IUE PROJECT POLICIES AND PROCEDURES

(Revision 2 - 17 August 1989)

The following is a description of the IUE Project's policies of which the Guest Observer (GO) should be aware in planning and carrying out his or her IUE research. Further details about these policies are available through the references given below and by consulting the Project Scientist, Dr. Yoji Kondo (301-286-6247), the Operations Scientist, Dr. Donald K. West (301-286-6901), or the Resident Astronomers (301-286-7537).

From time to time, project engineers recommend changes in mission operations to extend the life of the spacecraft or to work around minor spacecraft malfunctions. Changes in mission operations procedures may also require modifications to these science operations policies. Current IUE Project Policies are maintained on an electronic bulletin board which may be accessed on a 24-hour basis via SPAN or a long-distance call (see Section 1.4).

A NUMBER OF THE FOLLOWING POLICIES REQUIRE PRIOR NOTIFICATION TO THE OBSERVATORY. If the GO fails to comply with the requested prior notifications, the GO's science program may be impacted. Last minute requests will be denied if they impact other GO programs or if they violate GSFC administrative rules or mission operations policies. Such rules and policies cannot be waived.

Note that the requirements for notifying the Observatory are NOT met by information contained in the observing proposal itself. The purpose of the proposal is for the peer review to assess the scientific value and general technical feasibility of the proposed research. By the beginning of the observing episode, the GO is likely to have modified his or her priorities and observing plan. Thus the Observatory requires separate notification at the beginning of the episode for various special requests.

CONTENTS

1.1. POLICY: Assignment of Responsibility

OBSERVATORY NOTIFICATION REQUIREMENTS:

The observatory must be notified in writing in order to delegate PI responsibilities. This is required even if a Lead Investigator or other is explicitly designated in the original observing proposal to undertake the proposed observations.

STATEMENT OF POLICY:

The PI is responsible for all aspects of the observing program, including scheduling, adding targets, observing, and receiving the data. A PI may delegate all of these responsibilities to a colleague (i.e. Lead Investigator (LI)) by informing the IUE Project Scientist or RAs in writing. A PI or LI may also designate only a portion of these duties such as pre-visit planning (e.g. scheduling, receipt of skymaps) or receipt of processed data to a Co-Investigator, again by notifying the Observatory in writing. No prior notification is required for a colleague to perform the observations themselves (assuming he or she has arranged for a GSFC badge and all necessary observing information such as the schedule, sky-maps, target lists, etc.). An Assignment of Responsibility Form is available for the required Observatory notification. (See Section IV of this document or Appendix V of IUE Newsletter No. 32).

1.2 POLICY: Required IUE Guest Observer Badges and Car Passes

OBSERVATORY NOTIFICATION REQUIREMENTS:

At least two weeks notification is needed for normal processing. Late requests will be submitted to GSFC security, but badges and car passes may not be ready by the requested date.

STATEMENT OF POLICY:

Access to GSFC is by badge and car pass. Each Guest Observer (GO) or RDAF visitor must have in his or her possession an IUE badge or temporary GSFC visitor's badge. IUE badges are non-transferable and can only be issued to GOs officially listed as Principal Investigators, Lead Investigators, or Co-Investigators on approved programs. All other GOs and visitors must be issued temporary badges on a visit-by-visit basis. Note that it is a PI's perogative to add Co-Investigators to a program at any time via a letter to the IUE Project Scientist. Please note also that the special IUE badges are to be used for IUE-related visits only. Visits to GSFC for other purposes require the use of other GSFC badges.

Badges for this episode will be issued automatically to PIs, Lead-Is, and Co-Is who our records show have not received these items previously. We will purposely exclude only those non-US Co-Is who are part of large collaborative efforts having US PIs and whose travel to GSFC on IUE business is considered unlikely. Nevertheless, omissions may occur. The PI is responsible for ensuring that all persons travelling to GSFC in connection with your program have the proper credentials.

Requests for temporary GSFC badges and car passes should be received by the Operations Scientist at least two weeks prior to a visit. Requests may be submitted by telephone call but must provide the Observatory with the name of the person, their institutional affiliation, the name of their country of citizenship, and the dates for the visit. Badges and car passes prepared on request are held for pickup at the GSFC main gate.

1.3 POLICY: Adding Targets to Your IUE Program

OBSERVATORY NOTIFICATION REQUIREMENTS:

At least 30 days notice is required for normal processing. Last minute requests may be submitted to the Project Scientist; however, no data will be released until all paperwork, including approvals, has been completed.

STATEMENT OF POLICY:

It is expected that PIs may wish to add targets to their programs to provide observing flexibility. The PIs should submit target information on an Object Specification Form (see enclosure or Appendix V of IUE Newletter No. 32) with a brief explanatory letter to the Project Scientist. Alternatively, requests may be submitted by electronic mail (see Section 1.4). In this case, the format of the Object Specification Form should be used for the request. The Observatory plans to add an interactive program to its remote observer support software which will prompt the GO for the information and store it automatically in the proper format for the request.

Requests for added targets should be submitted at least 30 days in advance of the observing run. Required information includes target name, 1950 coordinates, object class, and the PI's program identification (five-letter code). Approval is contingent on suitability of the targets to the program and lack of conflict with the approved targets on other GO programs. Approval of the added targets is required before the data are released to the GO.

In exceptional cases, data may be archived to a temporary program ID pending a decision on the distribution of the data. In such a case, the PI must submit a written request to the Project Scientist for approval of the observed target and release of the data under his or her program ID. The data will not be processed until approval is received.

1.4 POLICY: Electronic Mail and Bulletin Board

OBSERVATORY NOTIFICATION REQUIREMENTS: Not applicable.

STATEMENT OF POLICY:

IUE maintains a general account for receipt of all project related electronic mail messages called IUEMAIL. The SPAN address is:

IUESOC::IUEMAIL

This account is checked on a daily basis by the on-shift Resident Astronmer. Please use the general account for all messages involving your observing program, including scheduling requests. You will receive confirmation of receipt of messages sent to the general account. Because the observatory staff members have non-standard work schedules, messages related to project business sent to individuals may not be seen in time to be useful.

The Resident Astronomers also have individual accounts on the above node. Personal messages may be sent them at IUESOC using the Resident Astronomer's last name as the account name.

The Observatory also maintains a general account which contains a copy of these policies, an electronic bulletin board, the current IUE GSFC observing schedule, and other GO software. The account is generally designed for the remote observing mode, but a number of its capabilities may be of general interest. The account is IUESOC::REMOTE. Please contact the observatory for the required passwords and a complete description of the available program aids.

1.5 POLICY: Scheduling of IUE Programs

OBSERVATORY NOTIFICATION REQUIREMENTS

In general, specific scheduling requirements (e.g. battery discharge, heavy camera overexposure, closing of the large aperture, etc) should be communicated to the Observatory scheduler at the beginning of the episode. Requests for specific dates submitted later than this should be submitted at least 90 days in advance of the desired shift date. Requests received after a schedule has been published may not be honored. This deadline does not apply to target-of-opportunity programs.

STATEMENT OF POLICY:

The effort required for efficient scheduling of programs is becoming a more and more complicated task. All GOs, whether or not their programs require advance approval for a particular constraint, are urged to keep the scheduler apprised on their priority targets. This will help minimize the problem of not being able to observe a particular target due to a S/C constraint which could have been avoided had the scheduler been aware of the GO's plans. Schedules are normally prepared and become offical approximately 90 days prior to a scheduled shift.

Please refer to the Summary of Scheduling Policies for complete details regarding scheduling.

1.6 POLICY: Requests for Discretionary Observing Time

OBSERVATORY NOTIFICATION REQUIREMENTS:

Requests for Project Scientist's Discretionary Observing Time should clearly state the reason for the request, why the proposer cannot wait for the next proposal cycle, and include an outline of the science to be performed. The proposal should be brief, ideally one page and not more than two. It should be accompanied by a Target Specification Form (see enclosure). The request should be addressed to the Project Scientist.

STATEMENT OF POLICY:

Limited small amounts of observing time are available for projects which, for scientific reasons, cannot wait until the next IUE observing year. Unlike some ground based observatories, almost all available time is given out to programs which have undergone peer review. Only miminal amounts are set aside for Observatory maintenance and engineering time and an even smaller amount for discretionary requests.

The Project Scientist's Discretionary Observing Time is intended for short observing projects for which no approved observing program exists. Proposals deemed non-urgent may be held for the next peer review cycle. However, the Project Scientist may approve Discretionary Time where observations must be performed by a certain date or where the project's scientific nature dictates urgency.

Examples of type of observations which might be considered for Discretionary Time include the following.

o One or two observations are needed to complete a program which has expended its allocated observing time, especially if the program has suffered a significant time loss during the episode.

o An exploratory observation is needed to prove program feasibility so that a complete program may be submitted for peer review in the next cycle.

o One or two observations are needed to complete a data set for an archival program in progress.

o An unexpected observing opportunity occurs. Note that most categories of this type such as novas, supernovas, catacylsmic variables, etc. have standing target-of-opportunity programs which would be activated.

o A single observation is needed to confirm the identity of an X-ray or Gamma-ray source.

Discretionary Proposals, like all other requests for observing time, are reviewed by the Observatory staff for technical feasibility and spacecraft constraints. An Observation Specification Form with target information (see enclosures), desired exposure times, specific dates for time-critical observations, and so forth should accompany the proposal for Discretionary Time.

2.1 POLICY: Observable Area of the Sky

OBERVATORY NOTIFICATION REQUIREMENTS: Not applicable.

STATEMENT OF POLICY:

In general any area of the sky will be observable in a power positive Beta region sometime during the year. However, the entire sky cannot be observed on any given date. The main criteria governing target availability for observing follow.

o Except for certain pre-approved cases, all observations must be performed at power positive Betas. Currently the zone extends from Beta 30 to 110. By the Spring of 1990, the zone will probably be Beta 32 to 105. During Earth shadow seasons, a special restricted range of Beta 45 to 95 is generally in force for 8 to 12 hours following daily shadow (see Section 2.6).

o With battery discharge approval, observations of up to 3-4 hours duration may be made in the power negative Beta regions from Beta 28-30 and 110-135 (see Section 2.3). Due to the limitations of the Fine Sun Sensor used to control spacecraft pointing, observations cannot be made below Beta 28 or above Beta 135.

o Targets near the Moon's apparent path as seen by IUE may be unavailable due to lunar occultation. In general the occultation lasts only a few hours, but it may occur at an inconvienient time. Please consult your GO skymap to see if this might be a problem with your targets.

o The Earth transits the sky as seen by IUE once a day. Its brightness creates a zone several times its actual size where observations of either very faint targets or targets with faint guide stars may not always be possible. Since the IUE shift times are sidereal rather than solar, a target occulted by the Earth during the middle of a given shift will always be occulted in the middle of that respective shift, no matter what time of year. Please refer to your GO skymap to see if this will be a problem.

o The areas near the ecliptic poles are especially favorable for targets which must be regularly monitored for long periods of time. These areas of the sky remain power positive throughout the year.

o Because of heating problems of the on-board computer (OBC), overhead of several hours duration may be required to cool the OBC if it hits the redline temperature. This can normally be averted by avoiding the hot Beta zone where heating is expected to occur. The size of the zone varies during the year (see Section 2.2).

2.2 POLICY: Beta Restrictions Due to Heating of the On-Board Computer

OBSERVATORY NOTIFICATION REQUIREMENTS: Not applicable.

STATEMENT OF POLICY:

The IUE project has amended its policy regarding on-board computer (OBC) temperature constraints. With the gradually shrinking power-positive Beta range, the impact of the hot OBC zone has become more noticeable. In the last several years, experience has shown that the OBC can operate satisfactorily for extended periods at 55.8 C. Thus the project has relaxed the OBC temperature constraint somewhat.

The S/C computer can not be allowed to stabilize at the next telemetry point of 57.0 degrees, as this could possibly result in the loss of the OBC. Once telemetry indicates that the OBC temperature is "glitching up" from 55.8 to 57.0 C, stabilization can occur in less than 30 minutes. Thus immediate action must be taken to prevent this.

The new OBC temperature contraints for science operations are as follows.

o Observations with OBC temperatures up to and including 55.8 are permitted.

o **SHOULD THE OBC TEMPERATURE AT ANY BETA BEGIN GLITCHING UP TO 57.0 DEGREES, CURRENT OBSERVATIONS MUST BE IMMEDIATELY STOPPED AND THE S/C SLEWED TO A BETA OF 40 DEGREES OR LESS UNTIL THE OBC IS GLITCHING DOWN TO 54.6 DEGREES.** It has been found that cooling just below Beta 30 (the current power positive limit) requires at least 2 hours before the OBC has cooled sufficiently. Cooling just below Beta 40 may require several times as long. The observer who is responsible for the OBC heating is expected to absorb this overhead (see below).

o Two beta zones have been defined to assist the observer in planning and scheduling observing shifts.

  o In the "hot" OBC zone, the on-board computer will rise to at least 57.0 degrees after extended periods of observing. Long exposures should not be scheduled in the OBC hot zone if at all possible; some exceptions for targets-of-opportunity and time-critical observations may occur. Short exposures may be obtained if the OBC temperature is at or below 55.8 degrees. If the cumulative time spent in the hot zone exceeds 60 minutes per 8-hour shift, the GO will be required to cool the S/C at the lowest power positive Beta for at least 60 minutes during the shift. This may be done before or after the observations or at any time during the 8-hour shift. For double-shift exposures, the 60 minutes per shift (i.e. 120 minutes) of cooling may be performed in a block, either prior to or after the exposure, but must be done prior to handing over the S/C to the next observer. This requirement is made to insure that the observer who is responsible for heating the OBC absorbs most of the overhead for cooling, rather than imposing this on subsequent observers.

o In the "warm" OBC zone, the on-board computer is not expected to rise above 55.8 degrees for periods of up to 24 hours of observing. For OBC temperatures of 55.8 degrees or less, there are no constraints on observing. However it is best to avoid scheduling long exposures in this zone if possible because of the impact to subsequent observers. If a long multi-shift exposure is needed in the warm zone and the OBC is already at 55.8 degrees, cooling of the S/C prior to starting the exposure is strongly recommended.

o The following table contains the expected "warm" and "hot" OBC Beta zones for each month of the year.

Month	Hot Zone	Warm Zone
January	53.0 - 97.0	97.0 - 105.0
February	54.0 - 94.0	94.0 - 100.0
March	58.0 - 90.0	90.0 - 100.0
April	64.0 - 82.0	82.0 - 95.0
May	-------	68.0 - 75.0
June	-------	68.0 - 75.0
July	-------	68.0 - 75.0
August	-------	68.0 - 75.0
September	67.0 - 79.0	79.0 - 90.0
October	59.0 - 88.0	88.0 - 95.0
November	55.0 - 93.0	93.0 - 100.0
December	53.0 - 96.0	96.0 - 105.0

2.3 POLICY: Discharging the Batteries at Power Negative Beta Angles

OBSERVATORY NOTIFICATION REQUIREMENTS:

The Observatory requires notification in writing at the beginning of the episode. Late requests will be evaluated on the basis of impact to other GSFC and VILSPA programs and may be denied. This deadline is not applicable to Target of Opportunity programs.

STATEMENT OF POLICY:

The primary function of IUE's two batteries is to provide spacecraft power during the semi-annual Earth shadow seasons. The batteries may also be used on a limited basis to supplement the power generated by the solar arrays in order to perform special observations, such as time-critical observations, comets at small Sun angles, or targets of opportunity, at high and low beta angles. The slow degradation of the solar array output, currently a few percent per year, has meant that there is an increasing demand for use of the batteries to support Guest Observer observations as the power positive beta region has decreased in size. On the other hand, the batteries have shown some degradation in performance. Battery No. 1, in particular, does not appear to hold a full charge for extended periods of time.

In the last few years, changes have been made in the rules which govern the use of the batteries in response to the results of the continuing studies of their performance and the battery health maintenance program established by project engineers. Currently the following directives are in effect:

o The batteries must be "topped off", i.e. fully recharged, at least once a week. This is generally done during a long exposure so that there is no impact to the science observations.

o The batteries must be "topped off" prior to each expected battery discharge.

o Up to 36 battery discharges, where a voltage of 22.5 volts or less is reached on either battery, are permitted in any 12 month period. Of these, 24 are allocated to GSFC and 12 to VILSPA. These allocations do not include shadow season.

o Of the 36 battery discharges, up to 12 may involve battery discharge to the "red line" value of 20.6 volts. Of these, 8 are allocated to GSFC and 4 to VILSPA. At present, the "red line" value is reached in 3 to 4 hours of power negative operations.

o After discharge, the batteries must be fully recharged. Some "dump current" is required during the recharging process, which means that the recharge must be done at betas of roughly 45 to 95 degrees. This rule is in effect for all battery discharges, whether for GO observations or during shadow season. The recharge period generally requires about twice as long as the discharge period, so 8 to 12 hours may be required.

It is the responsibility of the Guest Observer who is planning on requesting specific observing dates to check at the beginning of the episode whether battery discharge will be required and to request approval. The current power positive Beta range is 30 to 110 degrees. By next spring, it is estimated that the range will be 32 to 105 degrees.

Goddard and VILSPA are coordinating the scheduled dates of all shifts involving battery discharge. This is neccesary because any battery discharge has significant effects on the Guest Observer observations that are performed for up to 12 hours afterwards, primarily due to the recharging requirements. Consequently, any observer planning to discharge the batteries must notify the IUE Observatory in writing of their requirements. In order to be properly scheduled, this information should be communicated to the Observatory by the deadline established for other scheduling requests, i.e. the beginning of the episode. Programs requiring battery discharge will be reviewed on a case-by-case basis for scientific justification and potential impact on other programs. Requests for battery use received after this date will be considered only if they can be accomodated without impact to the other GSFC and VILSPA observers whose programs are already scheduled.

2.4 POLICY: Overexposing the Cameras

OBSERVATORY NOTIFICATION REQUIREMENTS:

Expected cumulative camera overexposures of 50X or more per camera per shift should be communicated to the Observatory in writing at the beginning of the episode. Late requests will be evaluated on a non-impact basis to other scheduled observers (including VILSPA). Without prior notification, the cumulative overexposure per camera per shift is limited to less than 50 times.

STATEMENT OF POLICY:

Heavy overexposures on the cameras have been found to affect subsequent observers by producing residual images on shift-long exposures for up to a week after the heavy overexposure. As a result the Observatory maintains a policy which balances the interests of programs requiring heavy overexposures against those programs which can expect only very low signal strengths. Programs expecting a single or cumulative overexposure of 50 times or more in either emission or continuum within an 8-hour period should inform the Observatory by no later than the beginning of the new episode (i.e. normally June 1), noting which shifts and/or which dates such overexposures are planned. This information will be used by the GSFC and VILSPA schedulers to schedule these shifts. In addition, the number of shifts on which a single or cumulative overexposure in continuum or emission can exceed 100 times during an 8-hour period is limited to a specific number per year. Requests for overexposures received after this date will be honored only if they do not impact already scheduled GSFC and VILSPA observers or exceed the annual allocation. Thus requests received after a shift has been scheduled may not be honored. Detailed guidelines are given below:

o By IUE Three Agency agreement, there are limits to the frequency with which large overexposures of the IUE cameras may be performed.

o A "heavy overexposure" is defined to be a cumulative overexposure of 100 times or greater on one camera within an eight-hour period. For example, five spectra, each 20 times overexposed, would qualify as a heavy overexposure.

o No overexposure of 1000 times or greater is permitted due to the potential for permanent damage to the cameras.

o No more than 12 eight-hour periods containing a heavy overexposure are permitted per camera in any 12-month period (8 shifts for GSFC, 4 for VILSPA).

o There are no restrictions or special requirements for shifts where the cumulative overexposure is less than 50X per camera.

o Goddard and VILSPA are coordinating the scheduled dates of all shifts where cumulative overexposures of 50X or greater are planned, even though there are no limitations on the number of shifts where the cumulative overexposure is less than 100X. Consequently, any program planning cumulative overexposures of 50X or more must notify the Observatory in writing of these requirements. In order to be properly scheduled, this information should be communicated to the Observatory by the deadline established for other scheduling requests, i.e. the beginning of the episode. Programs requiring heavy overexposures, as defined above, will be reviewed by the IUE Project on a case-by-case basis for scientific justification and potential impact on other programs. Scheduling and detailed exposure information for approved programs planning such overexposures will be exchanged between Goddard and VILSPA, so that the impact of overexposures on subsequent observations can be minimized by appropriate scheduling.

o Please note that the overexposure level of a given image is the ratio of the exposure time to that required for an optimum exposure (about 210 DN maximum). If the optimum exposure time for a given object cannot be reliably estimated from previous IUE or other satellite UV flux measurements, test exposures may be required. Overexposure estimates based on <u>over</u>exposure levels recorded on observing scripts and in the Merged Log may be inaccurate and should not be used for this purpose.

o In cases where there is disagreement or uncertainty about the optimal exposure time, the on-duty Resident Astronomer's estimate will be used in making calculations of the amount of overexposures.

2.5 POLICY: Restrictions on Closing the Large Apertures

OBSERVATORY NOTIFICATION REQUIREMENTS:

The Observatory requires notification in writing at the beginning of the episode. Late requests will be evaluated on the basis of impact to other GSFC and VILSPA programs and may be denied.

STATEMENT OF POLICY:

The IUE Three Agencies have recently adopted a new policy (April 1989) which limits the frequency with which the aperture mechanism is cycled. This limitation has been imposed due to electronic interference between the aperture closing mechanism and the FES. The interference causes a shift in the FES pointing, so that a star supposedly centered in the aperture is actually offset by up to 4 arcseconds. Such a shift can persist for several hours and can have a major impact on observations. The aperture mechanism must be closed whenever wavelength calibration observations are obtained or whenever small aperture observations are required that could be contaminated by light coming through the large aperture.

Goddard and VILSPA are coordinating the scheduled dates of all shifts where the closing of the large aperture is planned. Consequently, any observer planning to use the aperture mechanism must notify the Observatory in writing. In order to be properly scheduled, this information should be communicated to the Observatory by the deadline established for other scheduling requests, i.e. the beginning of the episode. Programs requiring aperture closing will be reviewed by the IUE Project on a case-by-case basis for scientific justification and potential impact on other programs. Requests for aperture closing received after this date will be considered only if they can be accomodated without impact to the other GSFC and VILSPA observers whose programs are already scheduled. Scheduling information for approved programs planning aperture closing will be exchanged between Goddard and VILSPA, so that the impact of aperture use on subsequent observations can be minimized by appropriate scheduling.

The IUE Observatory maintains a regular schedule of wavelength calibration observations. The frequency of these observations has been decreased to one set of observations per camera per month, the minimum frequency to maintain and update the wavelength calibration. The shifts are usually scheduled on the last US2 shift of the month, which is only 6 2/3 hours long. These observations are explicitly listed on the IUE schedule as "wavecals" to facilitate schedule coordination with VILSPA.

2.6 POLICY: Observing Restrictions during Earth Shadow Season

OBSERVATORY NOTIFICATION REQUIREMENTS: Not applicable.

STATEMENT OF POLICY:

Twice a year, for about three weeks in late summer and three weeks in late winter, the IUE's orbit carries it through the Earth's shadow once each day. During the shadow passages, which may last as long as 81 minutes, the batteries lack sufficient power to permit observations or maneuvers. On exiting shadow, the spacecraft is reconfigured for normal Science Operations. Several restrictions apply to observations made during Earth shadow seasons. Details are given below.

o No discharge of the batteries for other than daily Earth shadow passage is permitted during shadow season.

o Following the daily period of shadow, science observations are restricted to a charging Beta zone, currently between Beta 45 and 95, until the batteries have been fully recharged. This normally requires from 8 to 12 hours. This affects the VILSPA and US1 shift during the winter shadow season and US2 and VILSPA shifts during the summer shadow season.

o In addition to the time lost to shadow itself, there is a period of 45 minutes prior to daily shadow required to power down parts of the spacecraft and prepare for shadow passage. There is also a period of time after shadow required to reconfigure the spacecraft for science operations. The actual period of time varies in a complex manner, but traditionally has not exceeded 30 minutes. During the summer shadow season, shadow occurs during the latter part of the US1 shift. During the winter shadow season, shadow occurs during the second part of the US2 shift.

o The start times of the shift are altered during shadow season so that VILSPA absorbs approximately 1/3 of the time loss and GSFC absorbs 2/3. Whenever possible, half-shifts are scheduled for programs with the observatory program PHCAL being assigned the portion of the shift when shadow occurs. However, this is not always possible.

o Programs suffering time loss due to shadow are not automatically reimbursed. Those programs suffering significant time losses may request consideration for reimbursement of time from the Project Scientist following normal project guidelines (see Section 2.11).

o Certain monitoring or time-critical programs may become unfeasible during shadow season due the extra restrictions. These restrictions cannot be waived.

2.7 POLICY: Using the LWR Camera

OBSERVATORY NOTIFICATION REQUIREMENTS:

Advance notification is not required. However it is advisable to discuss possible use of the LWR camera with a Resident Astronomer before the observing run, since there are few scientific advantages in using this camera rather than the LWP camera.

STATEMENT OF POLCIY:

There are currently no restrictions on using the LWR camera to obtain IUE observations. However, due to the flare in the Ultraviolet Converter (UVC), the LWR is configured to the reduced UVC voltage of -4.5 kv. This reduces the sensitivity of the camera by a factor of 1.37 from its original configuration. With the LWR camera's sensitivity degradation and reduced voltage, the LWP camera is now more sensitive than the LWR camera at all wavelengths.

The extra overhead required to turn the camera on and off must be absorbed by the observer's program. Calibration exposures are still routinely performed on the LWR camera, but at a reduced rate compared to the prime LWP camera. The LWR is therefore not recommended for most IUE Guest Observer observations. (See also NASA IUE Newsletter No. 28, pp. 7, 10, and 22, 1985).

2.8 POLICY: Targets of Opportunity

OBSERVATORY NOTIFICATION REQUIREMENTS:

As soon as possible notify the Project Scientist and the Resident Astronomer on duty during US shifts. If an RA is not available, a message may be left with the IUE secretary during normal working hours at (301) 286-7664. Otherwise leave an electronic mail message in the IUESOC::IUEMAIL account via SPAN. A phone number and short message for the Resident Astronomers may also be left with the Data Operations Controller (DOC) at (301) 286-8625. This is at the IUE Operations Control Center, which is staffed on a 24-hour basis.

STATEMENT OF POLICY:

Novae, supernovae, cataclysmic variables, and other objects will be observed for twelfth-episode target-of-opportunity programs, as approved by the Project Scientist. PIs with approved target-of-opportunity programs should contact the Project Scientist to activate the program when suitable observing opportunities arise (IUE User Guidelines 1979; also NASA IUE Newsletter No. 5, pp. 15-16, 1979). If the GO is unable to be present in person for the observations, the Resident Astronomers will obtain the observations. The GO should contact a Resident Astronomer to arrange for the remote transmission of IUE scripts to the Observatory for the planned observations.

Target-of-opportunity programs take precedence over normal already-scheduled programs. However, they may or may not take precedence over other time-critical observations. When necessary, the Project Scientist will decide the order of priority for scheduling purposes.

2.9 POLICY: The Remote Observing Mode

OBSERVATORY NOTIFICATION REQUIREMENTS:

Advance approval and additional pre-observing planning is required as well as a working knowledge of the equipment at the remote site. Contact the Observatory for remote observing guidelines and observatory notification requirements.

STATEMENT OF POLICY:

The University of Colorado and the University of Chicago currently support equipment which enables remote observing with IUE. The efficiency of observing in this mode varies considerably depending upon the type of program and the experience of the observer. In addition, the current remote mode does not yet have redundant equipment. If a major disruption of communications should occur during a remote shift, the RA on duty will decide whether sufficient information is available to continue the observations. If it is not possible to continue with the remote user's program, an observatory program will be substituted but the time will be charged to the GO's program.

The GO is expected to operate the remote observing equipment at the site during the shift. Certain restrictions apply; for instance the remote user must have some recent experience observing with IUE at Goddard. Advance approval and additional pre-observing planning are required.

The Observatory now maintains a software package on the IUESOC MicroVAX for remote generation of IUE scripts and other informational features for the current remote sites. A number of the more generally useful portions of this package (e.g. calculating Beta angles and position angles for targets, copies of the current IUE observing schedule, etc.) are available to the general user community. Interested GOs may contact any IUE Resident Astronomer for details and passwords.

2.10 POLICY: The Service Observing Mode

OBSERVATORY NOTIFICATION REQUIREMENTS:

The Observatory prefers notification at the beginning of the episode. At least 30 days notification is normally required. The request should include a completed Service Observing Request form to allow evaluation of the request. (See the enclosed Service Observing Request Policy.)

STATEMENT OF POLICY

In special cases requiring no real-time science decisions, experienced GOs may not need to be present to perform routine observations. For instance, this mode of observing may be especially useful for long-term monitoring observations which are being scheduled on a weekly or monthly basis. Note that, though GOs are not required to be at GSFC for service observing, they are normally required to be available for immediate consultation by telephone during the observing shift.

Requests and all required information for evaluating the observing plan must be received at least 30 days prior to the scheduled shift. GOs will be informed of the results of the review at least a week prior to the shift. GOs are encouraged to submit their requests at the beginning of the episode. Accepted programs may be required to provide observing scenarios for high and low radiation and/or for cool and hot OBC conditions. For more details consult the enclosed Service Observing Policy description. For your convenience, some blank IUE scripts forms are included with the Service Observing Packet. Scripts may also be transmitted electronically. Please contact the Observatory for details.

2.11 POLICY: Observing Time Losses

OBSERVATORY NOTIFICATION REQUIREMENTS:

A written request must be made to the Project Scientist for consideration of reimbursements of lost observing time. In general, the time loss must be at least 4 hours. Anything less is difficult for the observer to make good use of and for the IUE Observatory to schedule.

STATEMENT OF POLICY:

Even with optimal planning, observing time may be lost due to a variety of hardware or software problems. Losses of observing time represent a very small fraction of time of the scheduled shifts. However, if happens on your scheduled shift, it may have a large impact on your program.

Except for required overhead, for which no remimbursement is allowed, the IUE Project Scientist is informed whenever an observer has lost a significant amount of observing time (i.e. any occurance which results in a time loss of over 10 to 15 minutes in an 8-hour shift). Reimbursements are not made for such small losses, but they are necessary for accurate records. Several minor losses of time during the year may cumulatively amount to a major time loss for a particular program. In addition to hardware or software problems which cause a loss of observing time, any staff errors are also reported. Losses of time which are the result of errors by the GO are not grounds for reimbursement and are generally not reported.

Reimbursement is not automatic. The GO is required to send a written request for consideration of reimbursement for major time losses to the Project Scientist. It will be evaluated on the basis of the impact of the time loss to the goals of the program, whether any non-alloted time is available, and whether reimbursement can be scheduled in a timely basis (e.g. a monitoring program).

Common time losses include the following.

o Crash of the ground system computer. The computer simultaneously handles a large number of tasks. It is not unusual for the computer to crash several times a day. Normally, it can be restarted within 2 to 3 minutes and operations can resume. If the crash is caused by a power surge, as may occur during thunderstorms, it may require several hours for the system to be brought back on-line.

o Communications link to the Wallops Island Tracking Station (WPS). The signal received at WPS is converted by a dedicated computer to a digital signal, uplinked to a commericial satellite, downlinked to a GSFC ground station, and then converted back to an analog signal which is fed to the IUE ground computer. A crash of one of the dedicated microcomputers used in this datalink can cause a temporary loss of telemetry data. Normally this can restored within a few minutes. In extreme cases, it may be necessary to switch to a backup satellite or ground communications link.

o Receiving and transmitting antennas at WPS. The command and receiving antennas at Wallops are computer controlled. A crash of the controlling computers can result in the antennas temporarily slewing off the spacecraft. Redundant antennas and receivers are available.

o On rare occasions (i.e. once a year or two), the on-board computer may halt. This crash usually causes a loss of attitude as the spacecraft drifts away from its original pointing. A major attitude recovery will normally be required; this may take several hours.

o Loss of science data. The READ of the cameras is a destructive process. Once the READ is started, the data must be collected by the ground computer. Wallops maintains analog recorders which record the data as it received by the downlink antenna. If the receiving antenna crashes, the data are lost. If any of the other ground computers crash, the data can normally be recovered using a "history replay". It is extremely rare for an image to be irrevokably lost. The process of recovering the data requires additional time and may delay the shipping of the affected image by a month longer than for normally processed images.

o Earth shadow seasons. Earth shadow seasons last for several weeks twice a year and result in time losses of up to several hours daily.

o Required overhead. Spacecraft rangings are required to periodically redetermine IUE's orbit. If the on-board computer becomes too hot, a period of cooling may be required.

3.1 POLICY: Distribution of IUE Data Products

OBSERVATORY NOTIFICATION REQUIREMENTS:

Notification is required only if data is to be shipped to someone other than the PI or if IUE archival data is to be requested.

STATEMENT OF POLICY:

o The PI has exclusive right to his or her new IUE data for six months following receipt of the data. After this, the data will be available to all US astronomers through the National Space Science Data Center (NSSDC) and to foreign scientists through the World Data Center (IUE User Guidelines 1979; also NASA IUE Newsletter No. 5, pp. 15-16, 1979).

o The data will be shipped to the PI unless the Observatory has received a completed Assignment of Responsibility form from the PI designating some other person as the recipient. This is required even if the PI has explicitly designated a Lead Investigator or other person in the original observing proposal. An Assignment of Responsibility Form is enclosed (see Section 4.1 or Appendix V of IUE Newsletter No. 32).

o Information on obtaining archival IUE data is sent to the IUE GOs at the beginning of the episode and is published in the NASA IUE newsletter. Small requests of up to four images may now be obtained from NSSDC via SPAN. Copies of request forms for more extensive requests may be use to obtain data from the Observatory or NSSDC (see the forms in Sections 4.4 and 4.5). The data stored at NSSDC is current as of the last time the image was processed by IUE SIPS, either the original processing or the last reprocessing that was requested for that data. One may also request that the data be reprocessed with the current processing schemes and calibrations (see Section 3.4).

3.2 POLICY: Priority and Special Processing of Data Products

OBSERVATORY NOTIFICATION REQUIREMENTS:

Standard requests should be filled out on the form provided at the Observatory. Special requests should be in writing and addressed to the Operations Scientist for review.

STATEMENT OF POLICY:

Visiting GOs who wish to have their IUE data processed quickly for use at the GSFC RDAF may routinely request priority processing before the observing run. All other requests for priority or special processing must be submitted in advance to the Operations Scientist for review. Note that the SIPS staff do not usually process images on weekends. Thus observations taken on a Friday will normally not be available until the following Monday at the earliest. This should be taken into account when scheduling RDAF time to coincide with observing runs. A form for priority and special requests is given in Section 4.4.

3.3 POLICY: Duplicate Copies of Data Products

OBSERVATORY NOTIFICATION REQUIREMENTS:

The request must be in writing and on the form provided at the Observatory. For remote observing shifts the on-shift RA will fill out the form with information provided by the GO.

STATEMENT OF POLICY:

Copies of data for official VILSPA collaborators may be routinely requested through the IUE observing staff during the observing run.

o Only images initiated at one ground station and read down at the other are covered by this Three Agency agreement.

o The US GO must provide a shipping address for the VILSPA collaborator.

o All other requests for duplicate data products must be submitted in advance to the Operations Scientist for review. A request form may be obtained at the Observatory.

3.4 POLICY: Data Reprocessing Requests

OBSERVATORY NOTIFICATION REQUIREMENTS:

Please make the request in writing using the form given in Section 4.3 of this document. Additional forms may be obtained from the Observatory or in IUE Newsletter No. 32.

STATEMENT OF POLICY:

o GOs or archival users may wish to have data reprocessed using the most up-to-date processing software and calibrations. These reprocessed images may benefit from the improved techniques and calibrations that have become available with time. In addition, reprocessing images to a uniform standard facilitates intercomparison of the data. Information on data processing, calibrations, and reprocessing is given in the IUE Data Analysis Guide (NASA IUE Newsletter No. 39, 1989).

o Requests for reprocessing IUE archival data should be submitted to Donald K. West, Operations Scientist, Code 684, NASA Goddard Space Flight Center, Greenbelt, MD 20771.

o Requests should be in writing and on the form provided.

o Data reprocessing for approved requests will be performed on a time-available basis, with top priority going to PIs of NASA-funded programs.

3.5 POLICY: Publications and Acknowledgements

OBSERVATORY NOTIFICATION REQUIREMENTS: Not applicable.

STATEMENT OF POLICY:

GOs are asked to send preprints and reprints of their IUE-related papers to the IUE Observatory in care of the Operations Scientist. The author's name should be annotated on the title page with the footnote: "Guest Observer with the International Ultraviolet Explorer Satellite" (IUE User Guidelines 1979; also NASA IUE Newsletter No. 5, pp. 15-16, 1979).

The IUE Project asks that investigators publishing data obtained from the IUE archives acknowledge the original PI who acquired the IUE data. In addition, the IUE Project asks the investigators acknowledge the use of the Regional Data Analysis Facilities and/or the National Space Science Data Center when appropriate.

ASSIGNMENT OF RESPONSIBILITY

Pre-Visit Planning: I wish to designate the following person as responsible for the pre-visit planning for my IUE program. Schedules, skymaps, and pre-visit telephone calls should be directed as given below. He or she is empowered to request that targets be added to the program and to make scheduling requests.

[] Responsibility reserved to Principal Investigator
[] Responsibility designated to:

Name:
Address:
Telephone:
E-mail address:
Network:

Post-Visit Data Shipment: I wish to designate the following person as responsible for receiving the data products for my IUE program. The magnetic tapes, photowrites, scripts, and CalComp plots are to be shipped as given below.

[] Responsibility reserved to Principal Investigator
[] Responsibility designated to:

Name:
Address:
Telephone:
E-mail address:
Network:

Program:
P.I.:

Signature: _____
Date:

Return to:
Chris Shrader
IUE Observatory
Code 684.9
Goddard Space Flight Center
Greenbelt, MD 20771

Distribution:
C. Aguirre-Echevarria
D. Appleman
C. Shrader
M. Smith
Red Files

Rev: 8/16/89

NOTIFICATION OF CHANGE OF ADDRESS

NAME: _____

CURRENT IUE PROGRAM ID(S): _____

OLD ADDRESS: _____

_____

_____

_____

NEW ADDRESS: _____

_____

_____

_____

NEW PHONE NUMBER: _____

NEW E-MAIL ADDRESS AND NETWORK: _____

[ ] PERMANENT CHANGE. EFFECTIVE _____

[ ] TEMPORARY CHANGE. EFFECTIVE FROM _____

TO _____

Please send the completed form to:

Resident Astronomers
IUE Observatory Code 684.9
Goddard Space Flight Center
Greenbelt, Maryland 20771

Distribution:

C. Aguirre-Echevarria/schedules
D. Appleman/DMC
D. Prather/newsletters
Red Files

Rev. 8/16/89

SCHEDULING UPDATE

Often the results of one IUE shift can affect the scheduling requirements for remaining shifts. Please fill in this form so that any unscheduled shifts can be used optimally.

PI: _____ Program I.D.: _____

Date: _____

What targets did you observe today? Target Nos: _____

Do you want to reobserve any on later shifts? Nos: _____

Have your priorities changed? How? _____

Comments:

Not applicable: _____

Many targets to choose from: _____

Only one target: _____

Other: _____

Please return this form to Chris Shrader.

REQUEST FOR SPECIAL IUE IMAGE PROCESSING

Guest Observer name: _____

Program ID(s): _____

Observing date(s): _____

_____ Request for priority processing. Justification:

_____ Non-local visitor wishing to analyze data at the RDAF

_____ Other (requires approval by the IUE Operations Scientist)

Approved: _____ Date: _____
Operations Scientist

_____ Request for data to be transferred to the RDAF (GSFC RDAF visitors should schedule a visit by calling Randy Thompson at 301-286-8800).

Expected date of use: _____ to _____

Account name (if known): _____

Approximate number of spectra to be given priority and/or loaded at the RDAF:

_____ high-dispersion spectra

_____ low-dispersion spectra

Additional comments:

cc: IPC/script folder
D. Appleman/DMC
M. Smith/IPC
S. Coleman/IPC
R. Thompson/RDAF
J. Gass/IPC
RA memos, red files, priority request file

Rev 8/8/89

IUE Data Request Form

Name _____ Date _____

Institution _____ Please distribute data products re:

Telephone _____ [ ] hold at GSFC RDAF for visit on date _____.

Is this data request for a NASA/IUE supported program? If so, higher priority will be given in filling the request. Please note the relevant IUE observing program code(s) or SADAP code(s) here:

_____

[ ] name and address given below:

_____

_____

_____

Please specify the data and data products requested below. The current version of the data in the archives will be sent to you unless reprocessing is requested below. Mail this form to: Dr. Donald K. West, Code 684, NASA Goddard Space Flight Center, Greenbelt, Maryland 20771.

Object Name	Camera	Image Number	Raw Image	Extracted Data (Existing Version)	Reprocessed Data Mag Tapes	Photo-writes	CalComp Plots

*Please specify tape density: [ ] 800 bpi [ ] 1600 bpi [ ] 6250 bpi (when avail)

For staff use:

IUE DATA REQUEST FOR RELEASABLE IMAGES

Name:* _____ Requested Tape Density:† ( ) 800 bpi

Address: _____ ( )1600 bpi

_____ ( )6250 bpi

_____ Telephone: _____ Extracted spectra only: ( )††

Object	Image Seq. No.** Cam.	Image No.	Check desired medium Photowrite	Mag. Tape	THESE SPACES FOR NSSDC/WDC-A USE ONLY		

* Please give full name (first, middle initial, last) and title (Dr., Prof., Mr., Ms., etc.)
† Maximum density that can be processed at you installation. Supply appropriate number of tapes (new 2400-ft.)
†† Raw and geometrically/photometrically corrected images not supplied. Processing time and amount of tape will decrease significantly
** Please indicate VILSPA (European) images by placing a "V" after the image number

Image Capacities for 2400-foot tapes

Images	6250	1600	800 bpi
Full	15	8	5
Extracted	50	20	15

INTENDED USE OF DATA (Check all that apply)

_ Support of a NASA effort
_ Support of a U.S. Government effort
_ Research and Analysis Project
_ Educational purposes
_ Use in publication

Send this form with the appropriate number of tapes to:

Domestic: Request Coordination
National Space Science Data Center
Code 633.4
NASA Goddard Space Flight Center
Greenbelt, MD 20771

Foreign: Request Coordination
World Data Center A for Rockets & Satellites
Code 630.2
NASA Goddard Space Flight Center
Greenbelt, MD 20771 USA

OBSERVATION SPECIFICATION FORM

PROGRAM ID	PROGRAM NAME	USER'S INITIALS	DATE	PAGE OF

SEQ	A	IDENT	RA (1950)			DEC (1950)			SP	L	E F	VIS MAG OR FLUX	B-V E(B-V) WAVELENGTH	RW	RANK		DAY	OBJ CLASS
			HR	MIN	SEC • T	± DEG	MIN	SEC										
1 2 3	4	5 6 7 8 9 10 11 12	14 15	17 18	20 21 • 23	25 26 27	29 30	32 33	35 36	38	40	42 43 44 45 46 47	49 50 51 52 53 54	56 57	59 60 61		70 71 72 73 74 75 76	78 79 80

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80

680-2 (6/80)

Information on this form will be available to all IUE Guest Observers

OBSERVER

OBJECT

RA (1950)

DEC (1950)

PROGRAM ID _____

Date _____

Target Serial No. _____

mV _____ Sp. T. _____

E(B-V) _____ Class No. _____ (B-V) _____

Camera	LWP / LWR	SWP	
PREP	Standard	Overexposed	Other
Dispersion Mode	High	Low	
Large Aperture	Close	Open	
Object Aperture	Small	Large	
EXPO Time	_____ min	_____ sec	Trailed
			Multiple

READ Normal Ping Avoidance Other

Over-exposure _____ X expected

Remarks:

PROCESSING SPECIFICATIONS
*** NO DEFAULTS ***

Processing Type:
- Point Source _____
- Extended (lo disp) _____
- Trailed (lo disp) _____
- Full Aperture (hi disp) _____

Process Both Apertures _____

Registration:
- Automatic Shift _____
- Manual Shift _____
- Do Not Shift _____

Remarks for IPC/DMC

RA/TO

Observatory Record Number_____

FES Counts	Out	In	Overlap Fast	Underlap Slow
Tracking Mode	FES	X	Y	CT
	FES + GYRO			
	GYRO			S/C ROLL
Focus	Radiation	Beta		FSS Roll

EXPO Start UT Day_____ Hr_____Min_____Sec _____ THDA in EXPO_____

READ Start UT Day_____ Hr_____Min_____

LWR extended heater warmup
LWP bad scan starts _____

Archive Tape_____

IMAGE SEQUENCE No. _____

EXPOSURE LEVELS

Comments:

Emission _____DN, or_____X OVER

Continuum _____DN, or_____X OVER

Background_____DN, or_____X OVER

Noise _____DN, Y_____

Image Seq. No. _____ Program ID_____

Target Name _____ Day _____

GMT	FOCUS	FPM	THDA	ABG-P	ABG-Y	$\dot{P}$	$\dot{Y}$	TMP2	COUNTS

IUE Service Observing Policy
(Revision 5 - 25 April 1989)

The IUE Project believes that much of the success of IUE can be attributed to the presence of the Guest Observer at the Telecope Operations Control Center. Unlike other space experiments, IUE encourages observers to direct their scientific programs in real-time, allowing them to decide what course their observations take and giving them some control over the quality of data obtained. Furthermore, observers who are present during their observations become better informed about the limitations of the data and understand more about changes in instrumental performance and image processing capabilities.

The Project also recognizes that in some cases the Guest Observer need not be present for all observations and provides an optional Service Observing mode in which routine observing programs can be carried out by the Observatory staff. In this mode, the observer must create plans in greater detail and with few options because the observations themselves are performed by the Telescope Operator. The intent is not to have the Resident Astronomer act as a substitute Guest Observer, but rather to have the observations carried out per the Guest Observer's written instructions. The service observing guidelines contained in this document are designed to maintain a high quality of scientific results from the IUE.

Requests will be honored only from the Principal Investigator or his/her officially designated representative (such as the Lead Investigator) who has been identified on an Assignment of Responsibility form. Throughout we use the term Guest Observer (GO) to refer to this person.

1.0 Definition of Mode

Service Observing will be optional for routine programs for which no real-time scientific judgement is necessary. A clear written observing scenario must be provided which includes a chronological order of targets to be acquired, type of acquistion (e.g. blind offset or standard), camera, dispersion, exposure times, and radiation cutoff level at which to halt the program or specific exposures. If needed, the GO must provide alternate scenarios for high/low radiation conditions and/or hot/cool OBC. The observations will be carried out by the Telescope Operator (TO). No decisions other than the usual operational ones will be made by the RA. Any unanticipated but necessary modifications to the observing plan will be made by the GO in telephone communication with the RA. Planning for such shifts, with input from the Resident Astronomer (RA) concerning spacecraft constraints, must be completed well in advance of the scheduled shift. All scripts, finder charts, and any other necessary documentation must be available prior to the scheduled shift. The GO must be reachable by phone during the scheduled hours of the shift.

2.0 Qualifying Programs

2.1 Only GOs with moderate to extensive real-time observing experience, including at least two shifts in the last two years, will be eligible for this mode.

2.2 GOs may elect to use Service Observing for qualifying programs to the extent that observing runs on IUE programs will still bring them to Goddard at least once during the episode.

2.3 Local observers from the Washington-Baltimore metropolitan area are normally expected to observe from Goddard. Exceptions for extenuating circumstances must have the concurrence of the Project Scientist.

2.4 A target must be uniquely identifiable within an area of 15 arc minutes radius either by virtue of its brightness or of the existence of an easily recognizable stellar pattern.

2.5 Types of observations which can be performed are the following.

2.5.1 Blind offsets can be done for targets which: (a) have an offset star with known 1950 coordinates corrected for proper motion within 15-20 arc minutes of the target; (b) have a guide star of at least magnitude 13.0 with a known position (FES or equatorial coordinates); and (c) have no need to obtain FES confirmation of the target's location. **IF FOR ANY REASON A GUIDE STAR IS UNAVAILABLE (E.G THE STAR LIES BEHIND THE FES OBSTRUCTION, HAS FALLEN INTO A FOCUS SLOT, IS TOO FAINT TO TRACK ON,ETC) AND THE PLANNED EXPOSURE PROVES UNFEASIBLE, THE GO WILL BE EXPECTED TO HAVE MATERIALS ON HAND AT THE OBSERVATORY FOR A BACKUP TARGET. IF NO SUITABLE BACKUP TARGET IS AVAILABLE, AN OBSERVATORY PROGRAM WILL BE SUBSTITUTED, BUT THE TIME WILL STILL BE CHARGED TO THE GO PROGRAM.**

2.5.2 No moving targets will be observed.

2.5.3 No observations will be done where the exposure must start at an exact and specific time.

2.5.4 Targets in regions where the length of stay is conditional because of battery discharge constraints will not be observed.

2.5.5 Trailed spectra and multiple exposures can be taken in the large aperture, but not if time-resolution or spatial information is required.

2.5.6 Targets will not be observed if the GO has doubt before the shift concerning the approximate exposure lengths. The staff will not modify exposures from real-time information such as visual magnitude or the results of previous exposures.

2.5.7 Exposures can be terminated at a pre-defined "trigger" radiation level reading, but branching during the shift to alternate targets depending on radiation levels is not allowed. Either a low or high radiation observing sequence must be selected at the beginning of the shift.

2.5.8 Observations at a "hot OBC" Beta are permitted only if there is a single alternative observing plan, involving only one decision-making point.

2.6 GOs will be expected to conduct timely quick-look or final product evaluation of the scientific quality of data obtained in the Service Observing mode. Thus generally no more than 2-3 consecutive service observing shifts will be scheduled in a single observing run.

3.0 Planning the Service Observing Shift

3.1 A detailed written observing plan should accompany the initial request for Service Observing and should be received by the Observatory at least 30 days prior to the scheduled shift for GOs electing to use this mode. The plan will be used by a Resident Astronomer to determine the feasibility of the program for Service Observing. GOs who anticipate that they will request Service Observing are encouraged to submit their requests at the beginning of the episode. With sufficient lead time, shifts can sometimes be scheduled to avoid spacecraft constraints which would otherwise disqualify the program for Service Observing.

3.2 The detailed written observing plan should include the following:

3.2.1 A chronological listing of targets to be observed.

3.2.2 For each target, the target name, target's 1950.0 coordinates, exposure time, camera, and dispersion should be listed.

3.2.3 Additional information should be listed when required. For example, for qualifying blind offset observations, the name of the offset star, its 1950.0 coordinates, and visual magnitude should be listed. For the guide star, its 1950.0 coordinates and visual magnitude should be included. Alternately, its FES X and Y position, the FES counts and mode (i.e. whether fast track or slow track and underlap or overlap), the aperture used for the observation, and the spacecraft roll angle from a previous observation should be listed. This can be obtained from the previous observing script. (Note that this information may not be available on observing scripts that date from the first year or two after launch.)

3.2.4 A radiation trigger level should be included which specifies at which point the observation is to be halted. This may be either a single flux particle monitor (FPM) value for the entire program or values for each target. This should be done regardless of whether a US1 or US2 shift is planned. For US2 shifts where exposure times exceed 10-15 minutes, the GO should normally provide two scenarios; one for a high radiation shift and a second for a low radiation shift. At the beginning of the shift, the RA will inform the GO of the current status of the radiation and ask the GO to select which scenario to use for the shift.

3.2.5 During the winter months, there is a wide zone during which the OBC may reach its maximum permitted temperature and require cooling. At this point the observer has two basic options: 1) to go to a very low Beta and cool the spacecraft quickly (i.e normally at least 150 minutes are required) and return to a target in the heating zone; or 2) to slew to a different target below Beta 40. If the observing shift is to occur during OBC heating months and the targets to be observed are in the OBC heating Beta zones, the GO should include an alternate observing scenario to be used should the OBC reach redline limit during the shift. The scenario should take one of two forms. It should either be a list of targets below Beta 40 to observe during the remainder of the shift or a list of priority targets to be obtained after first cooling the OBC at a low Beta.

3.2.6 Earth and/or moon occultation should be checked for each target and noted when it occurs during the scheduled shift (i.e 1st half, middle, 2nd half). The observing scenarios should be designed so that targets occulted during the second half of the shift are observed during the first half of the shift and visa versa. However, occasionally time losses to observing programs occur or the program may be behind schedule because of time required to cool the OBC. If a target is occulted at the point in time at which it is to be observed in the observing scenario, the observation will be skipped.

3.3 An evaluation of the feasibility and completeness of the plan and recommendations as to any other requirements needed to qualify for Service Observing are given to the Project Scientist who approves or disapproves the request. Approval may be made contingent upon revisions being made to the plan. The evaluation is normally performed by the Resident Astronomer who will be on-duty during the scheduled shift.

3.4 The evaluation will normally be completed and the GO contacted at least 7 days prior to the scheduled shift. If the request is disapproved, the GO will need to make travel arrangements to observe in person at GSFC. (The GO is encouraged to make the request well in advance of the 30 day deadline to allow for more than 7 days notification.)

3.5 Once approved, completed scripts and finding charts should be mailed immediately to the Observatory and addressed to the Resident Astronomers, IUE Observatory Code 684.9, Building 21 Rm. 61B, Goddard Space Flight Center, Greenbelt, MD 20771. Overnight mail users must include both the code, building, and room number to insure delivery to the observatory. Overnight mail delivered on either weekends or holidays can be diverted into the general GSFC mail system, so delivery on weekdays is preferred. If regular mail is used, it is essential that the GSFC mail code be included for prompt delivery. (Note that blank observing scripts have been included with this form. They can be copied to provide additional forms as needed, but please note that they are double-sided. Additional blank scripts can be requested on the service observing form.) If the GO wishes, completed scripts, finding charts, etc., may accompany the original reguest. This speeds up the processing if the request is approved.

3.6 The GO must provide appropriate finder charts for program targets and offset stars fainter than visual magnitude 5.0 or for fields containing more than one bright star. The charts should show stars down to at least 12th magnitude, have the target star clearly marked, have an arc minute scale, and indicate the north and east directions. Atlas maps such as Norton's, Becvar, or SAO are not acceptable. Copies of old FES fields from previous IUE observations are acceptable. Please indicate whether you wish the finding charts to be returned to you. Due to lack of space at the Observatory, finder charts and any unused observing scripts are normally discarded once the service shifts have been completed.

3.7 ALL OBSERVING SCENARIOS, SCRIPTS, FINDER CHARTS, ETC. MUST BE AVAILABLE TO THE ON-DUTY RESIDENT ASTRONOMER AT THE BEGINNING OF THE SERVICE OBSERVING SHIFT. IF FOR WHATEVER REASON THESE MATERIALS ARE NOT AVAILABLE, AN OBSERVATORY PROGRAM WILL BE ACTIVATED AND THE SERVICE OBSERVING WILL NOT BE DONE. TIME WILL STILL BE CHARGED TO THE GO'S PROGRAM AND THE PROJECT SCIENTIST INFORMED OF WHY THE SERVICE OBSERVING COULD NOT BE COMPLETED.

4.0 The Service Observing Shift

4.1 The GO must call the observatory approximately 30 minutes prior to the beginning of the Service Observing shift and check in with the on-duty RA. At this time he can select the proper observing scenario if required, and give a phone number at which he/she can be reached during the shift. At this time the RA can inform the GO of the current status of the spacecraft. The GO must be available and reachable by phone during the entire shift. **IF THE GO DOES NOT CONTACT THE OBSERVATORY AT THE BEGINNING OF THE SHIFT OR CANNOT BE CONTACTED WHEN NEEDED DURING THE SHIFT, THE SERVICE OBSERVING OBSERVATIONS WILL BE HALTED. IF AFTER A REASONABLE LENGTH OF TIME THE GO CAN STILL NOT BE CONTACTED, THE SERVICE OBSERVATIONS WILL BE CANCELLED AND ANOTHER OBSERVATORY PROGRAM WILL BE ACTIVATED. THE PROJECT SCIENTIST WILL BE INFORMED OF THE REASON FOR CURTAILMENT OF THE SERVICE OBSERVING SHIFT. THE TIME WILL STILL BE CHARGED TO THE SCHEDULED PROGRAM.**

4.2 The observations will be carried out by the TO by going through an ordered and numbered set of observing scripts.

4.3 The TO will identify targets by their FES magnitude if brighter than visual magnitude 5.0 and by a finding chart if fainter.

4.4 The responsibility for the observations remain with the GO. The observatory staff assumes no responsibility for errors in scientific judgements or in misinterpretation of the written instructions. However, the Observatary will report time losses to the program resulting from errors of execution or hardware/software problems to the Project Scientist as is done for normal shifts.

5.0 Requesting Service Observing

Guest Observers who wish to request service observing for their programs are asked to send the attached form along with other requested information to:

Dr. Yoji Kondo
IUE Project Scientist
Code 684
Goddard Space Flight Center
Greenbelt, MD 20771

For your convenience, a sample completed request form for a simple monitoring program is attached.

****

Application for Service Observing Mode

PI NAME_____ Program ID _____

Designated Observer if other than PI _____

Number of shifts alloted for this program _____

Number of shifts requested for Service Observing_____

Approximate last date GO observed at GSFC _____

Do you need blank scripts sent to you? YES _____ NO _____

Date(s) for which you are requesting service observing _____
(Note: If your shifts have not yet been scheduled, enter "TO BE SCHEDULED")

Phone number where you can be reached during the shift(s): _____

Please write a brief program description (attach detailed plans, scripts, and finder charts.)

I hereby acknowledge that I have read the IUE Service Observing Policies (Revision 5 - 25 April 1989) and have enclosed all necessary information required for the feasibility review of this request. Upon approval of this request, I will provide the Observatory with scripts and finding charts in a timely fashion. I will contact the Observatory by phone at the beginning of the scheduled shift and will remain available by phone throughout the Service Observing shift. I also acknowledge that failure to follow these guidelines may result in the cancellation of the Service Observing Shift and the time still being charged to my program.

Signature _____ Date _____

A SAMPLE COMPLETED REQUEST FOR A SIMPLE MONITORING PROGRAM

Application for Service Observing Mode

PI NAME C. Campbell Program ID WWKCC

Designated Observer if other than PI None

Number of shifts alloted for this program 4

Number of shifts requested for Service Observing 3 US2

Approximate last date GO observed at GSFC May 1988

Do you need blank scripts sent to you? YES _____ NO X

Date(s) for which you are requesting service observing Aug 4, Nov 15, & TO BE SCHED
(Note: If your shifts have not yet been scheduled, enter "TO BE SCHEDULED")

Phone number where you can be reached during the shift(s): (306) 555-8923

Please write a brief program description (attach detailed plans, scripts, and finder charts.)

This is a monitoring program for HD 39801. The target is at a cool OBC Beta for a requested shifts. The target is not occulted by the Earth during the requested US2 shifts. The program consists of mostly short exposures. The two 30 min SWP LO dis persion spectra, designed to bring out the Si II emission line, will be overexposed by factor of 4 in the continuum. The 30 min LWP HI dispersion spectrum, designed to study the CII line, will be a factor of 5 times overexposed in emission. If the low radiation option is used, the 60 min LWP HI dispersion image will be 10 times over exposed in emission and will need an XSPREP before doing exposure No. 5. A high and low radiation scenario is enclosed. target is an isolated second magnitude star. T short exposures may be done on gyros. For the longer exposures guide star informatio is given. Sample SWP and LWP scripts are enclosed. If approved, I will forward remaining scripts. Any time remaining at the end of the shift is donated to observa tory programs.

I hereby acknowledge that I have read the IUE Service Observing Policies (Revision 5 - 25 April 1989) and have enclosed all necessary information required for the feasibility review of this request. Upon approval of this request, I will provide the Observatory with Scripts and Finding Charts in a timely fashion. I will contact the Observatory by phone at the beginnin of the scheduled shift and will remain available by phone throughout the Service Observing shift. I also acknowledge that failure to follow these guidelines may result in the cancel- lation of the Service Observing Shift and the time still being charged to my program.

Signature _____ Date _____

HD 39801 – Service Observing 1988-89 – Program WWKCC

RA = 6 h 03 m 10.0 s
DEC = +20 10' 36"

HIGH RADIATION BACKGROUND OPTION
(Projected peak radiation at beginning of shift > 1.8 Volts)

Above 2.5 volts, please cut back exposures 6, 7, and 8 to 10 minutes.

Exposure No.	Camera	Aperture	Dispersion	Exposure	Purpose
1	LWP	Large	HI	2 min	Mg II profile and flux
2	SWP	Large	LO	5 min	Si II 1800 flux
3	LWP	Large	HI	2 min	
4	SWP	Large	LO	5 min	
5	LWP	Large Small*	LO LO	4.6 sec 30 sec	Mg II flux + cont
6	SWP	Large	LO	30 min	O I flux; Note Si II 4 X over
7	LWP	Large	HI	30 min	For 2325 line of C II
8	SWP	Large	LO	30 min	Mg II profile and flux

Guide Star Information

From SWP 249876: Aperture: SWLA

FES Position: X = 757
Y = -100

Counts: 120 F/O

S/C Roll 149 , 24 , 33.8

NOTES to Table

* Be careful of reference point shift for small aperture if large aperture has been closed in last 24 hours.

HD 39801 – Service Observing 1988-89 – Program WWKCC

RA = 6 h 03 m 10.0 s
DEC = +20 10' 36"

LOW RADIATION BACKGROUND OPTION
(Projected peak radiation at the beginning of the shift ≤ 1.8 Volts)

Please halt or skip exposures 2 and 3 if the radiation exceeds 1.9 volts.

Exposure No.	Camera	Aperture	Dispersion	Exposure	Purpose
1	LWP	Large	HI	2 min 15 sec	Mg II profile and flux
2	SWP	Large	LO	50 min	To get O I flux; Note Si II wil times overexposed at 1800
3	LWP	Large	HI	60 min*	Good wavelength scales for velocities
4	SWP	Large	LO	5 min	Si II 1800 line flux
5	LWP	Large	LO	5.0 sec	Mg II flux + cont
		Small**	LO	35 sec	
6	SWP	Large	HI	ALAP***	S, Si II near 1800

Guide Star Information

From SWP 249876: Aperture: SWLA

FES Position: X = 757
Y = -100

Counts: 120 F/O

S/C Roll 149 , 24 , 33.8

NOTES to Table

* The camera will be overexposed by 10 times in emission, please follow with RDXSPREP.

** Be careful of reference point shift for small aperture if large aperture has been closed in last 24 hours.

*** Please expose as long as possible for the remaining time of the shift. The minimum useful exposure time is 40 minutes.