

Audit



Report

OFFICE OF THE INSPECTOR GENERAL

**DOD INVOLVEMENT WITH THE SEMICONDUCTOR
MANUFACTURING TECHNOLOGY CONSORTIUM**

Report No. 95-148

March 15, 1995

Department of Defense

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INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
400 ARMY NAVY DRIVE
ARLINGTON, VIRGINIA 22202-2884



Report No. 95-148

March 15, 1995

**MEMORANDUM FOR DIRECTOR, DEFENSE RESEARCH AND ENGINEERING
DIRECTOR, ADVANCED RESEARCH PROJECTS
AGENCY
DIRECTOR, DEFENSE FINANCE AND ACCOUNTING
SERVICE**

**SUBJECT: Audit Report on DoD Involvement with the Semiconductor
Manufacturing Technology Consortium (Project No. 4RC-5049)**

Introduction

We are providing this report for your information and use. The audit was performed in response to concerns of former Congresswoman Helen Bentley. Those concerns related to DoD's oversight of and Japanese involvement in the Semiconductor Manufacturing Technology Consortium (the Consortium) and whether a proposed agreement between Silicon Valley Group, Inc. (Silicon Valley Group), and Canon, Incorporated (Canon), was in the best interest of the United States. The proposed agreement would allow Canon, a Japanese firm, to manufacture and sell lithography equipment developed by the Silicon Valley Group.¹ The Consortium was formed in 1987 to advance semiconductor manufacturing technology and to enable the U.S. semiconductor industry to regain world manufacturing leadership.

Audit Results

The DoD provided adequate oversight of the Consortium. Japanese involvement with the Consortium was limited to discussions of industry standardization and environmental issues. Further, based on our understanding of current economic conditions, the proposed agreement between Silicon Valley Group and Canon appeared to be in the best interest of the United States.

¹After the conclusion of our audit, negotiations between Silicon Valley Group and Canon were terminated.

Objectives

The audit objectives were to evaluate DoD's oversight of the Consortium and to determine whether sufficient controls were in place to protect U.S. national security interests. The audit also determined whether the Japanese had any involvement in the Consortium and reviewed a proposed agreement between the Silicon Valley Group and Canon that would allow Canon to manufacture and sell lithography equipment based on technology developed by the Silicon Valley Group. The audit also included an assessment of applicable internal controls.

Scope and Methodology

Audit Methodology. To evaluate DoD's oversight of the Consortium and to verify whether U.S. national security interests were being protected, we reviewed:

- o Public Law 100-180, National Defense Authorization Act for FYs 1988 and 1989;
- o a memorandum of understanding between the Advanced Research Projects Agency and the Consortium;
- o the Advanced Research Projects Agency's grant to the Consortium, amendments to the grant, and related financial records;
- o the minutes of the Consortium's Board of Directors meetings, dated from October 1992 through July 1994; and
- o controls over the technology involved in 14 Consortium projects.

We also interviewed cognizant Government officials responsible for oversight of the Consortium's activities.

To determine whether the Japanese were involved in the Consortium, we interviewed Consortium personnel and reviewed the minutes of the Consortium's Board of Directors meetings, dated from October 1992 through July 1994 and other related documentation.

To determine the propriety of the proposed agreement between Silicon Valley Group and Canon we reviewed:

- o the proposed letter of intent between Silicon Valley Group and Canon,

o Silicon Valley Group's Securities and Exchange Commission Form 10 K² filings for 1992 and 1993; and

o documents, dated from May 1990 through April 1994, pertaining to the Consortium's involvement with Silicon Valley Group and Canon.

Also, we interviewed personnel from the Silicon Valley Group; the Consortium; the Office of the Director, Defense Research and Engineering; and the Advanced Research Projects Agency. We did not rely on computer-processed data to develop audit conclusions.

Audit Period and Standards. We performed this economy and efficiency audit from June through November 1994 in accordance with auditing standards issued by the Comptroller General of the United States as implemented by the Inspector General, DoD, and accordingly included an assessment of applicable internal controls. Enclosure 4 lists the organizations visited or contacted during the audit.

Internal Controls

Controls Related to DoD Oversight. We evaluated the effectiveness of the internal controls related to DoD's oversight of the Consortium. We also reviewed the Advanced Research Projects Agency's procedures for approving the Consortium's budget; monitoring, issuing, and modifying the Consortium's grant; and transferring funds to the Consortium. The audit identified no material internal control deficiencies at the Advanced Research Projects Agency.

Controls Over Payments. The audit identified weaknesses in processing and clearing the Consortium payments at the Defense Finance and Accounting Service, Denver Center. Because of those weaknesses, the Denver Center did not post \$215 million in payments made to the Consortium during FYs 1988 through 1993 to the financial records for the Advanced Research Projects Agency (see the section entitled, "Maintenance of Accounting Records"). Inspector General, DoD, Audit Report No. 94-048, "Uncleared Transactions By and For Others," March 2, 1994, discusses similar weaknesses in DoD's finance and accounting system. The weaknesses were reported to the Secretary of Defense in the Defense Finance and Accounting Service annual statement of assurance.

²Annual report on a company's financial data submitted pursuant to section 13 or 15(d) of the Securities Exchange Act of 1934.

Prior Audits and Other Reviews

The General Accounting Office issued nine audit reports (Enclosure 1) that discuss Consortium activities from 1989 through 1992. Five of those audit reports discuss the effectiveness of the Consortium and conclude that the Consortium met its goals. The remaining four General Accounting Office reports discuss the adequacy of independent audits of the Consortium's financial statements. There have been no previous Inspector General, DoD, audits of the Consortium.

Semiconductor Manufacturing Technology Consortium

Establishment of the Consortium. Semiconductors, which enable computers and other products to process and store information, are the foundation of the electronics industry. The capability to manufacture more powerful semiconductors depends on technological advances in semiconductor manufacturing equipment and materials. Until the early 1980's, the United States was the world leader in semiconductor production. However, in 1975, Japanese companies began a major program to establish a strong semiconductor industry. Subsequently, U.S. companies began to lose a significant portion of their market share of semiconductor and associated manufacturing equipment production. In 1987, in response to the strong Japanese competition, several U.S. semiconductor companies, computer companies, and one Government entity formed a Consortium.³ Congress believed that participation in a consortium to promote semiconductor manufacturing technology was in the nation's best economic and security interests. Consequently, Congress directed the Secretary of Defense to provide grants to the Consortium for Research and Development and, beginning in FY 1988, Congress appropriated \$100 million annually. The Office of the Secretary of Defense gave the Advanced Research Projects Agency the responsibility for oversight of the Consortium. The Consortium has focused on strengthening critical segments of the U.S. semiconductor equipment industry by working with individual suppliers on projects to improve the performance of their equipment. The Consortium has given priority to projects in lithography; multilevel metals; and manufacturing methods, processes, and systems.

Lithography Equipment. Lithography is one of the most essential technologies needed to develop and maintain a strong semiconductor industry

³Advanced Micro Devices, Incorporated; American Telephone and Telegraph Company; Digital Equipment Corporation; Hewlett-Packard Company; International Business Machines Corporation; Intel Corporation; Motorola, Incorporated; National Semiconductor Corporation; Rockwell International Corporation; Texas Instruments, Incorporated; and the Advanced Research Projects Agency make up the Consortium.

within the United States. Lithography equipment enables the user to fabricate semiconductor-integrated circuit devices. In May 1990, Silicon Valley Group, acquired the Perkin-Elmer optical lithography operations. After the acquisition, the Consortium gave Silicon Valley Group \$26 million to develop lithography equipment. Silicon Valley Group added \$24.5 million of its own funds to the development effort, which resulted in the development of a second generation .5 micron Step and Scan Lithography machine.

Congressional Concerns Related to the Consortium and to the Silicon Valley Group

Former Congresswoman Helen Bentley had three concerns--two related to the Consortium and one related to Silicon Valley Group's Step and Scan Lithography machine. Details on each concern are provided below with the audit results.

Concern 1. DoD oversight of the Consortium may not be sufficient to protect U.S. national security interests.

Audit Results. Analysis of DoD's participation and involvement in the conduct of the Consortium's operations showed that DoD provided sufficient oversight to protect U.S. national security interests.

Department of Defense Oversight. The Advanced Research Projects Agency monitors the Consortium's research and development activities. An Advanced Research Projects Agency representative serves as a nonvoting participant on the Consortium's Board of Directors and actively participates at the Consortium Board of Directors meetings. Other Advanced Research Projects Agency personnel and representatives from the Office of the Assistant Secretary of Defense (Economic Security) have also participated in Consortium Board of Directors meetings to discuss strategic plans and to ensure Consortium activities are in the best interest of the DoD and the United States. Advanced Research Projects Agency personnel also attended meetings of three lower level Consortium boards. Those lower level boards (the Executive Technical Advisory Board, the Focus Technical Advisory Board, and the Project Technical Advisory Board) provide management oversight of the Consortium's day-to-day operations and monitor project management. Participation on those boards allows Advanced Research Projects Agency personnel to provide input for the Consortium's operating plan, budget, and project selection.

Controls Over National Security Interests. The Consortium issues separate contracts for each research project it sponsors. All Consortium contracts contain standard clauses that pertain to the protection of proprietary information and technology developed as a result of the contract. Consequently, the companies developing the technology must coordinate with the Consortium before the technology can be marketed. Further, the

Consortium's contractors must comply with the Export Administration Act of 1979, which restricts the export of goods and technology, when necessary, to protect national security interests. The Export Administration Act of 1979 places special emphasis on controlling the export of technology if that technology would significantly contribute to the military potential of any country or be detrimental to the national security of the United States.

Concern 2. Consortium officials are considering whether to allow the Japanese to participate in the Consortium.

Audit Results. The Japanese are not members of the Consortium, and the Consortium did not solicit Japanese companies for membership.

Consortium Membership. The Consortium did not consider including the Japanese Government or Japanese companies in the Consortium. The members of the Consortium are U.S. firms that compete with Japanese semiconductor and computer companies. Consequently, it is not in the best interest of the Consortium either to include the Japanese in the Consortium or to exchange information with foreign competitors. Minutes of the Consortium Board of Directors meetings and discussions with senior Consortium and DoD personnel indicated that the Consortium did not consider Japanese membership in the Consortium. Further, several General Accounting Office audits reviewed the Consortium's operations and identified no problems.

Source of Concern. Consortium personnel believed that the congressional concern arose from reported accounts of a speech given by the Consortium's Chief Executive Officer at a December 1993 trade association meeting in Japan. In the speech, the Chief Executive Officer proposed the adoption of a standard size wafer for use in the production of microelectronic chips. Because almost all commercial wafers are produced by Japanese and European firms, size standardization is not a technology transfer issue. The Chief Executive Officer's proposal to adopt industry-wide environmental and safety standards also had no technology transfer implications. The speech made no reference to allowing Japanese representation in the Consortium.

Concern 3. The proposed agreement that would allow Canon to sell equipment developed by the Silicon Valley Group may not be in the best interest of the United States.

Audit Results. Based on our understanding of current economic conditions, the proposed agreement between Silicon Valley Group and Canon appeared to be in the best interest of the United States. Implementation of the proposed agreement would establish a production base for lithography technology in the United States, thereby reducing U.S. dependency on Japan for optical lithography manufacturing equipment.

Proposed Agreement. The proposed agreement between Silicon Valley Group and Canon would provide Silicon Valley Group with the capital needed

to manufacture the Step and Scan Lithography machine. No U.S. firms have shown an interest in entering into a similar agreement. Under the proposed agreement, the technology to produce the lithography machine would be shared. Both Silicon Valley Group and Canon would produce and market the machine. Canon would pay Silicon Valley Group \$20 million to access the technology and to build the machine. Canon would also pay royalty fees on each piece of equipment sold. Canon would have exclusive marketing rights in Japan and the Far East, excluding Korea. Silicon Valley Group would use the payment from Canon for Research and Development purposes and would have exclusive marketing rights in the United States and Korea. Silicon Valley Group and Canon would compete in the remaining markets. Although the proposed agreement would not allow the Silicon Valley Group to enter into the Japanese market, it would reduce U.S. strategic dependency on Japan for optical lithography manufacturing equipment. Consortium, DoD, and Silicon Valley Group officials estimated that Silicon Valley Group would supply 50 percent of the world demand for lithography equipment if the proposed agreement was implemented.

Future Technological Developments. The proposed agreement stipulates that the benefits of future technological improvements to the lithography machine made by either Silicon Valley Group or Canon would flow equally to both companies. The proposed agreement also stipulates that machines manufactured in the United States and Japan would conform to a common standard. Consequently, neither company would obtain a competitive advantage over the other. The agreement assures that the United States would have at least one company with the manufacturing capability to produce high-technology lithography machines.

Controls Over Technology. Under the proposed agreement, Silicon Valley Group and Canon would agree to comply with and to obtain the necessary approvals required by U.S. Government laws and regulations. The proposed agreement includes compliance with the Export Administration Regulations. Canon would agree to not knowingly export technology, either directly or indirectly, to countries listed in the Export Administration Regulations as nonfriendly countries. A written letter of assurance is required from Canon, stating its commitment to the U.S. Government to comply with the provisions of the Export Administration Regulations. From a realistic business standpoint, it would not be in Canon's best interest to release the technology to other companies, since such an action would remove the competitive advantage Canon expected to achieve through the proposed agreement.

Maintenance of Accounting Records

Unliquidated Obligation Balances. The Advanced Research Projects Agency accounting records maintained by the Defense Finance and Accounting Service, Denver Center, indicated that \$215 million of the \$587 million obligated for the Consortium's grant from FY 1988 through FY 1993 was unliquidated.

However, payments of \$587 million had been made to the Consortium over the same period by the Defense Finance and Accounting Service, Cleveland Center. Consequently, an unliquidated balance should not have existed. We reconciled the Denver Center records to the Cleveland Center records and found that Denver Center personnel had not recorded payments of \$215 million. Further, Denver Center personnel charged payments of \$59.1 million to the wrong fiscal year and improperly charged \$66,000 in payments related to other grants to the Consortium's grant. The inaccuracies were caused by lost documentation and a lack of attention by Defense Finance and Accounting Service personnel in reviewing transactions. We provided the results of our analysis to managers at the Denver Center, and they agreed to make the necessary adjustments to the Advanced Research Projects Agency records. Specific recommendations regarding the control of documents and the need for increased management oversight are in Inspector General, DoD, Audit Report No. 94-048, "Uncleared Transactions By and For Others," March 2, 1994. The Deputy Comptroller of the Department of Defense (Management Systems) agreed to implement the recommendations in that report.

Management Comments

A draft of this report was provided to the Director, Defense Research and Engineering; the Director, Advanced Research Projects Agency; the Consortium; and Silicon Valley Group on December 27, 1994. Although comments were not required, comments were received from the Consortium and Silicon Valley Group and were considered in preparing this final report. The Consortium stated that the Silicon Valley Group announced that the proposed agreement with Canon would not be completed. The full texts of the comments are in Enclosures 2 and 3.

The courtesies extended to the audit staff are appreciated. If you have any questions on this audit, please contact Mr. Charles Santoni, Audit Program Director, at (703) 604-9556 (DSN 664-9556) or Mr. H. Philip Davis, Audit Project Manager, at (410) 859-6995. Enclosure 5 lists the distribution of this report. The audit team members are listed inside the back cover.



Robert J. Lieberman
Assistant Inspector General
for Auditing

Enclosures

General Accounting Office Audit Reports on the Semiconductor Manufacturing and Technology Consortium

General Accounting Office Report No. GAO/RCED-92-283, "Lessons Learned From SEMATECH [Semiconductor Manufacturing and Technology Consortium]," September 1992, states the Consortium was successful in demonstrating that a Government and industry research and development consortium can help improve the U.S. industries' technological position. The report concludes that the Consortium was well-managed and that Government funds were spent appropriately. The General Accounting Office recommended that DoD or the Congress establish criteria for determining when Government participation in the Consortium should be terminated.

General Accounting Office Report No. GAO/RCED-92-223BR, "SEMATECH's Technological Progress and Proposed R&D [Research and Development] Program," July 1992, concludes that the Consortium was on schedule for achieving its overall objective of demonstrating the capability to manufacture state-of-the-art semiconductors using only U.S. equipment. The report contains no recommendations.

General Accounting Office Report No. GAO/RCED-91-139FS, "SEMATECH's Efforts to Develop and Transfer Manufacturing Technology," May 1991, states that the Consortium's projects with two principal U.S. suppliers of lithography equipment were behind schedule. The report questioned whether Silicon Valley Group and GCA Corporation would generate sufficient equipment sales to become competitive in the world market. The report contains no recommendations.

General Accounting Office Report No. GAO/RCED-90-236, "SEMATECH's Efforts to Strengthen the United States Semiconductor Industry," September 1990, indicates that the Consortium increased the percentage of its annual budget for outside research from 20 percent to 50 percent. The report suggests that the Consortium's members work more closely with and support their suppliers in order to strengthen the broader U.S. supplier base.

General Accounting Office Report No. GAO/RCED-90-37, "The SEMATECH Consortium's Start-up Activities," November 1989, indicates that management oversight of the Consortium's activities by the Defense Advanced Research Projects Agency (now Advanced Research Projects Agency) was beneficial. The report recommends that an advisory council be convened to further improve oversight of the Consortium's operations.

General Accounting Office Audit Reports on the Semiconductor Manufacturing and Technology Consortium

The following four General Accounting Office reports state that Price Waterhouse audits showed that the Consortium's financial statements for 1988, 1989, 1991, and 1992 were presented fairly in conformance with generally accepted accounting principles.

- o General Accounting Office Report No. GAO/RCED-94-17, "Assessment of the Financial Audit for SEMATECH's Activities in 1992," October 1993

- o General Accounting Office Report No. GAO/RCED-93-50, "Assessment of the Financial Audit for SEMATECH's Activities in 1991," December 1992,

- o General Accounting Office Report No. GAO/RCED-91-74, "Assessment of the Financial Audit for the SEMATECH's Activities in 1989," April 1991

- o General Accounting Office Report No. GAO/RCED-90-35, "Assessment of the Financial Audit for SEMATECH's Activities in 1988," February 1990

The Semiconductor Manufacturing Consortium Comments

Final Report
Reference

SEMATECH

2706 Montopolis Drive - Austin, Texas 78741-6499 - 512-356-3500

January 23, 1995

Department of Defense - Inspector General
OAIG - AUD - ROS (H. Phillip Davis)
1201 Winterson Road - Contact # 410-859-6995
Suite AT304
Linthicum Heights, MD 21090-9998

Re: Comments on Department of Defense/Inspector General Audit Report
Project Number 4RC-5049

Dear Mr. Davis,

We have reviewed the draft report on the results of the DoD/Inspector General audit of DoD involvement with SEMATECH and would like to submit these comments for consideration in finalizing the audit report. We found both the audit and the proposed audit report to be professional, fair, and thorough. However, there are some minor clarifications which could be made in the final report to ensure factual accuracy. The proposed modifications are suggested below and are listed under the headings in the report under which they would appear.

Semiconductor Manufacturing Technology Consortium:

The first modification we suggest deals with the paragraph entitled Lithography Equipment on page 5. This paragraph discusses GCA Corporation and erroneously states that GCA sold its lithography division to Perkin Elmer Corporation. While SEMATECH has worked with both GCA Corporation and SVGL, there has never been a corporate relationship between GCA Corporation and Perkin-Elmer. Silicon Valley Group (SVG) is the corporation that acquired the optical lithography operations from Perkin Elmer, the original developer of the step and scan photolithography technology. The third, fourth and fifth sentences in that paragraph referring to GCA Corporation should be deleted. Also, all references throughout the draft report to "Step and Scan Lithography" would be more accurate if they read "Step and Scan Photolithography".

Congressional Concerns Related to the Consortium and to Silicon Valley Group:

The second sentence of the paragraph entitled Department of Defense Oversight refers to ARPA as a nonvoting "member" on the Board of Directors. This is not technically correct. The ARPA representative is a nonvoting "participant" on the Board of Directors. Another minor change we would make to this paragraph involves the fifth sentence. The sentence currently reads, "Those three boards (the Executive Technical Advisory Board, the Focus Technical Advisory Board, and the Project Technical Advisory Board ... We suggest it be changed to read, "Those lower level boards (the Executive Technical Advisory Board, the Focus Technical Advisory Boards, and the Project Technical Advisory Boards) ...

In the paragraph titled Source of Concern, the third sentence would be more accurate if it read, "Because almost all commercial wafers are produced by Japanese and European firms..."

A Team of America's Best - Advanced Micro Devices, Inc. - Advanced Research Projects Agency (ARPA) - American Telephone and Telegraph Company
Digital Equipment Corporation - Hewlett-Packard Company - Intel Corporation - International Business Machines Corporation - Motorola, Inc.
National Semiconductor Corporation - NCR Corporation - Rockwell International Corporation - Texas Instruments Incorporated

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Enclosure 2
(Page 1 of 3)

The Semiconductor Manufacturing Technology Consortium Comments

Mr. H. Phillip Davis
DoD Inspector General
January 23, 1995
Page 2

We would like to provide updated information to that contained in the paragraph titled Proposed Agreement. Recent developments have rendered this issue no longer a concern. Since the conclusion of the audit, SVG has announced that the proposed arrangement with Canon would not be completed (see SVG press release attached hereto). Consequently, all statements in the paragraph that indicate some action "will" happen should be modified to indicate that the action "would have" happened. Also, all references throughout the section to the agreement might be qualified as the "proposed agreement" to be consistent.

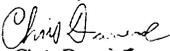
In the paragraph titled Controls Over Technology, we suggest replacing the phrase "Canon agrees" with "Canon would agree" in the first and third sentences. The references to the Export Arms Regulation should read Export Administration Regulations. Again, because of the fact that the proposed agreement was not undertaken, the last sentence would be clearer if changed to read "...Canon expected to achieve through the proposed agreement".

Management Comments:

The first sentence under this heading states that the report contains no findings or recommendations. We suggest inserting the word "adverse" before "findings or recommendations" if this is accurate.

With the exception of the minor changes we have suggested, the audit report is an accurate assessment of the relationship between the DoD and SEMATECH. The audit report does not contain any SEMATECH Confidential information, so in our view there is no need to restrict access to the document or label it as confidential. However, some of the source materials which were given to the Inspector General audit team do contain SEMATECH Confidential information and we ask that they be protected accordingly.

We appreciate the opportunity to preview the draft report and submit comments for your consideration. We also appreciate the professionalism and thoroughness with which the Inspector General team conducted the audit. If you have any questions on the above or if we can be of further assistance in this process please contact me at (512) 356-3106.

Sincerely,

Chris Daverse,
Liaison to the Department of Defense

Enclosure 2
(Page 2 of 3)

The Semiconductor Manufacturing Technology Consortium Comments

(TEXT OF SILICON VALLEY GROUP PRESS RELEASE DATED NOVEMBER 25, 1994)

11/25 Silicon Valley Group terminates Canon discussions

SAN JOSE, Calif. – (BUSINESS WIRE) – Nov. 25, 1994 – Silicon Valley Group (NASDAQ/NMS:SVG) and Canon, Inc. have mutually agreed to terminate negotiations regarding a proposed technology license and joint development agreement.

The letter of intent between the two companies, originally signed on April 1, 1993 and extended several times through Nov. 30, 1994, will not be renewed.

"SVG and Canon have been unable to reach agreement on the implementation of the principles set forth in the letter of intent and have mutually concluded that each company should pursue its own photolithography strategy," said Papken S. der Torossian, chairman and chief executive officer of SVG. "We have great respect for Canon and are very disappointed that a true global alliance for advanced photolithography tools could not be reached."

About Silicon Valley Group Inc.: SVG is a leading manufacturer of automated wafer processing equipment for the worldwide semiconductor industry and a member of SEMI/SEMATECH, an independent organization of United States-owned semiconductor equipment and materials suppliers.

Its sophisticated products include photoresist processing equipment; oxidation, diffusion, and low-pressure chemical vapor deposition processing systems; and photolithography exposure tools that utilize step-and-scan technology.

Silicon Valley Group Comments

Final Report
Reference

 SILICON VALLEY GROUP, INC.

January 6, 1995

Mr. Art Bohlinger
Inspector General
Department of Defense
400 Army Navy Drive
Arlington, Virginia 22202-2884

Dear Mr. Bohlinger:

I have reviewed the audit report on Project No. 4RC05049 and have the following comments pertaining to the sections "Lithography Equipment" on Page 5 and "Proposed Agreement" on Page 7:

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1. Lithography Equipment

- A. GCA filed for bankruptcy and to the best of my knowledge did not sell its technology to The Perkin-Elmer Corporation. It is possible that the final dissolution of GCA happened in 1993.
- B. It would be more accurate to state that the Consortium funding in the amounts specified along with funding from the IBM Corporation and those funds dedicated from Silicon Valley Group resulted in the development of second generation .5 micron step-and-scan lithography machine.

2. Proposed Agreement

- A. It would be more accurate to state that the proposed agreement would assist in the cost to development future step-and-scan lithography machines, rather than referring to the capital needed to manufacture the step-and-scan machine. Although there were not any restrictions on the use of funds obtained from Canon, it was the Company's intent to use these funds for R&D purposes and not to establish a manufacturing facility.

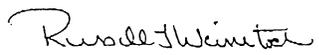
I hope that these clarifications will assist your organization in improving the clarity of the report.

Enclosure 3
(Page 1 of 2)

Mr. Art Bohlinger
January 6, 1995

If Silicon Valley Group may be of further assistance in this matter, please do not
hesitate to contact me directly at (408) 944-8778.

Regards,


Russell G. Weinstock
Vice President Finance
and Chief Financial Officer

RGW:kla

Organizations Visited or Contacted

Office of the Secretary of Defense

Under Secretary of Defense for Acquisition and Technology, Washington, DC
Director, Defense Research and Engineering, Washington, DC
Assistant Secretary of Defense (Economic Security), Washington, DC

Department of the Navy

Office of Naval Research, Washington, DC
Office of Naval Research, Resident Office, Austin, TX

Defense Agencies

Advanced Research Projects Agency, Washington, DC
Defense Finance and Accounting Service, Headquarters, Washington, DC
 Defense Accounting Office, Denver Center, Denver, CO
 Defense Accounting Office, Cleveland Center, Cleveland, OH
Defense Technology Security Administration, Arlington, VA

Non-Government Organizations

Semiconductor Manufacturing Technology Consortium, Austin, TX
Silicon Valley Group, Inc., San Jose, CA

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Senate Subcommittee on Science, Technology, and Space, Committee on Commerce,
Science, and Transportation
Senate Committee on Governmental Affairs
Senate Select Committee on Intelligence
House Committee on Appropriations
House Subcommittee on National Security, Committee on Appropriations
House Committee on Government Reform and Oversight
House Subcommittee on National Security, International Affairs, and Criminal Justice,
Committee on Government Reform and Oversight
House Committee on National Security
House Subcommittee on Research and Technology, Committee on National Security
House Committee on Technology and Competitiveness
House Subcommittee on Technology, Environment, and Aviation, Committee on
Technology and Competitiveness
House Permanent Select Committee on Intelligence
Congressman Duncan Hunter

Non-Government Organizations

Semiconductor Manufacturing Technology Consortium
Silicon Valley Group, Inc.

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