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# PROJECT SQUID

A COOPERATIVE PROGRAM OF FUNDAMENTAL RESEARCH  
AS RELATED TO JET PROPULSION  
OFFICE OF NAVAL RESEARCH, DEPARTMENT OF THE NAVY  
Contract N00014-75-C-1143, NR-098-038

## REPORTING PROCEDURE

PROJECT SQUID HEADQUARTERS  
CHAFFEE HALL  
PURDUE UNIVERSITY  
WEST LAFAYETTE, INDIANA 47907

DC  
OCT 18 1976  
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STATEMENT A  
Approved for public release;  
Distribution Unlimited

AN OFFICE OF NAVAL RESEARCH PROGRAM

October 1976

The cover illustration is a cluster of boron particles, ignited by a focused laser beam in air. Stroboscopic timing marks (0.35 msec) are superposed on particle tracks. (From a research project conducted at the Atlantic Research Corporation, by A. Macek and J. M. Semple, under SQUID sponsorship.)

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14 SQUID  
Report PU-R3-76

6 PROJECT SQUID Reporting Procedure

A COOPERATIVE PROGRAM OF FUNDAMENTAL RESEARCH  
AS RELATED TO JET PROPULSION  
OFFICE OF NAVAL RESEARCH, DEPARTMENT OF THE NAVY

15 CONTRACT NO 0014-75-C-1143 NR-098-038

REPORTING PROCEDURE

11 OCTOBER 1976

12 33p.

PROJECT SQUID HEADQUARTERS  
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PROJECT SQUID  
REPORTING PROCEDURES

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# P R O J E C T S Q U I D

## REPORTING PROCEDURES

### INTRODUCTION

Research investigators supported by the Government are contractually required to make known the results of their research to the sponsor and to other interested scientists and engineers. This manual sets forth the procedures by which participants in the Project SQUID Program may discharge their reporting obligations.

There are four kinds of reports which Project SQUID investigators *must* write. They are (1) Two Progress Reports, one in March and the other in September each year, (2) One Status Report in October each year, (3) Technical Reports, and (4) Final Report. Each of these has a particular function which determines its structure, content, method of reproduction and distribution. The following pages comprise a set of instructions for the preparation of each type of report.

In regard to publication of results of research other than as Technical Reports, for example in a journal article, some guidelines have been established and they are also described at the end of this outline of reporting procedures.

If any author has any questions which are not answered by these instructions, he is urged to call on SQUID Headquarters for help.

## I. SEMI-ANNUAL PROGRESS REPORTS

A consolidated report of progress in the entire SQUID Program is distributed every six months to a mailing list of about two hundred fifty names. The nominal distribution dates are 1 April and 1 October. In order to achieve rapid reproduction and distribution, the Semi-Annual Progress Report is prepared by multilith offset printing directly from direct image paper plates. There is no editing or retyping. It is imperative that the component sections of the report be neat and be submitted promptly. Both author and typist are urged to follow explicitly the instructions below.

### A. Due Date

One Report is due by March 15 and the other is due by September 15 each year.

### B. Procedure

The multilith plates (10 x 15½ inches) should be sent to Project SQUID Headquarters at Purdue University. The plates are due on 15 March and 15 September, respectively, for the 1 April and 1 October reports. Normally, a reminder letter will be sent out well in advance, but do not wait for it. It is extremely important that the copy be received on time so that the consolidated report can be prepared and distributed promptly. If you have any questions or need any help, do not hesitate to get in touch with SQUID Headquarters.

### C. Content (Instructions for Author)

The consolidated SQUID Progress Report accounts for over twenty separate investigations. It is primarily directed at readers who have

only a general interest in what is going on. Therefore, each component part should be brief and to the point. Three to five pages should usually suffice to describe the significant results and progress during the reporting period. Under exceptional circumstances more space may be required. The Progress Report should comprise what you might say in a few minutes to a casual visitor. It should not serve as a catch-all for preliminary data, random ideas, or accounts of mechanical difficulties. (By the same token, a Progress Report is not a proper reference to previous work. Technical Reports are the appropriate repositories for data and results.) Drawings and pictures are generally out of place and should be eliminated. Put any data necessary for illustrative purposes in tables. If figures or photographs are absolutely required, the layout work, including appropriate spacing and scaling of the figures, must be done by the contractor. (See "Technical Reports," paragraph III.C.3). No reduction or enlargement can be done by the printer.

The following items should be included in each component report. Details on arrangement will be found in the following section on format.

1. Identification: A separate report should be prepared for each Subcontract. The first page of each such report should begin by showing the descriptive title of the research, the name of the Laboratory, Subcontract number, and name(s) of the Chief Investigator and other participants in the program.
2. Introduction: The body of the report should commence with a paragraph entitled "Introduction." This paragraph is for the purpose of orienting the reader and should be a brief summary of the background and objectives of the investigation.

3. Discussion: The second section of the report should be entitled "Discussion," and should contain the actual report of progress. If the research effort has been broken down into several problems, the titles may be inserted as subheadings in this section.
4. Notes and References: The last section of the report is entitled "Notes and References." It should contain whatever references to other work or publications it was necessary to include in the discussion. In addition, any remarks which might normally be found in footnotes should be included.

D. Format (Instructions for Typist)

Please follow these instructions closely so that the consolidated report will have a uniform and pleasing appearance. If in doubt on any point, refer to a previous issue of the Progress Report or write SQUID Headquarters.

1. Multilith Plates: The multilith paper plates should be medium run, 10 x 15½ inches, pinbar or slotted. The multilith paper plates must be prepared with a typewriter ribbon specified for that purpose. These are available for all types of machines from your regular ribbon dealer. The recommended ribbon to be used with the multilith plates is either the mylar or the carbon ribbon. If your machine is not designed to use this type of ribbon, a silk or nylon multilith ribbon will be satisfactory. The first line of type, the Descriptive Title, should start opposite the number 7 on the left and right hand edges of the plate. The last line of type should not fall below line 56 on

the plate. NO NOT EXCEED THESE LIMITS. Left and right hand margins should be located  $1\frac{1}{2}$  inches from the outside, dotted, verticle lines on the plate (maximum width of text not to exceed 6 inches.

2. Typing: Single spacing should be used with double spacing between paragraphs. The typewriter used should have elite type, if at all possible. (This is the smaller of the two kinds normally encountered, the larger being known as pica.) The ribbon should be new and the type clean so that clear black impressions will be made. A few minutes spent in preparing the typewriter will pay big dividends in final appearance. A uniform touch should be used in typing which is sufficient to deposit a clear, unbroken image. The type pressure should not be so great that "hollowing out" of the center of the letters occurs. Minor corrections can be made by using the special eraser made by the manufacturer of your plates. Erasures should be made with a lifting stroke, lifting out the deposited carbon, and not with a scrubbing motion. The typed portions being erased need not be made completely invisible; only the carbon which has been deposited must be removed when making a correction. Corrections should not be made by the use of opaque or by pasting the correction to the paper plates. Plates which are corrected in either manner are not reproducible on the off-set printing machine. Reproducible pencils are to be used for any line work while nonreproducible pencils may be be used for proofreading marks. In general, it is wise to follow the "Instructions for the Typist" which come in each box of multilith plates. DO NOT NUMBER THE PAGES.

3. Spacing:

- (a) Descriptive Title - Capitals, centered, single spaced (if more than one line) starting on line 7.
- (b) Name of Laboratory - Lower case, centered, four spaces below last line of title, followed colinearly by the Subcontract number.
- (c) Personnel - Names of investigators, Chief Investigator, first, lower case, centered, single spaced if more than one line, beginning four spaces below name of Laboratory.
- (d) Introduction - Title should be centered, underscored, lower case, six spaces below last line of Personnel. First line indented five spaces beginning four lines below Title. Remaining lines double spaced.
- (e) Discussion - Title should be centered, underscored, lower case, six lines below last line of Introduction. First line indented five spaces beginning four lines below Title. Succeeding lines double spaced. Subheadings start at left-hand margin, lower case, underscored, with subsequent text starting immediately on same line.
- (f) Notes and References - Title should be centered, underscored, lower case, six lines below last line of Discussion. First item four lines below Title. Single space between lines of same item, double space between items. Each item should be numbered with an Arabic numeral relating to the identical numeral, colinear and in parentheses, at the appropriate place in body of text.

There is a sample first page following for your convenience. Please follow it explicitly.

SAMPLE FIRST PAGE

Semi-Annual Progress Report

PHOTOCHEMICAL EXCITATION AND IONIZATION AHEAD OF SHOCK WAVES

↑  
↓  
(4 spaces)

Brown University, Providence, Rhode Island  
Subcontract No. 4965-20

↑  
↓  
(4 spaces)

Professor R. A. Dobbins, Principal Investigator  
Mr. H. Semerjian, Research Assistant  
Mr. H. Gerhardt, Research Assistant

↑  
↓  
(6 spaces)

Introduction

↑  
↓  
(4 spaces)

The purpose of this research is to develop spectroscopic techniques for diagnosis of shock wave precursor effects, and to compare the experimental results with the theoretical calculations to determine the dominant processes responsible for creation of electron-ion pairs in the precursor. Theoretical calculations indicate that at low initial pressures ( $\sim 0.1$  torr) direct photoionization from the ground state atoms is the dominant mechanism, while at higher pressures ( $\sim 10$  torr) photoexcitation becomes a much stronger effect than direct photoionization, and photoionization from the excited atoms becomes the major source of ions in the precursor. This suggests that atomic absorption spectroscopy can be used to detect the excited atom population. This technique is a powerful tool for such a study, since the effect of impurities is nil, which is not the case for electron concentration measuring devices.

## II. STATUS REPORTS

A comprehensive report of the status of the entire SQUID program is prepared once a year for official use only. The nominal date of preparation of this report is November 1, each year. In order to achieve rapid reproduction and distribution, the Status Report is prepared by multilith offset printing directly from direct image paper plates. There is no editing or retyping. It is imperative that the component sections of the report be neat and be submitted promptly. Both author and typist are urged to follow explicitly the instructions below.

### A. Due Date

The Report is due by October 15 each year.

### B. Procedure

The multilith plates (10 x 15½ inches) should be sent to Project SQUID Headquarters at Purdue University. The plates are due on 15 October for the 1 November report. Normally, a reminder letter will be sent out well in advance, but do not wait for it. It is extremely important that the copy be received on time so that the consolidated report can be prepared and distributed promptly. If you have any questions or need any help, do not hesitate to get in touch with SQUID Headquarters.

### C. Content (Instructions for Author)

The consolidated SQUID Status Report accounts for over twenty separate investigations. It is primarily directed at readers who wish to be informed of the program objectives and progress in relation to other programs being supported at the same time. Therefore, each

component part should be brief and to the point. One or two pages should usually suffice to describe the significant status results and progress during the reporting period. The Status Report should comprise what may be recorded in an index for ready reference. Drawings and pictures are entirely out of place and should be eliminated.

The following items should be included in the report. Details on arrangement will be found in the following section on format.

1. Contractor: Name and address of institution
2. Subject: Title of Proposal
3. Principal Investigator: Name
4. Support Level:
  - (1) Total amount to date
  - (2) Amount for the immediate past year
5. Objective: As applicable
6. Significance: As applicable
7. Progress: A statement of progress in the project, about 250 words
8. Future Plans: A statement of objectives of the research program for the following year
9. Publications: List all publications in the past year.

D. Format (Instructions for Typist)

Please follow these instructions closely so that the consolidated report will have a uniform and pleasing appearance. If in doubt on any point, please call or write SQUID Headquarters.

1. Multilith Plates: The multilith paper plates should be medium run, 10 x 15½, pinbar or slotted. The multilith paper plates must be prepared with a typewriter ribbon specified for that purpose. These are available for all types of machines from your regular ribbon dealer. The recommended ribbon to be used with the multilith plates is either the mylar or the carbon ribbon. If your machine is not designed to use this type of ribbon, a silk or nylon multilith ribbon will be satisfactory. The first line of type, the Descriptive Title, should start opposite the number 7 on the left and right hand edges of the plate. The last line of type should not fall below line 56 on the plate. DO NOT EXCEED THESE LIMITS. Left and right hand margins should be located 1½ inches from the outside, dotted, vertical lines on the plate (maximum width of text not to exceed 6 inches).
2. Typing: Single spacing should be used with double spacing between paragraphs. The typewriter used should have elite type, if at all possible. (This is the smaller of the two kinds normally encountered, the larger being known as pica.) The ribbon should be new and the type clean so that clear black impressions will be made. A few minutes spent in preparing the typewriter will pay big dividends in final appearance. A uniform touch should be used in typing which is sufficient to deposit a clear, unbroken image. The type pressure should not be so great that "hollowing out" of the center of the letters occurs. Minor corrections can be made by using the special eraser made by the manufacturer of your plates. Erasures should

be made with a lifting stroke, lifting out the deposited carbon, and not with a scrubbing motion. The typed portions being erased need not be made completely invisible; only the carbon which has been deposited must be removed when making a correction. Corrections should not be made by the use of opaque or by pasting the correction to the paper plates. Plates which are corrected in either manner are not reproducible on the offset printing machine. Reproducible pencils are to be used for any line work while nonreproducible pencils may be used for proofreading marks. In general, it is wise to follow the "Instructions for the Typist" which come in each box of multi-lith plates. DO NOT NUMBER THE PAGES.

There is a sample page following for your convenience. Please follow it explicitly.

Contractor: Dynamic Science, Monrovia, California  
Subject: Investigation on Nonsimilar Turbulent Boundary Layer Development  
Principal Investigator: Irwin E. Alber, Thomas J. Tyson  
Support Level: \$76,000 (from start in years)  
\$28,000 (past year)

Objective: To establish a sound basis for the accurate and rapid engineering calculations of compressible and incompressible nonsimilar turbulent boundary layer development.

Significance: Knowledge of turbulent boundary layer behavior is necessary for the prediction of heat transfer, skin friction, and performance degradation due to separation in many engineering devices, e.g., rocket nozzles, engine inlets, turbine blades, and aerodynamic lifting surfaces. This program involves the development of rapid and accurate computational techniques for the analysis of high speed turbulent boundary layers subject to the effects of compressibility, adverse and favorable pressure gradients, and changes in wall temperature.

Progress: An integral method for the analysis of two-dimensional incompressible (low speed) turbulent boundary layers, which has shown good agreement with a wide variety of incompressible flow data, was extended to include the effects of (1) low speed three-dimensional side flows, (2) low speed heat transfer and wall temperature variations, and (3) adiabatic supersonic compressible flows with pressure gradients. The application of a cross flow correction to the nominally 2-d flow solution provided a small but meaningful improvement in the calculated values of  $C_f$  and  $H$ , although this simple correction cannot account for all the complexities of the extraneous cross flow encountered in many low speed experiments. Numerical solutions of the thermal energy equation for incompressible flow using an appropriate eddy conductivity model have indicated: (a) a means for independently determining the eddy conductivity constants, (b) the manner in which enthalpy profiles are affected by heat transfer, pressure gradients, and wall temperature gradients, (confirming experimental trends for high speed nozzle flows) and (c) that Reynolds' analogy can be quite inaccurate for predicting heat transfer in flows with pressure and wall temperature gradients. Additional work on the development of a fully implicit general finite difference numerical procedure has indicated the necessity of retaining the transverse momentum equation in future models and the significance of turbulence quenching or production associated with large accelerations or decelerations.

Future Plans: The program was terminated 30 September 1970.

Publications:

DYN-1-PU "Analytical Investigations of Equilibrium Layers," Alber, I.E., and Coats, D.E., AIAA Fluid and Plasma Dynamics Conference, AIAA Paper No. 69-689, June 1969.

### III. TECHNICAL REPORTS

It is required that routine approval be obtained from SQUID Headquarters before any results of SQUID sponsored research are published, whether by way of an article in a journal or a paper at a meeting. It is standard SQUID practice to reproduce and distribute to its mailing list every Technical Report which includes results of research which it supports. Therefore, manuscript copies of any communication based upon SQUID sponsored research must be sent to SQUID Headquarters at least as soon as they are sent anywhere else.

Project SQUID recognizes that most of the results obtained from the research programs it sponsors will ultimately become part of the permanent scientific literature in the form of papers in standard technical journals. There is frequently a long delay between the time a manuscript is completed and the time when it appears in a journal. There are also occasions when results are too specific, too detailed, or too incomplete to be suitable for journal publication. Consequently, SQUID undertakes immediate reproduction and distribution of all technical communications based on research which it supports. In order to minimize the effort required by the contractor in the preparation of the manuscript and to allow the contractor to make the best possible use of his own equipment, several alternative procedures are outlined below. Each contractor is encouraged to choose the method which best allows him to meet the needs of SQUID Headquarters while simultaneously fulfilling his own requirements for journal and symposia review and for internal distribution.

It is no longer required of authors that they supply 250 copies of reprints of journal articles for distribution to the mailing list.

However, SQUID Headquarters should receive five copies of such reprints when they become available.

In order to satisfy the reporting requirements, contractors should adhere to the following instructions:

A. Procedure

The contractor should prepare his manuscript by one of the methods listed below. (The methods are listed in the order of decreasing desirability to Project SQUID Headquarters.)

1. Multilith Plates: Report manuscripts may be prepared on multilith plates according to the instructions outlined above under Semi-Annual Progress Reports (paragraphs I.D.1, I.D.2), with the exception that the page numbers will be typed and centered at the bottom of the page on line 59. The multilith plates, together with drawings prepared as described in paragraph III.C.3 below, are the only requirement of Project SQUID Headquarters. However, one copy each, together with a copy of the letter of transmittal, should be sent to:

Office of Naval Research  
Power Program, Code 473  
Department of the Navy  
800 No. Quincy St.  
Arlington, VA 22217

and to:

Office of Naval Research  
Resident Representative  
Graduate House East  
Purdue University  
West Lafayette, Indiana 47907

If copies are not run for your own use at your facility, the

two additional copies can be made from the multilith plates by Xerox or some other photographic process which does not harm the plates. However, it is assumed that each contractor will run several copies for his own use before forwarding the plates to SQUID Headquarters. Of course, a preservative recommended by the plate manufacturer must be used after the initial run if SQUID Headquarters is going to be able to use the plates.

2. Photo-Offset Reproducible Copy: If multilith plates cannot be prepared in the manner described above, photo-reproducible copy may be supplied to SQUID Headquarters. The manuscript should be typed on a good grade of 8½ x 11 bond paper with the margins spaced as indicated for the multilith plates for Semi-Annual Progress Reports. (See paragraph I.D.1 above). Corrections must be made by "stripping" or by pasting the corrected material over the original. All graphs and photographs should be prepared in accordance with paragraph III.C.3 below. At the request of the author, the entire original manuscript will be returned by SQUID Headquarters with a minimum delay so that it can be used for other purposes if required. Carbons or other reasonable legible copies of the manuscript, together with the letter of transmittal, should be sent to the Power Program of ONR and to the ONR Resident Representative at Purdue University as indicated above in paragraph III.A.1.
3. Nonreproducible Copy: In the event that it is not possible for the contractor to use either of the two procedures described above, SQUID Headquarters will accept one legible copy in any

form which will be used in retyping the manuscript for multilith reproduction. The manuscript prepared by SQUID Headquarters will not be returned to the author for proofreading. Rather, the SQUID Headquarters Staff will proof the reproducible manuscript in a reasonable manner prior to reproduction of the Technical Report. In addition to the single copy supplied to Project SQUID Headquarters, legible copies, together with a copy of the letter of transmittal, should be sent to the Power Program of ONR and to the ONR Resident Representative at Purdue University as outlined above in paragraph III.A.1.

4. If any contractor wishes to supply SQUID Headquarters with the full number of printed copies (circa 275 copies are required), arrangements for this procedure can be made.

Orindarily, immediately upon receipt of the manuscript, SQUID Headquarters will write a letter to the author with a carbon to the Office of Naval Research approving the proposed publication plans. This letter is not an official clearance but it is sufficient basis for the author to proceed with his publication plans. If he hears nothing further from the Office of Naval Research, he can assume that the clearance has become official. Meanwhile, there is sufficient time between submission of a paper and its actual publication so that the government can intercept it if any restrictions so require.

Note that the manuscript may be submitted to a journal at the same time but not before copies are sent to SQUID Headquarters and to the ONR Offices. The letter of transmittal to SQUID Headquarters should state the publication plans of the author, i.e., the journal to which it is being submitted or the meeting at which it is to be presented. When

publication has been effected, five copies of reprints should be forwarded to SQUID Headquarters.

In the event that a report is or becomes classified, its reproduction and distribution are subject to all the rules covering security classified information. Particular attention is called to the fact that under such rules, release of any copy of the report to anyone must be authorized by the cognizant military security officer.

B. Content

1. Summary and Key Word List: Each Technical Report shall contain a brief, factual summary (unclassified) of 150/200 words along with a key word list (technically meaningful terms or short phrases) to characterize the report and to be used as index entries for cataloging.
2. Report Body: The principles of good scientific writing should be well known. There is no need to labor them here. Suffice it to say that Project SQUID strives for high standards in the research which it sponsors. The results of such research deserve high quality reporting.

Ordinarily there are three kinds of technical reports. The first and most usual case is a paper which will be delivered at a meeting or submitted to a technical journal for publication. For SQUID purposes, the manuscript of such a paper is reproduced and distributed, as is, in accordance with the procedure previously outlined.

The second type of report is written specifically for SQUID distribution. It will be necessary to write such a report only when communication

of the results will not be accomplished promptly by a technical paper or in some cases, a thesis (see below). The occasion for writing a technical report specifically for Project SQUID may arise for several reasons. The information may have security implications. The results to be presented may be of an interim or preliminary nature. The content may not have sufficient novelty or general interest to be acceptable by a journal. There may be circumstances forcing an extended delay in the preparation of a formal paper. In any of these situations, the Project SQUID investigator may fulfill his reporting obligation by preparing a report which will be reproduced and distributed in the same way as the manuscript of a technical paper is handled for SQUID purposes. The author has more latitude with respect to length and detail than he would normally be permitted for a journal article. He may be somewhat less formal. However, he should observe the usual requirements of clarity and neatness.

Frequently, the first description of research results appears as part of a thesis or dissertation. Usually, these results are subsequently embodied in a technical paper for journal publication. When the technical paper is prepared within a month or two of the thesis completion, SQUID Headquarters prefers to use the manuscript of the paper as a technical report. If there is to be a long delay in writing the paper, and if the thesis itself is not longer than ninety pages, then SQUID Headquarters will accept copies of the thesis as Technical Reports. If the thesis is longer than ninety pages and if a technical paper on the research will not be forthcoming soon, then it will be necessary to write a report which contains the essential material in the thesis. The main reason that theses longer than ninety pages are not directly acceptable is the cost

of reproduction. If possible, a copy of the thesis or dissertation resulting from SQUID supported research should be sent to SQUID Headquarters and to the Power Program of ONR when it is not to be issued as a Project SQUID Technical Report.

C. Format

The requirements for format on manuscripts of Technical Reports are not so stringent as for Progress Reports. As in matters of content, in order to avoid unnecessary labor in manuscript preparation, such as re-typing, Project SQUID is happy to adapt its requirements to be consistent with those imposed by other uses to which the manuscript may be put. The following rules should be observed. Most of these are consistent with what other prospective users of the manuscript would require. Reference to previous Project SQUID Reports issued from Purdue University, West Lafayette, Indiana will indicate the desired format.

1. Acknowledgment: Acknowledgment of sponsorship is a legal requirement under a SQUID contract. The following statement, or its equivalent, should appear in a footnote on the first page of any published article based upon work supported by Project SQUID funds. (In the case of reports which will be reproduced and distributed only by Project SQUID, of course, such a statement is not necessary.)

"This work was sponsored by Project SQUID which is supported by the Office of Naval Research, Department of the Navy, under Contract N00014-75-C-1143, NR-098-038. This document has been approved for public release and sale; its distribution is unlimited."

2. Text: Copy should be double spaced and prepared in accordance with one of the procedures described in paragraph III.A. above.
3. Figures: Graphs, drawings, photographs, and tables should be page size. Although not mandatory, it is desirable that they be arranged such that they can be easily read when the page is oriented with the long dimension as the vertical one. All drawings and figures should be the same size as the rest of the pages; viz.,  $8\frac{1}{2} \times 11$ . There is no provision for enlarging or reducing off-size figures to page size. Undersized figures, of course, can be pasted to a standard size page if they can be read adequately in their original size. Photographs must be high contrast, glossy prints. Properly prepared screened half-tone negatives will be acceptable in lieu of the glossy originals. Line drawings should be clear and in high contrast and prepared on a transparent vellum paper. High contrast line negatives (film) will be acceptable in lieu of original vellum copy.
4. Length: There are no absolute requirements in the matter of length. However, brevity is desired consistent with a full and fair presentation of the material.

#### IV. FINAL REPORTS

The Final Report on each Subcontract of Project SQUID research is a contractual requirement. It should comprise a summary account of the overall history and achievement of the program which has been undertaken. It is due at the end of the last fiscal year in which support has been authorized for each Subcontract.

Scientific progress in the research program is presumed to have been adequately recorded and disclosed in appropriate Technical Reports. For an account of the research in the Final Report, it is sufficient to reference the Technical Reports which have been prepared or which are forthcoming. Final Reports do not receive any widespread distribution. Consequently, detailed reporting of technical achievement therein is likely to be wasted effort in respect to the scientific community. Conversely, there is information required in a Final Report which is of little or no interest to others than the sponsors. Therefore, it is requested that all accounts of technical progress be in the form of Technical Reports (see previous section) and that Final Reports contain only brief statements of technical accomplishment together with reference to said Technical Reports.

There follows a listing of the items of information which should be included in the Final Report on each subcontract.

##### A. Identification

The contractor, Subcontract Number, and Title should be indicated.

B. Duration

The initial and terminal dates for the Subcontract should be given. Normally, these dates will refer to Project SQUID Fiscal Years. When, for some reason, there have been extended periods of inactivity, some indication of these would be in order.

C. Cost

A statement of the total amount of money allocated by Project SQUID during the entire course of activity should be given. If the work has been supported in part by funds other than those from Project SQUID, the sources of other funds should be given together with an estimate of the relative proportion of total support afforded by each sponsor.

D. Participation

The names of all investigators who have contributed to the research should be given, the approximate proportion of their working time which they have devoted to the project, and the fraction of their salaries which have been charged to the contract. When students have been employed, the degree for which they have been candidates should be indicated. In addition, there is desired a statement concerning the applicability of the student's work on the contract problem to his thesis or dissertation assignment.

E. Object

A brief statement of the purpose and goal of the investigation should be stated.

F. Achievement

A summary statement of the progress toward the goal should be presented along with a list, exclusive of progress reports, of communications which document the investigation.

G. Future Plans

If future work along similar lines is contemplated, an outline of such plans would be appreciated, along with an indication of expected sponsorship. Recommendations and suggestions for future work by others will be welcomed.

As long as the information above is included, no particular requirements on style and format are sought. Brevity is encouraged and, in fact, a simple outline-summary will suffice. Five copies of the Final Report should be sent to SQUID Headquarters for appropriate distribution. These can be carbon, ozalid, mimeograph, hectograph, or any reasonable legible reproductions.

GUIDELINES FOR  
REPORTING RESULTS IN JOURNALS AND CONFERENCES

A. The results of research described in reports to Project SQUID Headquarters will be published as Technical Reports as described in Section III.

In order to present such results in a journal article or at a conference, the following procedure is recommended.

- (1) Send a request to Project SQUID Headquarters for approval to present such results along with five copies of the text of the paper or its abstract.
- (2) Proceed with the publication following the receipt of approval.
- (3) If only an abstract has been sent, send as soon as possible five copies of the full text of the paper or talk.

B. In some cases, it is possible that a technical report is not intended to be published and a presentation may be planned in a journal or at a conference.

In such cases also, the same procedure should be followed as under (A) above and approval obtained from Project SQUID Headquarters.

In case of any doubt in regard to the foregoing, a check should be made with Project SQUID Headquarters before presenting results of research.

CHECKLIST

SEMI-ANNUAL PROGRESS REPORT

Date Due: 15 March and 15 September

Copies: Multilith Plates

Length: 3 to 5 pages

Format: Identification  
Introduction  
Discussion  
Notes and References

Type: Elite (small)  
Double space  
Clean type and new ribbon

Correction: Use special eraser with care. Retype page when large corrections are required. Do not use opaque and do not make "paste-ons."

Margins: 1½ inches on top and sides  
1 inch bottom

Figures: None, if possible  
If essential, complete all layout

Pagination: Write in pencil in the upper right hand corner

Disposition: Send to: Project SQUID Headquarters  
Chaffee Hall  
Purdue University  
West Lafayette, Indiana 47907

NOT LATER THAN 15 MARCH

NOT LATER THAN 15 SEPTEMBER

CHECKLIST

STATUS REPORT

Date Due: 15 October each year

Copies: Multilith Plates

Length: 1 or 2 pages

Format: Contractor  
Subject  
Principal Investigator  
Support Level  
(From start in years)  
(past year)  
Objective  
Significance  
Progress  
Future Plans  
Publications

Type: Elite (small)  
Single space  
Clean type and new ribbon

Correction: Use special eraser with care. Retype page when large corrections are required. Do not use opaque and do not make "paste-ons"

Margins: 1½ inches on top and sides  
1 inch bottom

Figures: None

Pagination: Write in pencil in upper right hand corner (if more than one page)

Disposition: Send to: Project SQUID Headquarters  
Chaffee Hall  
Purdue University  
West Lafayette, Indiana 47907

NOT LATER THAN 15 OCTOBER

## CHECKLIST

### TECHNICAL REPORT

- Date Due: On or before date of submission to journal or symposium whenever material warrants publication.
- Copies: In accordance with one of the procedures outlined in paragraph III.A. of this document.
- Disposition: Reproducible copy to Project SQUID Headquarters, Chaffee Hall, Purdue University, West Lafayette, Indiana 47907.
- One (1) copy to: Office of Naval Research, Resident Representative, Purdue University, West Lafayette, Indiana 47907.
- One (1) copy to: Office of Naval Research, Power Program, Code 473, 800 No. Quincy Street, Arlington, VA 22217.
- Above disposition must be made by the time of submission to journal or meeting.
- Length: Arbitrary.
- Content: Acknowledgment of sponsorship.  
Abstract (on separate page).  
Key Word List.
- Figures: Oriented with bottom along short dimension, if possible.  
Photographs: glossy prints or screened halftone negatives.  
Line drawings on vellum or line negatives (film).
- Type: Clean.
- Corrections: In accordance with procedure selected.
- Pagination: Pages should be numbered at bottom, centered on line 59. All prepages (i.e., title page, table of contents, list of illustrations, etc.), if included, should be numbered with lower case Roman numerals. Page 1 (Arabic numerals) should start with first section of text.
- Report Number: Report numbers assigned by Project SQUID Headquarters.
- Reprints: Send five (5) to Project SQUID Headquarters when available to author.

CHECKLIST

FINAL REPORT

Date Due: Termination of Project SQUID subcontract.  
End of last fiscal year of Project SQUID support.

Copies: Five (5) copies.  
Carbon, ozalid, mineograph, hectograph, or any  
legible reproductions.

Length: Brevity encouraged.

Content: Outlined summary will suffice including:

Identification  
Duration of Subcontract  
Cost  
Participation  
Object  
Achievement  
Future Plans.

Disposition: Send all five copies to:

Project SQUID Headquarters  
Chaffee Hall  
Purdue University  
West Lafayette, Indiana 47907

CHECKLIST

JOURNAL ARTICLE OR CONFERENCE TALK

1. Have you sent five copies of article or talk or at least an abstract of such an article or talk to Project SQUID Headquarters?
2. Have you written to Project SQUID Headquarters for approval to present the article or the talk?
3. Has approval been received?
4. If the complete text of article or talk has not been sent to Project SQUID Headquarters prior to receiving approval, have you sent five copies immediately the complete text is available?

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REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER PU-R3-76	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) Project SQUID Reporting Procedure		5. TYPE OF REPORT & PERIOD COVERED Subcontractor Instruction Manual 1976-
7. AUTHOR(s) Project SQUID		6. PERFORMING ORG. REPORT NUMBER
9. PERFORMING ORGANIZATION NAME AND ADDRESS		8. CONTRACT OR GRANT NUMBER(s) N00014-75-C-1143 NR-098-083 403 617
11. CONTROLLING OFFICE NAME AND ADDRESS Project SQUID Headquarters Chaffee Hall, Purdue University West Lafayette, IN 47906		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office) Office of Naval Research, Power Program Code 473 800 No. Quincy Street Arlington, Virginia 22217		12. REPORT DATE October 1976
		13. NUMBER OF PAGES 32
		15. SECURITY CLASS. (of this report) Unclassified
16. DISTRIBUTION STATEMENT (of this Report)		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE
<div style="border: 1px solid black; padding: 5px; display: inline-block;"><p>DISTRIBUTION STATEMENT A Approved for public release; Distribution Unlimited</p></div>		
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)		
18. SUPPLEMENTARY NOTES		
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Report Procedure Semi-Annual                      General Articles Status                              Checklist Technical Final		
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This manual sets forth the procedures by which participants in the Project SQUID Program may discharge their reporting obligations.		

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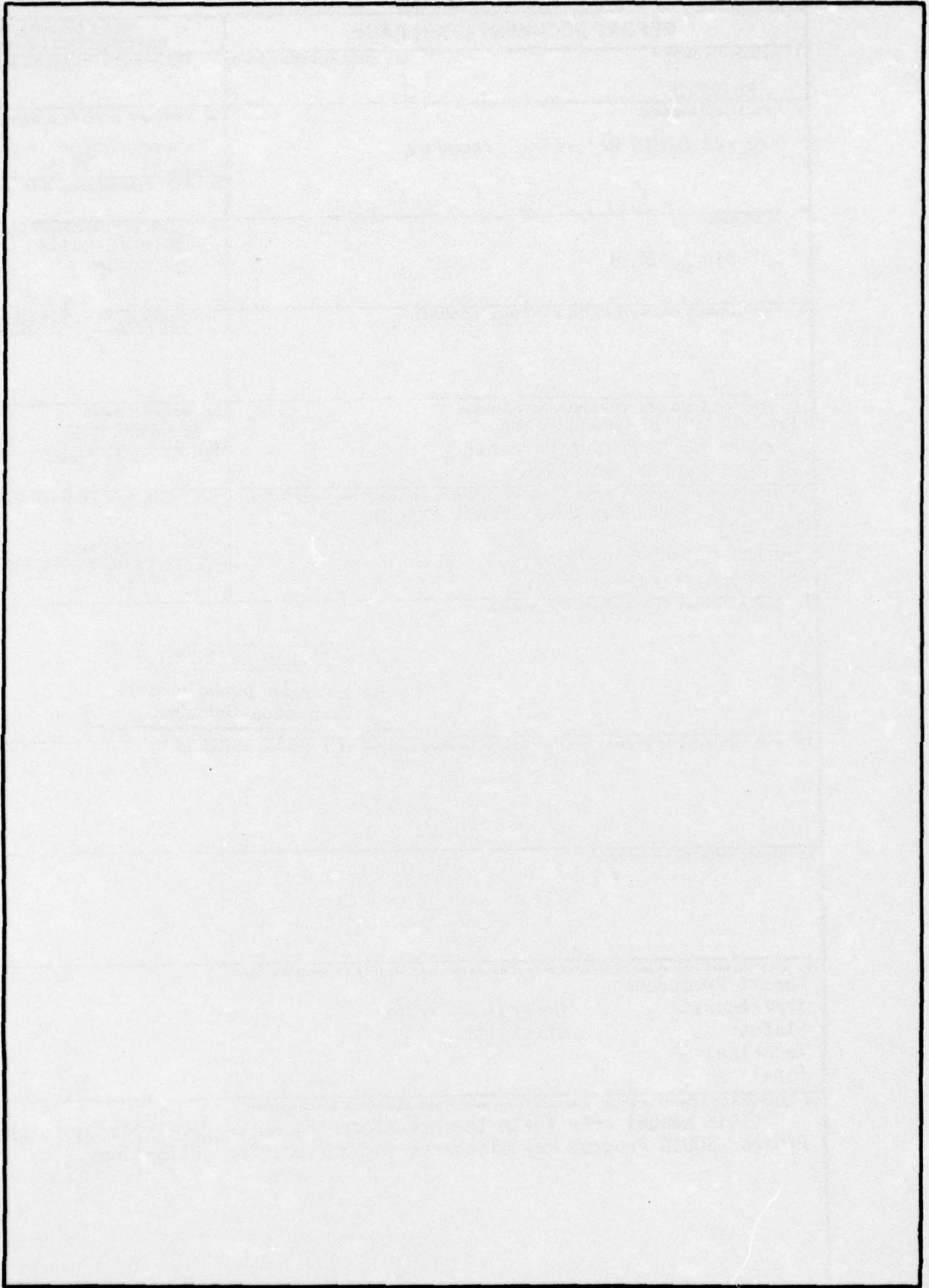
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