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QUARTERLY TECHNICAL PROGRESS REPORT

1 November 1970 - 31 January 1971

Technical progress in this period was as follows:

- 1) Acquisition and review of applicable reports and data,
- 2) Preliminary organization of a systematic approach to the problem of personnel incapacitation, and
- 3) Two ad hoc evaluations of proposed incapacitation systems.

1. Thirty-eight unclassified and twenty-five classified documents are now on hand, covering a wide range of electrical, chemical, sensory and physical means of restraint or behavior control. Each of these documents has been screened by one or more staff members.

2. On 18 November 1970, a report on an [ ] flashblindness simulation proposal was forwarded to [ ] It was concluded that it might not be possible to extrapolate the proposed simulation results to levels of flash intensity that would be useful operationally. The risk of permanent eye damage at high light levels, furthermore, would not be clarified by the tests. The performance tasks proposed were not detailed sufficiently to determine their relevance to real situations. Several operational drawbacks of the flash blindness technique itself were pointed out, for example, the critical positioning of flares with respect to the subject by reason of the inverse square law, and the limited usefulness during the daytime, and the conspicuity of the technique at night. The short time of effectiveness makes this technique more useful as an adjunct system than as a primary behavioral control technique. Primate studies were suggested as a means of establishing damage thresholds and performance decrements under actual (rather than simulated) flash conditions.

3. On 31 December 1970 a memorandum on the [ ] non-lethal electrified net system was forwarded to [ ] Unfortunately, the data provided by the manufacturer are not completely explicit. Based on certain assumptions

about the device, it was concluded that a) under some conditions the [redacted] could cause partial incapacitation by paralyzing the subject's arms; and that b) it would be unlikely to kill healthy people. Disadvantages of the system stem from the extreme variability of the skin resistance factor -- depending on surface contact area, humidity, body sweat, etc., the likelihood of the net shorting itself out, the ineffectiveness against fully clothed subjects (who might even be wearing gloves), and the probability that the subject, even though his arms were immobilized, could still run and free himself from the net. The effectiveness of the [redacted] therefore, is open to question. A rough circuit diagram of a device which fulfills the specifications of the [redacted] was prepared.

4. Consideration has been given to a systematic approach to the incapacitation problem. There is a spectrum of situations or scenarios in which immobilization or restraint systems would be desirable. These range from a situation in which there is a single assailant (such as a hijacker) who must be subdued in the presence of a large number of innocent bystanders, to a one-to-one confrontation between individuals, to an individual (such as a diplomat) or small group surrounded by a large hostile crowd, to a full-scale riot situation. Each of these situations has different technical requirements for an optimum system.

Incapacitation systems can be categorized in several other ways. They may be grouped according to the general method used:

- Psychological
- Impact
- Chemical
- Sensory
- Restraining
- Electrical

or they may be categorized according to the agent employed

- Projectiles
- Bases
- Sound

Light  
Shock wave  
Nets  
Bolas  
Polymers  
Drugs, etc.

Regardless of what type of device is used, certain attributes of each system need to be considered, as they apply to different scenarios:

Degree of incapacitation  
Delivery System  
Length of incapacitation  
Speed of action  
Requirement for antidote  
Residual effects  
Lethality risk  
Risk of system failure/countermeasures  
Range  
Covertness  
Suitable for individual (or group)  
Safety of user  
Size and weight  
Environmental requirements  
Shelf life  
Training requirements

Plans for future work

Definitive work on a systematic evaluation of known and promising personnel incapacitation techniques awaits a conference with [redacted] tentatively scheduled for March, 1971.

The following steps will be taken in the meantime:

1) Literature search will be carried out as follows:

[redacted] Document Collection

Document Library (computer search)

Medical Library

Library and

Medical School Library

- 2) Schematics for a type device will be forwarded \*
- 3) An evaluation of a patent of an electrified projectile will be forwarded \*

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\* These reports are enclosed

QUARTERLY TECHNICAL PROGRESS REPORT

1 February 1971 - 30 April 1971

Technical progress in this period was as follows:

- 1) Submission of possible schematics for a [redacted] type device.
- 2) Evaluation of a patent of an electrified projectile.
- 3) Completion of literature search of the following libraries:

[redacted] Document collection  
[redacted] Document Library  
[redacted] Medical Library  
[redacted] Library

[redacted] Medical Library  
[redacted] Police Academy Library

- 4) Presentation of a group of status reports to the Project Monitor during his visit [redacted] on 20 April 1971. The items presented were:
  - a) a general outline of the Behavioral Control Support programs to date.
  - b) a summary of the Behavioral Control literature review
  - c) Brief descriptions of several real-life situations and possible incapacitating agents applicable to each (preliminary only)
  - d) Suggestions for future activities under Behavioral Control Support Project.

1. This report was submitted on 12 February 1971. The possible schematics for the [redacted] are essentially:

- a) an auto ignition system and
- b) a DC to DC converter

An output voltage of only 4000 volts is specified in the postulated system (as opposed to 20 Kv for the [redacted] system) because of the extremely short battery

life and arcing problems that would exist with the higher voltage system.

2. U.S. Patent 3,523,538 describes an electrical shock-producing projectile. The projectile would be incapable of producing the "false epilepsy," as claimed by the inventor, would have a limited range, and besides being ineffective it could possibly harm the victim.

3. A description of the literature search is given under 4(B).

4. The status reports presented to the Project Monitor will be found in attachments A, B, C and D.

## BEHAVIORAL CONTROL SUPPORT

### General Outline of Program

1. Review Literature

- |                           |                                  |
|---------------------------|----------------------------------|
| a) Police and criminology | c) Patents and proposals         |
| b) Medical and scientific | f) Science fiction, comics, etc. |
| c) Military               | g) Other                         |
| d) International          |                                  |

2. Describe the factors which constitute the generalized conflict/control situations of interest:

- a) number of antagonists
- b) number of protagonists
- c) intensity range of hostilities (actual or predicted)
- d) time scale
- e) location/mobility/environmental factors
- f) availability of additional support
- g) effects desired
  - i) offensive (calm, disperse, arrest, subdue, incapacitate, immobilize)
  - ii) defensive (avoid hostilities, self-protection, escape/flight)

3. Prepare brief, representative real-life situations to serve as examples and help generate ideas:

- |                          |   |
|--------------------------|---|
| a) Surrounded automobile | d) the crowd                              |
| b) Lone individual       | e) Pursuit                                |
| d) The snatch            | f) Protection of individuals and property |

4. Study available and proposed weapons/devices and strategies in light of desired effects and user-criteria dictated by various situations.

5. Compile lists of as yet undeveloped devices/weapons and recommend design and bench testing of those judged most valuable. Some possible examples:

- a) [or similar agent for rapid, transcutaneous administration of drugs
- b) Synchronized strobe lights and sound stimuli at critical frequencies
- c) Various undetectable (or subthreshold) physiological insults
- d) Low-velocity, high-mass, low psi projectiles: "jet-propelled medicine ball"
- e) \_\_\_\_\_

6. Respond to ad hoc requests for evaluation of concepts, proposals, patents, etc.

- a) \_\_\_\_\_
- b) \_\_\_\_\_
- c) Japanese patent
- d) Others

BEHAVIORAL CONTROL LITERATURE REVIEW

To date, our search for behavioral control literature has included the following local libraries, all of which yielded some information:

Department

- document library  
 - medical library

- general library  
 - medical library

} Police Academy

The original 50 documents received at the start of the contract have been thoroughly reviewed by Drs. | Those publications, by nature of their pre-selection, pertinence and variety, are still the core of our incapacitation literature. Several of them were used in a pilot run in order to devise the evaluation form, shown in Attachment A. This form will be used later to provide quick reference to factors from selected proposals and techniques.

In February 1971, all the literature then in our possession was screened for bibliographic references to other works. A master list was made, from which library searches were conducted. By March it had become obvious which material was not available locally, and those items remaining on the list were then ordered through the |(28 unclassified documents) or through Washington (26 classified items). As of April 19, sixteen unclassified documents were still on order, along with the classified material.

The library work also included a search of card catalogs and indices of ~~abstracts for 30-40 pertinent topics~~, as well as a search of recent volumes of approximately 15 journals. All of the locally available literature has been procured, cross-indexed, screened and filed (the cross-index categories are given in Attachment B). The collection consists of 135 items at this time.

## Conclusions

Our literature search has been comprehensive enough to draw the following conclusions:

1. As expected, the open literature does not mention any innovative hardware which could be easily adapted to our purposes.
2. The greatest concentration of published material has been in the categories of light (flashblindness), sound (all frequencies), electricity (shock, electronarcosis, electromagnetic radiation) and chemicals (drugs and gases). Very little open literature is available on biological weapons, odor, temperature, vibration or applicable psychological methods of incapacitation.
3. It appears that certain gaps in the literature can be filled only by obtaining classified documents through Washington.
4. The police literature is mainly concerned with riot control. The police appear to be the recipients rather than the initiators of research into new techniques of behavioral control.
5. Our group now has a broad and general conception of current incapacitation devices and techniques. The most profitable course for further search of the literature would be to narrow our fields of interest (as proposed in the program for the coming months), and collect information in those specialized areas.
6. An ongoing, general survey of published material concerning personnel incapacitation will be maintained ~~regardless of the focus or direction taken in our future program.~~ *regardless of the focus or direction*

Reviewed by: \_\_\_\_\_ Serial No. PI- Doc. No. \_\_\_\_\_

Date: \_\_\_\_\_ Title \_\_\_\_\_

Techniques: \_\_\_\_\_

Incapacitation  
degree of \_\_\_\_\_

length of \_\_\_\_\_

Speed of Action \_\_\_\_\_

Residual Effects \_\_\_\_\_

Lethality Risk \_\_\_\_\_

Dependability \_\_\_\_\_

Countermeasures \_\_\_\_\_

Range \_\_\_\_\_

Delivery System \_\_\_\_\_

Size/Weight \_\_\_\_\_

Covertness \_\_\_\_\_

Shelf Life \_\_\_\_\_

Safety/Training  
of User \_\_\_\_\_

Individual vs.  
Group \_\_\_\_\_

Environmental  
Dependence \_\_\_\_\_

Public Image \_\_\_\_\_

Remarks:

Scenarios:

CROSS-INDEX CATEGORIES

AD number  
Authors  
Bibliography  
Biological  
Central Nervous System  
Chemical  
    drugs  
    gases  
Electrical  
Facilities  
History  
Impact  
PI- number  
Proposal  
Psychological  
Restraining  
Sensory  
    light  
    odor -  
    pressure  
    shock  
    sound  
    temperature  
    vibration  
Theory -  
Titles  
Tolerance/Antidote

## REAL-LIFE SITUATIONS

### Surrounded Automobile

(Diplomat; Police; Stop and Search)

This situation entails one or two individuals inside their car, surrounded and outnumbered by a hostile group, in a potentially unfriendly environment such as a foreign country, riot area or inspection checkpoint. The confined space of the automobile can be an asset and must not become a trap. Pre-installed incapacitation equipment can be utilized providing the individuals remain in their own car, otherwise portable equipment would be required. The least amount of force needed, either to calm the hostile group or to make a "getaway," would be highly desirable from the standpoint of good will; trying to calm the group can be expected to consume more time than getting away by car from a group which is on foot. Safety for innocent bystanders may be of limited concern.

#### Incapacitators

persuasion (loudhailer)  
lures (hand-outs etc.)  
dyes  
stench  
tear gas;  
aerosols; skin penetrants  
car-top sprinkler  
fire extinguisher  
blown sand, heat or smoke  
marshmallow barrage  
extendable booms: with oil, foam,  
~~bubbles, chemicals, smoke~~  
~~extendable rotating sticks~~  
car-top light  
loud sound  
insects (released outside car)  
slick ground surface  
electrified car

#### Protection \*

bullet proofing  
ear defenders  
electric ground  
gas mask  
goggles  
independent air supply  
sealed car

---

\* Protection is for the operators; some items listed could also be used by antagonists as countermeasures.

### Lone Individual

Perhaps the most vulnerable situation is that of a single person who may have numerical odds against him, with no vehicle nor any other source of aid, who must protect himself outdoors. His immediate need is for small, unobtrusive equipment (and possibly protective gear) which he can instantly utilize and rely on for complete incapacitation of his-assailant(s). If the general environment is unfriendly, he may need to re-use the equipment in order to reach safety.

#### Incapacitators

stench  
smoke screen  
combined smoke and gas  
tear gas  
aerosols; skin irritants  
|  
impact balls that break:  
    smoke, stench, Mace  
darts with drugs  
marshmallow barrage  
taffy pellets  
night stick/baton  
shock  
karate/judo  
stun gun  
big net  
adhesives  
bolas  
slick foam (sprayed or hurled)  
heat-seeking device to trip, tackle  
load SOUND  
light  
instant barrier  
radio-controlled barrier

#### Protection

bullet-proof vest  
car defenders  
gas mask  
goggles  
inflatable plastic helmet  
inflatable plastic shield  
pocket bicycle

## The Snatch

In this situation the advantage is with several persons who wish to incapacitate one or two others, in an outdoor environment such as a war zone. Because the operation must be swift and perhaps surreptitious, it may well be nocturnal. Protection of bystanders or property is probably unnecessary. Incapacitation techniques must be fast-acting, may require protection for the operators, and should leave the victim in a subdued but moveable condition. Any devices used should be portable or -- if the location is known beforehand -- deployable.

### Incapacitators

instant barrier fence  
radio-controlled barrier with heat,  
light, smoke, stench  
plastic cocoon  
taffy pellets  
nets, snares, adhesives  
darts with drugs  
water hose  
karate/judo  
dogs  
night stick/baton  
dyes (including infrared)  
chemicals/smoke  
tear gas  
Mace  
aerosols  
blown sand, dust  
swarm of insects  
sound  
~~light~~

### Protection

beekeeper's suits  
camouflage suits  
ear defenders  
gas masks  
goggles

## The Crowd

Behavioral control of a crowd is probably the most complex situation to be considered. Many individuals, potentially hostile as a "mob", must be controlled but not particularly harmed. In addition, fringe participants and adjacent property should be protected. A primary method of control is through dispersal of the crowd, which means they must retain their mobility to some degree. Techniques of control which allow gradations of intensity of action and an expandable time frame are recommended. Methods of control are more limited if the crowd is gathered indoors. Devices should be portable although their deployment beforehand may, in some cases, be possible, and pre-installed devices on official vehicles may be available. Overt techniques have positive and negative aspects: they may intimidate the crowd or they may become targets for the crowd's hostility. Selective incapacitation of the crowd's leaders is an effective technique. The operators in this situation often consist of a large, trained group such as the police; in any case, safety of the operators may depend on their protective gear.

### Incapacitators

lures (spectacle elsewhere etc.)  
rumor control/oratory  
loudhailer (persuasion - drowning  
noise - synchronized sound)  
synchronized strobe + sound, pulses  
robot rovers that emit flashes, heat,  
chemicals, smoke, stench, or  
~~broadcast~~  
extendable booms that emit same  
light  
foam; foam grenades  
bubbles  
slick surface/oil  
stench  
dye  
smoke  
chemicals: tear gas, Mace  
balls that break, emitting chemical  
aerosols  
drug darts for ring leaders  
car-top sprinkler  
night sticks/batons

marshmallow barrage  
nets/snare  
barricades  
dogs/horses  
insects

### Protection

beekeeper's helmet  
ear defenders  
earphones  
gas masks  
goggles  
rubber boots

## Pursuit

This situation may follow that of the "Surrounded Automobile:" one or two persons in a car are being pursued by the occupants of another car, in what must be considered an unfriendly environment. The advantages to be exploited are: maneuverability of the vehicle (to utilize wind direction, for example); pre-installation of devices; protection afforded by the car's own shielding. Devices should be covert when not in use, quick acting because the pursuers may have lethal weapons, and capable of stopping the chase. This may be accomplished by: incapacitating the following driver, immobilizing the pursuit car, obscuring its path, barring its path, or disguising the operators' car or occupants. Re-use of the chosen techniques may be required if more than one vehicle joins the pursuit.

### Incapacitators

license-plate change  
external change in car's color, etc.  
pop-up people in lead car  
smoke screen  
blown sand  
paint on windshield  
foam (on road or windshield)  
oil slick  
light beam (nighttime)  
instant barrier  
wire across road, about 48" high  
extendable boom (if close behind)  
pop-up deterrent shapes  
tetrahedrons  
nails strewn on road  
rolling shapes strewn on road  
rolling barrier attached by wires  
to lead car  
explosion under car  
gas grenade

### Protection

bullet proofing  
goggles

## Protection of Individuals and Property

A preventive and defensive situation occurs when the locale of a person (public speaker) or a piece of property (store subject to looting) must be protected. Assailants can approach from any direction but the protected object remains stationary. One or more "bodyguards" provide the defense against one or more assailants. A reasonably friendly environment can be supposed, which limits the useable techniques to those which will not seriously affect bystanders (nor the operators, the protected individual or the property). The devices should be aimed directly at the offenders only, and should reliably incapacitate them. The degree of incapacitation can depend on the severity of the attackers' intended crime. In all cases it seems desirable that the devices be quick-acting, portable and covert, so that they can be used in a variety of "stay-put" circumstances.

### Incapacitators

rhetoric  
electrical shield  
light beam  
taffy pellets  
hurled foam, smoke  
Mace  
dart with drug  
jet-propelled medicine ball  
bola  
karate/judo  
night stick/baton  
stun gun  
balance disruption

### Protection

instant plastic shield

5. Conduct feasibility studies of promising new approaches. For example, one potentially fruitful research area, probably worth evaluating, involves chemicals such as [redacted] which rapidly penetrate the skin and may serve as carrier vehicles for chemical agents for behavioral control. The control agent (e. g., irritant, anesthetic, synaptic blocker, etc) could be mixed with the skin penetrant and delivered in liquid, gel or aerosol form via projectiles, for accurate delivery to individuals, or via sprayers, for group administration. Other techniques, such as [redacted] could also be evaluated.

6. Exploratory animal studies. Brief, preliminary studies with promising chemical or physical techniques may be attempted if time permits and conditions justify such an effort.

## QUARTERLY TECHNICAL PROGRESS REPORT

1 May - 31 July 1971

Technical work during this period was directed primarily towards collection, cataloging, review and appraisal of documents related to all aspects of personnel incapacitation. More than 160 documents have been so processed and many others have been screened. While there are dozens of good libraries throughout the country which have not been visited, the diminishing returns from our literature search suggest that we are in touch with the largest bulk of thought on this subject. Further intensive literature review would appear to add little, other than detail, to the information already at hand.

A great effort has also been made to conceive of "new" approaches to the problem of non-lethal behavioral control. Discussions between project members and unclassified exchanges with others have been initiated. Very little thought which could be described as "new" has resulted from this. So far, only two possible techniques, not reported in the available literature, would appear to warrant further consideration.

1)

2)

A further review will be carried out to determine whether either or both of the above techniques are actually feasible.

A course of action has been formulated for presentation to the project monitor in August. Briefly, the remaining contract effort will be directed as follows:

1. Literature review: A continued effort will be made to acquire and review new documents and other material related to personnel incapacitation. It is expected that no more than 10% of the remaining effort will be spent in this activity.

2. Evaluation of "new" methods of personnel behavioral control: An effort will be made to determine the feasibility of using agents such as \_\_\_\_\_ for incapacitation of humans. This research would be preliminary, being limited to theoretical considerations. No "bench" testing or animal testing is envisaged at this time. If possible, other new concepts will also be generated and examined. Approximately 30% of the remaining effort will be spent on "new" techniques.

3. A state-of-the-art review will be prepared using a system approach to the incapacitation problem. Each group or family of techniques will be considered separately. Some of the major categories are as follows:

Missiles, ballistics/impact  
Light, electromagnetic radiation  
Sound  
Electric currents  
Drugs, chemicals  
Physical restraint

Psychology, verbal persuasion  
Miscellaneous (odor, slippery foam, etc)

Various aspects of each group of techniques will be reviewed, for example:

Physical aspects of the agent  
Delivery system  
Physiological, biochemical or psychological mechanisms;  
medical considerations  
Results or effects, type and degree of performance decrement  
Operational factors (portability, reliability, etc)  
Possible applications and limitations  
Recommendations

Descriptions of any new techniques which appear feasible will be included in the report.

#### Administrative Aspects

1. [redacted] an analyst who has done much of the literature research on this project will be terminating [redacted] (employment as of 1 October 1971. [redacted] a physicist and research analyst, will continue [redacted] work. [redacted] holds current TOP SECRET and Special Clearances with [redacted] M.D., who also holds TOP SECRET and Special Clearances, will work on the medical and clinical aspects of this project.

2. As of 31 July 1971, only 23.3% of the available funds had been spent (compared with a projected 75%). Accordingly, work on the project is considerably behind schedule and it will be necessary to request an extension of time, without additional funds, to complete the work. A six-months no-cost extension to 30 April 1972 is therefore requested.

QUARTERLY TECHNICAL PROGRESS REPORT

1 November 1971 - 31 January 1972

During this quarter, our main emphasis has been on the preparation of a series of reports, based on a systems approach to several groups or families of techniques for incapacitation. Rather than to re-review superficially every possible type of incapacitation technique, our effort has been concentrated in areas 1) where a medical or physiological evaluation (as opposed to ballistics, pyrotechnics, etc.) would offer a useful contribution; 2) where there appeared to be some promise of usefulness of the technique, and 3) where a technique appeared to be new or insufficiently studied.

A report entitled, [redacted] As a Vehicle For Incapacitating Agents, " was completed in December and forwarded to [redacted] does not appear to be a promising vehicle for administration of incapacitating agents, principally because of the long time required for "carried" substances to reach peak blood concentrations. Any dosage large enough to provide rapid incapacitation would be dangerously large, if not fatal, at the time of maximum blood concentration. Besides being slow, too many variables affect the absorption of [redacted] agent combinations and the fact that the technique cannot be used surreptitiously offers several possibilities for countermeasures. A second, informal report on the "Possible Interaction Between [redacted]" was submitted in January.

The report on non-penetrating impact, completed in late January was scheduled for submission early in February, 1972. In spite of the widespread use of billy clubs, special ordnance rounds and other impact devices, useful incapacitation by means of impact remains either unreliable (at the "safe" extreme) or hazardous at levels which will reliably incapacitate the subject. Blows to the genitalia in males and high-velocity, low-mass impacts appear to be the only truly safe methods of incapacitation. The latter is of only limited effectiveness.

The next two activities will be brief reviews of [redacted] as a possible

incapacitating agent and of the [redacted] electric shock system.

Administrative Aspects

Expenditures to date:

	<u>Quarter Amount</u>	<u>% of Total</u>	<u>Cumulative Amount</u>	<u>% of Total</u>
Nov 1970-Jan 1971	\$	1.2	\$	1.2
Feb - Apr 1971		14.4		15.6
May-Jul 1971		7.7		23.3
Aug-Oct 1971		22.3		45.6
Nov 1971-Jan 1972		31.1		76.6

FINAL TECHNICAL PROGRESS REPORT

1 February 1972 - 30 April 1972

During the final quarter the last Systems-oriented report was prepared and submitted: [redacted] as an Incapacitating Agent

While [redacted] is a relatively safe incapacitating agent, variations in individual susceptibility, possible delayed effectiveness due to breath-holding and difficulty in rapid, surreptitious delivery -- especially in a large room that is not reasonably airtight -- limit its usefulness as an incapacitating agent.

Major emphasis during this quarter was also placed on providing, in a readily available form, the maximum amount of practically useful information from previous reports. To this end, unclassified versions of the reports on electric shock and non-penetrating impact were submitted: Incapacitation of Criminals by Non-Penetrating Impact and Incapacitation of Criminals by Electric Current.

Of all the specific incapacitation systems examined, the [redacted] device appears to be the most promising. Dr. [redacted] cardiologist, Dr. [redacted] visited [redacted] and submitted a special report on their device, with recommendations for animal studies which would help validate the physiological safety of this incapacitation technique.

The final activity undertaken under this project was a brief ad hoc review of the Soviet technique known as Kirlian photography. Biological materials, when placed along with photographic film in a high-voltage radio frequency field produce a picture which shows details of the object not visible under ordinary light. With the help of [redacted] on the subject, a simple instrument was developed and satisfactory Kirlian-type photographs were obtained in both color and black-and-white.

Summary of reports, letter reports and substantive reviews submitted under  
Project

Letter report on U. S. Patent 3, 523, 538

Letter report on [redacted] with circuit diagram

30 April 1971 Status reports:

General Program Outline  
Behavior Control Literature Review  
Real Life Situations  
Program for Continuation of Work

Report: Electric Current as an Agent for Personnel Incapacitation

Report: [redacted] as a Vehicle for Incapacitating Agents

Report: Non-Penetrating Impact as an Agent for Personnel Incapacitation

Report: [redacted] as an Incapacitating Agent

Letter report: Possible Interactions Between [redacted]

Letter report: Trip Report "Visit to [redacted]"

Report: Incapacitation of Criminals by Non-Penetrating Impact

Report: Incapacitation of Criminals by Electric Current

Ad Hoc Report: Investigation of Kirlian Photography

6 Quarterly Technical Progress Reports, which includes the Final  
Technical Progress Report and,

16 Monthly Contract Status Reports, which includes the final monthly  
report.

Administrative Aspects

Expenditures to date:

	<u>Quarter Amount</u>	<u>% of Total</u>	<u>Cumulative Amount</u>	<u>% of Total</u>
Nov 70 - Jan 71	\$	1.2	\$	1.2
Feb - Apr 71		14.4		15.6
May-Jul 71		7.7		23.3
Aug - Oct 71		22.3		45.6
Nov 71 - Jan 72		31.1		76.6
Feb 72 - Apr 72		23.4		100.0