrug operations
- \* Enforcement of sanctions (maritime intercept operations, aerial exclusion zone enforcement)
- \* Ensuring freedom of maritime navigation and unimpeded target country overflights)
- \* Noncombatant Evacuation Operations
- \* Political persuasion through show of force operations or nonlethal strikes/raids on target infrastructure.

The second major area of study would be centered around the nonlethal conduct of military operations in an urban terrain, and would be found to be focused on the development of technologies directly related to law enforcement, such as:

- \* Nonlethal termination of vehicle pursuit (maritime/aerial/ground based)
- \* Area denial methods to both personnel and vehicular traffic
- \* Crowd control and crowd dispersal methods
- \* Passive and active means of high value asset protection from criminal or military attack.
- \* Means of targeting and neutralizing unruly individuals from within a crowd of neutral noncombatants.

Obviously, other such study topics can be added or modified, pending user input.

(b)(3); 10 U.S.C. 2305(g)



**Timeline:**

All written and oral presentations will be delivered 6 months after award of contract.

**Cost:**

Total cost of this proposal is 50K. This cost is broken down into 40K for contractor and 10K for contract development and management by ERDEC.

**Deliverables:**

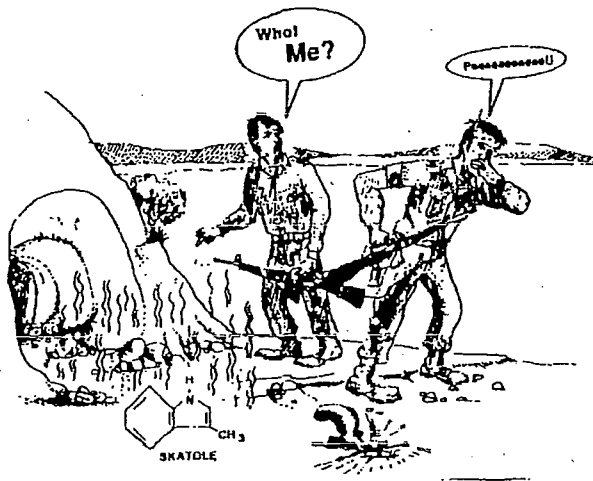
Deliverables include 1) monthly progress reports on contractor efforts, 2) a written final report of recommendations and development strategies, and 3) an oral seminar detailing findings to be provided at a site chosen by the DOD NLW program office.

**POC:**

(b)(6)



# ODOROUS SUBSTANCES



**POTENTIAL USERS:**  
MILITARY POLICE, MARINES, SOF

**DELIVERABLES:**  
ODOR INDEX  
PROTOTYPE  
REPORT

## TASKS

1. DEVELOP ODOR INDEX
2. SELECT/BLEND ODOR COMPOUNDS
3. DESIGN MICROCAPSULES
4. DESIGN AND TEST DELIVERY SYS
5. DOCUMENT

## SCHEDULE:

| TASK | MONTHS AFTER START |     |         |         |    |    |      |
|------|--------------------|-----|---------|---------|----|----|------|
|      | 0                  | 3   | 6       | 9       | 12 | 15 | 18   |
| 1    | XXX                |     |         |         |    |    |      |
| 2    |                    | XXX |         |         |    |    |      |
| 3    |                    |     | XXXXXXX |         |    |    |      |
| 4    |                    |     |         | XXXXXXX |    |    |      |
| 5    |                    |     |         |         |    |    | XXXX |

## COSTS:

FY 98 \$135K

FY 99 \$175K

TITLE: Odorous Substances

PROPOSED CONCEPT: Development of a comprehensive set of non-hazardous, odoriferous compounds that can be applied against any population set around the world. Effort will include the design and assembly of a prototype dispenser.

CAPABILITY/USES: To serve as a vehicle for creating dissention, unrest, consternation and confusion among either civilian or military unfriendly personnel. Can also serve as a "tag" to identify individuals engaging in unlawful behavior.

JOINT APPLICATIONS: Any service that engages in peacekeeping activities could make excellent use of the capabilities to be developed. Also, any service that possesses an internal military police force should have an interest in this program. These would include the Marine Corps, the Army, the Air Force, and to lesser extents, the Navy and USSOCOM.

TECHNICAL DESCRIPTION: First, develop a comprehensive matrix of distinctive odors related to specific populations, religious beliefs, and/or geographical areas. Some odors would be repulsive to the local populace, while others would perhaps be attractive or merely indicate something significant, such as a leak of flammable material. Next, find a chemical compound or mixture of chemicals that duplicates the most important of those odors as nearly as possible. Finally, develop encapsulation methods and a prototype hand-held delivery system for delivering those chemicals during various scenarios.

BACKGROUND: In 1944 the National Defense Research Committee's Division 19 developed a mixture of chemicals that was called "Who Me". The material, which produced a "fecal odor" was packaged in small lead-foil tubes and was distributed to the Resistance in France. The idea was to apply it to the German occupiers and make them the object of derision. A number of problems were encountered however, including the fact that the odor was noticeable immediately upon opening the container. When attempts were made to use the item in other locales, it was found that people in many areas of the world do not find "fecal odor" to be offensive; since they smell it on a regular basis.

Since the "who me" project in 1944, a wealth of innovative work has been performed in odor research. It is now possible to duplicate nearly any odor desired. A large "odor atlas" is available which relates the odor of specific chemicals to common



encapsulant wall material and thickness will permit volatile odor producing materials to be contained until the pre-selected conditions are achieved. These can include exposure to water, sunlight, abrasive action (scratch & sniff) or simply to air.

RISK AREAS: The technical risks in this program are relatively small. Most of the major research work has already been funded and completed by universities and major corporations. Unfortunately, most of the work has been directed toward finding "pleasant" odors. Along the way however, a number of "nasty" materials have also been discovered which would be of use to this effort. Similarly, a great deal of research has been performed in developing microencapsulation techniques; much of it for the delivery of "scents".

The greatest need for information lies in the preparation of an "odor index" to match known disagreeable odors to a specific culture, political/religious group or geographic region. For example, a certain area of the world might find the smell of a particular food or animal to be abhorrent; or a religious group may feel that a certain perfume violates their beliefs. In most industrialized countries, volatile polysulfides are added to natural gas (normally odor-free) in order to detect leaks. If a small amount of these same compounds were released into the ventilation system of a building known to use natural gas, (U.S. Capitol or White House?) it would probably cause the entire building to be rapidly evacuated.

Properly prepared and applied, there are virtually no known countermeasures for this material, short of eventual dissipation of the compound. Thorough washing might remove some of the material.

TIMELINE:

| <u>Objective</u>                 | <u>Months After Start</u> |      |          |          |    |    |        |
|----------------------------------|---------------------------|------|----------|----------|----|----|--------|
|                                  | 0                         | 3    | 6        | 9        | 12 | 15 | 18     |
| Develop "Odor Index"             | xxxxxx                    |      |          |          |    |    |        |
| Select/blend odor compounds      |                           | xxxx |          |          |    |    |        |
| Design microcapsules             |                           |      | xxxxxxxx |          |    |    |        |
| Design & test delivery system(s) |                           |      |          | xxxxxxxx |    |    |        |
| Complete testing & final report  |                           |      |          |          |    |    | xxxxxx |

PROJECT COSTS:

| <u>Fiscal Year</u> | <u>In-House</u> | <u>OGA/Contract</u> | <u>Total</u> |
|--------------------|-----------------|---------------------|--------------|
| FY98               | \$ 60K          | \$ 75K              | \$ 135K      |
| FY99               | 65K             | 110K                | 175K         |

DELIVERABLES: An "Odor Index" relating specific types of odors to specific population groups around the world. This index would also detail the chemicals required to duplicate those odors. Techniques for microencapsulating those same odors for selected release conditions would be determined. Finally, a small, hand-held, prototype delivery device will be supplied, along with a technical report describing all of the above.

ORGANIZATION DOC: (b)(6)

# Controlled Lachrymating Agents

Proposed Concept: Develop a system for the controlled "release" of material which would accelerate and/or induce the decomposition of materials such as CS, and a system for the controlled release of CS or other riot control agents.

Tasks: Analysis  
Demonstration  
Report

Users: All Services

Deliverables: Demostration of Technology  
Final Report

Cost and Schedule:  
FY98 - \$236,571

Start up - Oct-Nov 97  
Evaluation of decontaminants both organic and inorganic -  
Dec 97 - Sept. 98  
Decontaminant Protection - Sept -Oct 98

Enclosure (2)

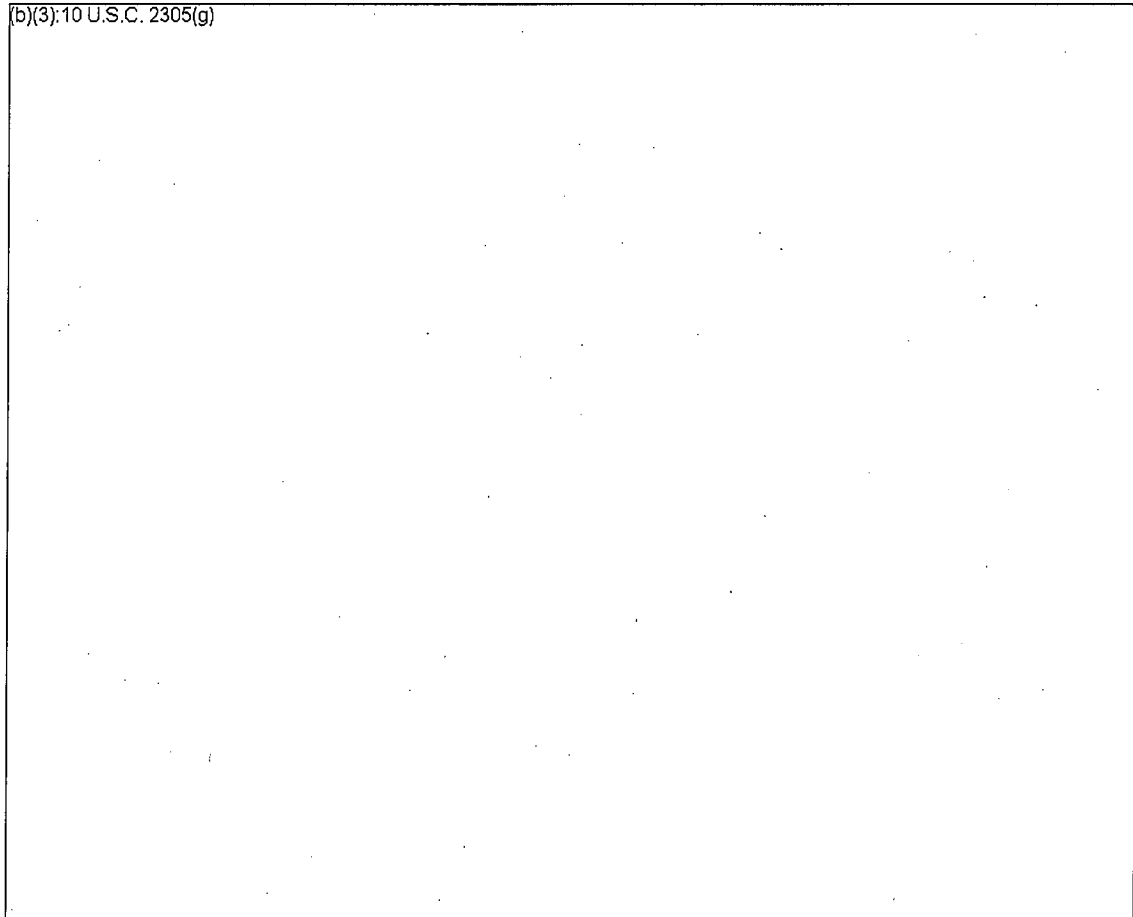
Title: Controlled Lachrymating Agents

Proposed Concept, Capability, or Technology Investment: Development of a system for the controlled "release" of material which would accelerate/induce the decomposition/decontamination of materials such as CS. Develop a system for the controlled release of agent such as CS. Combine the above in order to achieve controlled destruction of excess agent. Methodology being developed would permit either simultaneous or serial delivery of agent and decontaminant.

Potential for Joint Application: All services should be interested in this since the proposed work would lead to a less hazardous, less contaminating method for delivering crowd control agents. In addition to the specific task, the technology has the potential for delivery of a number of substances under controlled conditions. The technology has the potential for delivery of contamination control agents which would be useful for a wide variety of material (e.g. vehicles (internal/external), aircraft (internal/external), clothing). Improved/controlled dispersing of CS, and other agents, should be of interest to various groups outside of DoD. Such groups include police, DEA, etc.

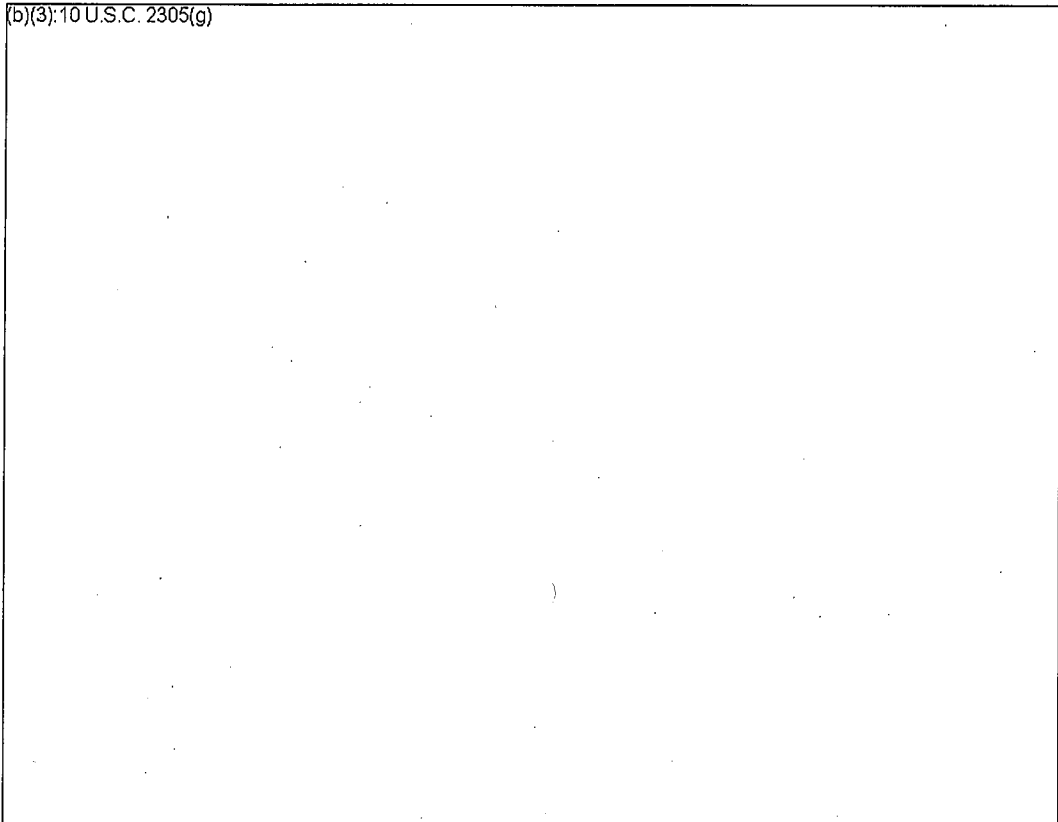
Technical Description:

(b)(3); 10 U.S.C. 2305(g)



Program

(b)(3);10 U.S.C. 2305(g)



Risk Areas:

- o That a suitable decontaminant cannot be found is a risk. This is minimized by employing both organic and inorganic materials as potential decontaminants and by conducting initial evaluations to rank order a series of decontaminants.
  
- o That the decontaminant will not be available upon demand is a risk. This risk is reduced by employing several methods for latentiating the action of the decontaminant.

Timeline:

FY98

Task      Oct.   Nov.   Dec.   Jan.   Feb.   Mar.   Apr.   May   Jun.   Jul.   Aug.   Sept.

Start Up      -----

Evaluation of  
Decontaminants  
(organic and in-  
organic)      -----

Decontaminant Protection      -----

Cost:

Project Engineer 1/3 time x 1760 hrs/man-year x \$77.65/hour = \$45,550  
Team Leader      1/12 x 1760 x \$77.65 = \$11,389  
Clerical            1/12 x 1760 x \$77.65 = \$11,389  
Contracts - \$168,243

**TOTAL COST - \$236,571**

Deliverables: Final report and technology demonstration.

Technical POC:

Name: (b)(6)  
Address:  
  
Phone Number:  
  
Fax:  
  
E-Mail: