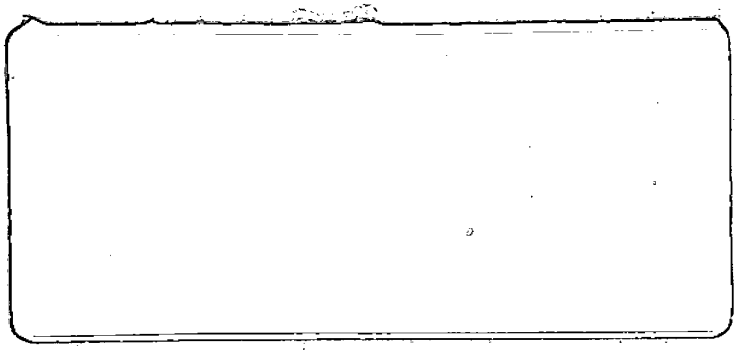
11038



STAT

STATUS REPORT

for Period

1 March through 31 March 1969

Submitted under Contract to

U. S. Government

[redacted] STAT

File No. 11038

[redacted] STAT

This document is presented as the Monthly Status Report under Contract to the U. S. Government, [redacted] STAT
The report period represented herein covers the period 1 March through 31 March 1969.

[redacted] STAT

[redacted] STAT

INDEX

APPENDICES

PROGRESS SUMMARY

Scheduled percentage of completion - 53.9%

Actual percentage this date - 51.5%

This month's report marks the achievement of attaining over 50% of the predicted program effort.

Activity has been high during this report period in the areas of subassembly, subassembly test, and completion of delivery of many electronic chassis and components.

We are currently preparing for shipment of the electronic cables and components which are required for installation of the optical system in the optical bridge, and the assembly of the stages and other components at [redacted] is proceeding as required. STAT

These items are covered in more detail under individual task headings.

Task 01 Statements of Work, Specifications, Report Preparation

Scheduled percentage of completion 55%

Percent completed this date 55%

No new work statements or specifications have been prepared or issued during this report period.

Task 02 Scheduling and Planning

Scheduled percentage of completion	55%
Actual percentage this date	55%

A new schedule for preparation and submittal of documentation has been prepared and incorporated into [redacted] STAT Program Plan.

A formal request for changes to the contract to reflect the new schedule was submitted on 7 March 1969.

A copy of this request is included as Appendix I.

Task 03 Test and Inspection Procedures

Scheduled percentage of completion	33%
Actual percentage this date	35%

Test procedures are currently being prepared for the servo simulation program which will provide information on electrical and mechanical characteristics of the optical drive chain and attendant systems.

These tests are scheduled for April and May of this year.

Task 04 Management, Administration and Supervision

Scheduled percentage of completion	55%
Actual percentage this date	55%

During the current month the various elements of the program maintained their scheduled status.

Film cooling and clamping details are being worked out at this time, and are covered in more detail under the individual task headings.

Task 05 Meetings

Scheduled percentage of completion	55%
Actual percentage of completion	55%

During the month of March, a meeting was held with the customer at the [redacted] facilities. Following is a list of the items discussed: STAT

1. Review of job schedule.
2. Review of deliverable items schedule.
3. Stereocomparator air bearings and stages, including demonstration.
4. Clean room facility and demonstration.
5. Operator Training Manual.
6. Spare Parts List and Maintenance Program.
7. Review of servo simulation program.
8. System acceptance tests.
9. Film cooling and film clamping mechanism and demonstration.

Additionally, a meeting was held with the customer's site preparation consultant. This meeting is discussed in detail under Tasks 38 and 40.

Task 06 Facilities Requirements

Scheduled percentage of completion	95%
Actual percentage of completion	75%

The air conditioning equipment installation has been completed into the Clean Room. All filters have been installed and both units have been run under "no load" conditions to determine the location of any leaks or unequal pressures within the ducts.

The initial tests were satisfactory.

Installation of inside ductwork and "start up" is expected by April 15, with another week required in which to balance the air flow through the system.

Task 07 Main Frame and Structural Elements

Scheduled percentage of completion	98%
Actual percentage of completion	93%

No additional work was scheduled for this task for the month of February.

Task 08 Skin

Scheduled percentage of completion	35%
Actual percentage this date	30%

As reported last month, the fabrication of the skin coverings for both the right and left stages will be scheduled to coincide with the overall assembly of the Stereocomparator.

No additional work was scheduled for this task during the month of March.

Task 09 Granite and Ways Assembly for Stages

Scheduled percentage of completion	98%
Actual percentage this date	95%

The two granite laser supports were received from the vendor during the month of March.

Delivery of the granite sections is now complete.

The drilling and tapping of the granite laser supports will be scheduled upon completion of the Clean Room facilities.

Task 10 Air Bearings

Scheduled percentage of completion	62%
Actual percentage this date	75%

As reported previously, the air bearings required to guide and support the stages have been installed.

No work was scheduled on this task for the month of March.

Task 11 Stage Drives

Scheduled percentage of completion	60%
Actual percentage this date	55%

Because of the necessity to complete the Clean Room facilities before the Stereocomparator equipment assembly can be continued, it has been necessary to re-schedule the installation of the stage drives.

This is because the confusion of the Clean Room construction prevents making delicate assemblies such as the stage drives.

No work was scheduled on this task for the month of March.

Task 12 Film Drive and Transport System

Scheduled percentage of completion	50%
Actual completion this date	65%

Minor modifications are being made to the film drive and transport system to insure a closer compatibility with the film platen and film clamping system.

Task 13 Film Platen and Film Clamping

Scheduled percentage of completion	55%
Actual percentage this date	49%

A prototype of a film holddown device to assist the vacuum clamping system was built by the [redacted] shop and demonstrated to the customer during their last visit. STAT

While the device performed its function, it was considered too large and was generally unsuitable.

An air jet method for performing this operation is being explored before a definite decision will be made with regard to the system to be used on the Stereocomparator.

Task 14 Film Cooling

Scheduled percentage of completion	40%
Actual percentage this date	40%

A determination of the volume and temperature of the air required for the film cooling assembly was made, using the prototype device fabricated by the [redacted] shop. STAT

The new valving required to give optimum film cooling is presently being installed in the film cooling system.

In addition, Polaroid photographs of the objective lens mounts and the film cooling arrangement were sent to [redacted] STAT for their use in providing for the air flow surrounding the objective lenses.

Tasks 16, 17 and 18 — Viewing Optics, Viewing Illumination, Reticle Projector and Illumination

Scheduled percentage of completion	64%
Actual percentage this date	65%

During the month of March, [ ] drawings were sent STAT to the optical vendor [ ] detailing the wiring installations to STAT be made by them to interface the optical subassemblies in the optical bridge.

Interfacing connectors required between the optical bridge and the power supply for the optics were also sent for installation in the designated placed on the optical bridge.

A monitoring trip is planned for the third week of April 1969.

Task 20 General Platen Illumination

Scheduled percentage of completion	61%
Actual percentage this date	41%

As reported previously, the general platen illumination assembly is ready for installation on to the Stereocomparator.

No additional work was scheduled for the month of March on this task.

Task 21 Optical Bridge and Supports

Scheduled percentage of completion	90%
Actual percentage this date	90%

As mentioned under Tasks 16, 17 and 18, drawings detailing the wiring installations and wiring connectors were sent to [redacted] for their use in interfacing the optical bridge with the optics system. STAT

Task 22 Interferometer Assembly

Scheduled percentage of completion 61%

Actual percentage this date 57%

The interferometer assembly is ready for installation on to the Stereocomparator.

Installation will be scheduled upon completion of the Clean Room.

Task 23 Optics Drive Assembly

Scheduled percentage of completion 57%

Actual percentage this date 45%

The chassis interfacing the optics drive assembly with the optics have been received and were unit tested in the [redacted] shop. It was determined that minor modifications will be necessary to interface with the optics assembly. STAT

We anticipate that these changes will be implemented and the chassis ready for breadboard testing by the end of April.

Task 24 Image Analysis System

Scheduled percentage of completion 43%

Actual percentage this date 55%

A monitoring visit was made during the month of March to [redacted] the subcontractor supplying the Image Analysis System. STAT

The trip report covering this visit is included as Appendix II.

A copy of [redacted] progress report for the month of February 1969 is included as Appendix III. STAT

Task 26 Digitizing Logic Subassembly

Scheduled percentage of completion	90%
Actual percentage this date	86%

The digitizing logic subassembly is ready for installation.

After installation of the interferometers on to the stages, the digitizing logic chassis will be installed, and the final system check out will begin.

Task 27 Metric Readout

Scheduled percentage of completion	94%
Actual percentage this date	92%

Additional testing of the metric readout with the control console display panel was done during the month of March. The results of these tests were satisfactory.

There will be some additional testing of the metric readout to determine that the program counting sequence which converts one quarter wave lengths to metric units is within the required accuracy tolerance.

This testing is scheduled for the month of April.

Task 28 Output Logic and Interfaces

Scheduled percentage of completion	98%
Actual percentage this date	72%

The revisions necessary to insure compatibility between the computer programming and the output logic circuitry are now substantially complete. Most of the circuitry has been checked out and debugged.

The checkout of the logic drawers in combination with the control console, computer and servo drives is scheduled for the months of April and May.

Task 29 Cabling

Scheduled percentage of completion	98%
Actual percentage this date	91%

In order to route the cables around the optical components in the optical bridge, it was necessary to modify some of the cable assemblies used in the optical bridge. These modifications are now in process, and the cables are being made ready to ship to the optics subcontractor.

The percent progress of the cabling required to interconnect the various electrical and electronic elements being assembled in the [redacted] shop is as follows: STAT

Cabinet #1 (Stage drives, film drive and transport system)	100%
Cabinet #2 (Optics drive, interface with Image Analysis System)	100%
Cabinet #3 (Metric readout, output logic and interfaces)	89%
Electrical arrangement (floor interconnection of all cables)	89%
Control Console	97%
Display Panel	95%
Optical Bridge	50%
Stage Assembly	73%

Task 30 Control Console and Chair

Scheduled percentage of completion	79%
Actual percentage of completion	62%

The wiring of the control console has been completed, and the console is now being tested in conjunction with the logic drawers with which it interfaces.

The checkout of the analog controls for the optic servos in the console is expected to be finished by the end of April.

Task 32 Computer

Scheduled percentage of completion	95%
Actual percentage this date	95%

The cleaning and disassembly of the computer has been deferred until April in order to accommodate the program efforts of [redacted] the subcontractor supplying the computer program. STAT

This deferment will not interfere with the overall schedule.

Task 33 Electronic Racks and Control Cabinets

Scheduled percentage of completion	88%
Percentage completed this date	88%

The installation of the electronic chassis into the racks and control cabinets has been rescheduled to coincide with the completion of the Clean Room.

Task 34 Utilities

Scheduled percentage of completion	56%
Actual percentage this date	55%

The [redacted] shop is in the process of installing the mechanical components comprising the utilities assembly. STAT

The electronics required to operate the utilities are virtually complete and are scheduled to be installed in the cabinet during the month of April.

Task 35 Vibration Absorption and Leveling

Scheduled percentage of completion 90%

Actual percentage this date 85%

No additional work was scheduled for this task during the month of March.

Task 36 Overall Assembly

Scheduled percentage of completion	31%
Actual percentage this date	18%

No additional work was scheduled for this task during the month of March.

Installation of the completed subassemblies is scheduled for the month of April.

Task 37 Radio Frequency Noise Suppression

Scheduled percentage of completion	0%
Actual percentage this date	0%

No work was scheduled on this task for the month of March.

Task 38 Environmental Control

Scheduled percentage of completion	75%
Actual percentage this date	58%

During the month of March, a meeting was held with the customer's site preparation consultant to discuss the final drawings detailing the environmental control requirements.

A copy of the trip report covering the discussions held is included as Appendix IV.

Task 39 Reliability Analysis

Scheduled percentage of completion 0%

Actual percentage this date 0%

No work was scheduled on this task for the month of February.

Task 40 Installation

Scheduled percentage of completion 0%

Actual percentage this date 10%

A meeting was held in March between the customer representatives, including the air conditioning and site preparation consultant, and [ ] representatives. STAT

A copy of the trip report covering the discussions held is included as Appendix IV.

Task 42 Breadboards and Test Devices

Scheduled percentage of completion	45%
Actual percentage this date	25%

Breadboarding and prototype testing of the various subassemblies is continuing in the [redacted] shop. See Tasks 13, 14, 27 and 30. STAT

Task 43 Computer Programming and Services

Scheduled percentage of completion	75%
Actual percentage this date	60%

Personnel from [redacted] the subcontractor STAT supplying the computer program for the Stereocomparator, are continuing with the development of the program, using the computer installed at the [redacted] facilities. STAT

A copy of their Progress Report for the month of February is included as Appendix X of this report.

Task 44 Preacceptance Test in Fabrication Plant

Scheduled percentage of completion	0%
Actual percentage this date	0%

No work was scheduled for this task during the month of March.

Task 45 Acceptance Test in Fabrication Plant

Scheduled percentage of completion	0%
Actual percentage this date	0%

No work was scheduled for this task during the month of March.

Task 46 Acceptance Test after Installation

Scheduled percentage of completion	0%
Actual percentage this date	0%

No work was scheduled for this task during the month of March.

Task 47 Instruction Manual and Drawing Submittal

Scheduled percentage of completion 21%

Actual percentage this date 12%

[redacted] is continuing to revise the design drawings STAT to cover the "as built" status of the various subassemblies.

Work is also continuing on the preparation of the Operator's Manual.

Task 48 Spare Parts List

Scheduled percentage of completion	6%
Actual percentage this date	20%

A preliminary spare parts list, covering both the recommended mechanical and electronic spares, has been completed. However, as the program progresses, we anticipate there will be additions and deletions to the present list.

Task 49 Operator Training

Scheduled percentage of completion	2%
Actual percentage this date	48%

During the month of March, work continued on the manual which will be used in training the operators to use the Stereocomparator.

7 March 1969

U. S. Government

Subject: [redacted] STAT

Gentlemen:

As stated in the recently monthly technical Status Reports, certain items of the Deliverable Items will be delayed. [redacted] hereby STAT requests amendment to the above referenced contract to reflect the following delivery schedule:

1.	Operating High Precision Stereocomparator.	14 June 1970
2.	Final Acceptance/Test Plan in a format approved by the Contracting Officer's Technical Representative.	No change
3.	One (1) set of Operating Instruction Manuals in a format approved by the Technical Representative of the Contracting Officer.	24 Nov. 1969 (Draft)
4.	One (1) set of Programming Instruction Manuals in a format approved by the Contracting Officer's Technical Representative.	6 Apr. 1970 (Draft)
5.	One (1) set of Maintenance Instruction Manuals in a format approved by the Technical Representative of the Contracting Officer.	24 Nov. 1969 (Draft)
6.	One (1) recommended Spare Parts List to include manufacturer's expected lifetime per part, and in a format approved by the Technical Representative of the Contracting Officer.	24 Nov. 1969 (Draft)
7.	One (1) Master Set of Contractor's shop drawings, drawn to an "as built" status, for the High Precision Stereocomparator, which shall be in accordance with industry standards for said drawings.	31 July 1970

8.	One (1) Blue-line copy of Contractor's shop drawings as set forth in Item No. 7 above.	31 July 1970
9.	Monthly Financial/Technical Progress Report, generally in the format required by Specification DB-1001, revised, attached hereto, which is incorporated herein by reference and made a part hereof.	No change
10.	Any and/or all informal technical reports, drawings, ray traces, optical designs, and other technical data acquired by the Contractor either directly or by reason of any subcontract or consulting agreement entered into in performance of work hereunder.	31 July 1970
11.	Any and/or all Alignment Targets, Resolution Targets and Target Film generated by either the Contractor or his subcontractor for use in testing the High Precision Stereocomparator Optics.	31 July 1970
12.	Any and/or all components, modules, or systems either fabricated, furnished, or purchased as part of the performance of work hereunder.	31 July 1970

No other changes to the contract are anticipated at this time.

If we can furnish any additional information, please do not hesitate to contact the undersigned.

Very truly yours,

[redacted] STAT

Administration Manager

BCJ:jm

App. II

TRIP REPORT

Company Contacted: STAT

Contacted by:

Persons Contacted:

Date Contacted: March 19, 1969

Subject: Job #342 - Tasks 24-25

showed the package of drawings that they were sending to STAT together with their monthly report for February which shows that they have completed 55% of their program.

They expect to have their manuals in first draft from by the end of March 1969. Their present schedule also calls for completion of acceptance testing by June 30, 1969. They indicated that their overall schedule was quite tight, and no one should be surprised if some additional slippages occur. At this point in the program, is not on the STAT critical path, and no schedule problem is anticipated.

Two months ago presented various aerial photographs from which STAT selected three for the acceptance testing of the image analyzer. These three photographs were then printed by in the form of enlargements, STAT and selected three areas on the prints for use in the fabrication STATT

of the test imagery. These three photographs represented three fundamentally different types of photography: one a mosiac of houses and streets in a fairly regular pattern; another was a mountainous terrain, with various topographical features including roads and buildings; the third was a wooded area with rather weak features.

[redacted] was directed to make up these three photographs in the form of STAT positive transparencies with various degrees of magnification and anamorphic distortion. Some of this work has been completed by [redacted] STAT and two of the photographic series were acceptable.

The third series differed in density with each magnification change, ie., as the magnification became greater, the density of the film became less. This was not considered an acceptable condition, since it would mean comparing photographs considerably different in density.

[redacted] was requested to make this particular series of photographs over STAT again, using a technique which would result in equal density for all of the photographs.

In reviewing the [redacted] work, it was noted that the high voltage cable STAT connecting the [redacted] image dissector tube to the [redacted] chassis was equipped STAT with two female plugs which would have to be mated for installation. Since two female plugs could not be connected together, [redacted] was advised STAT

that this was an unsatisfactory condition. [redacted] stated that installation STAT was the responsibility of [redacted] recommended that [redacted] buy an STAT adaptor or cut off the plugs on the cable and replace them with whatever configuration was necessary for [redacted] STAT

A controversy developed at this point which was not settled during the visit. [redacted] took the position that this matter was firmly within the STAT requirements of the contract and was one of the deliverable items of the contract, and as such, it was necessary for [redacted] to build the cable STAT in such a way that it could be used.

Even though [redacted] took a very strong negative position in this matter, STAT it is hard to believe that this can result in a real problem because of the ridiculousness of the situation.

The next visit with [redacted] is tentatively scheduled during the first half STAT of May.

PROGRESS REPORT FOR PERIOD ENDING 28 FEBRUARY 1969

[redacted] STAT

1.0 Progress during Reporting Period

Checkprints received on layouts performed by outside vendors were determined to be satisfactory. Subsequent schematic modifications were made on the distortion analyzer, parallax analyzer, video correlators, and channel selection logic circuitry. The layout work of these assemblies was purchased. Source control drawings were corrected on all assemblies in which outside layouts were performed.

Drawings were released on image dissector assembly, correlator chassis assembly and cable drawings. Purchase orders were placed on these items.

Sub assembly construction began during this period. The extender board and the sum and difference boards were completed. Work also progressed on the time base generator, modulator, dynode regulator, and video amplifier boards.

Schedule delays have resulted from various sources. Delays in sign offs have resulted from customer requests related to chassis assembly, cables and image dissector holder.

The [redacted] was closed on six days because of weather conditions and the intervening holiday. Vendors have also indicated longer delivery times on the remaining board layouts. STAT

Overall progress to the end of this reporting period is approximately 55%.

2.0 Plans for Next Period

Layouts on the proprietary modules, test fixture and image dissector holder are expected to be completed and procurement of these items started during March.

It will be necessary to check the layout drawings from outside vendors and to make final adjustments to the formats to agree with previous drawings. Drafts of the test procedures, operating manual, and spare parts list will be generated for approval.

Sub assembly construction and testing are expected to continue through May.

Acceptance test at [redacted] is tentatively expected to occur during the last week of June. STAT

App. IV

TRIP REPORT

Company Contacted: [redacted] STAT

Contacted by:

Persons Contacted: [redacted] and Customer Representative STAT

Date Contacted: March 20, 1969

Subject: Job #342 - Task #40

This visit was for the purpose of reviewing the site preparation mechanical, environmental, and electrical drawings.

[redacted] Specification No. 13, covering the air conditioning requirements for STAT the Stereocomparator installation had been issued some time ago. This specification made reference to, but did not include, the conditioned air requirements for film handling and optical bridge cooling. Revision #1 to the specification has just been completed, bringing up to date the film cooling requirements based on experiments performed at [redacted] and including STAT the information on optical bridge cooling. This revision was given to [redacted] STAT

The film cooling and film handling air conditioner was specified to have a capacity of 50 cfm at .35 psig and the equipment procurement will proceed on that basis.

In general, the specifications prepared by [redacted] appear to be STAT fully compatible with the [redacted] installation. Suggestions were made by [redacted] STAT for minor changes and improvements with reference to:

a) handling the heavy components of the Stereocomparator during installation, i.e., the services of a rigging contractor will be retained to shore up a floor over the "pit" to move the Stereocomparator heavy parts into position. This is in lieu of the installation of an expensive overhead travelling crane.

b) in connection with the distribution of air required for the equipment containing paper punching components.

c) for the location of the temperature sensing elements immediately ahead of the Stereocomparator in the air stream.

It was noted that in connection with b) and c) above, detailed engineering and possibly experimental work may have to be performed before some of the situations can be resolved.

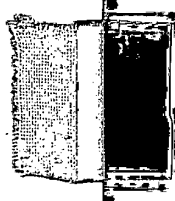
[redacted] is planning to perform some experiments in the immediate future with STAT respect to the location of temperature sensing elements for the [redacted] Clean STAT Room air conditioning control. The results of this work will be turned over to [redacted] as soon as the information is available. STAT

The supply and return duct system related to the air cooling requirements for the optical bridge, the illumination systems and the control console

were discussed in detail. A marked drawing was delivered to [redacted] STAT showing the air distribution outlets with respect to the optical bridge.

There is a serious space problem for the duct work. To help alleviate this problem, it was agreed that four to six approximately 3" conduits would be laid through the Stereocomparator's foundations so that various service and utility supplies may be furnished to the various portions of the Stereocomparator without interference with the air conditioning duct work.

It would seem that an appropriate site preparation schedule can be achieved by [redacted] which will not conflict with the installation requirements of STAT the Stereocomparator.



Declassified in Part - Sanitized Copy Approved for Release 2012/08/17 : CIA-RDP79B00873A001500010006-2

MONTHLY PROGRESS REPORT

February, 1969

This technical report is for the reporting period from February 1 to February 28, 1969. The report is prepared according to [redacted] STAT Specification number DB1001 (as modified). STAT

1. During the month, the entire background program has been coded, and each subroutine has been individually tested. A special code-checking driver has been created for each routine which tests all the permutations and limiting values of the subroutine's inputs. The checked-out routines are:

   a. TMAT (without earth curvature)
   b. MTS
   c. XAI
   d. T2PAN
   e. T2STRP
   f. XMX1
   g. MATMAK
   h. CAMATS
   i. YMR

   First draft documentation has been prepared for all the above routines.

Subroutine PTOP, also part of the background system, has been flowcharted and coded. It is presently in the debugging stage.

Subroutine REORT has checked-out extensively. This work, as well as the above, has been done on the CDC 6600 computer in Palo Alto. Using this computer greatly facilitates debugging, primarily because of the peripheral speeds.

In the non-real time portion of the program, subroutines

a. PARMOD
b. NOCAM and
c. TBSRCH

have been flowcharted and coded. Since these and most of the other non-real time routines are in machine language, they must be code-checked using the DDP-516 itself.

Subroutines

a. DATAIN
b. SCANNER and
c. CONVRT,

which were flowcharted last month, have been coded this month.

The foreground routines

a. EXEC2 and
b. TRK

have been integrated and a PAL-AP system tape created so that anyone may run them. Input is via the teletype, using an octal corrector subroutine; output is via teletype, using standard FORTRAN I/O routines. For this first "calibration system," the routines

a. CVB
b. CVF
c. REORT
d. TMAT
e. RDCR
f. RDCRX
g. RDOP
h. RDST
i. GTP
j. RECALL
k. FIXR and
l. LSTC

are all dummies which merely report via teletype each time they are called.

Approximately 55% of the total work has been completed as of this reporting period.

2. Next month, the non-real time routines

a. TTIN
b. RECIN
c. FID1
d. FID2
e. STAGIN and
f. TTIC

will be flowcharted, coded, and check-out will begin.

A total integration will be started shortly after the middle of March. The first phase will consist of laying out core storage, and integrating the real time background programs.

3. The only pending unresolved technical problem appears to be how to filter the crosstalk out of the correlator, or whether this is even necessary.

4. A change to subroutine TMAT has been proposed (incorporating earth-curvature). Since it will not affect the system integration and check-out, we are deferring this work until the correlator filter model and other possible changes are completely specified.

At that time, (possibly early in June), we will estimate the total additional work required and determine whether a change of scope might be in order.

5. There have been no oral agreements or understandings reached during this reporting period.

6. No changes or agreements have been made requiring the contracting officer's approval.

7. No other unresolved matters are known to exist.