LCROSS Observation Campaign

Request for Proposals

Solicitation Number: USRA-0926-2008
Solicitation Date: September 26, 2008

Issued By:

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Deadline for Questions: October 20, 2008

Proposal Due Date: October 30, 2008

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1. Background

NASA's Lunar CRater Observation and Sensing Satellite Project (LCROSS) is designed to verify the presence or absence of water ice on the Moon. The mission is directly aligned with Sub-goal 3C of NASA's Strategic Plan "Advancing Scientific Knowledge of the Solar System, Searching for Evidence of Life, and Preparing for Human Exploration." From the standpoint of science, measurements that definitively show either the presence or absence of water ice will provide scientific knowledge of the Solar System and ongoing processes. From the standpoint of Human Exploration, water ice in quantity on the Moon would open the design space for missions to the Moon and beyond by bringing in the potential for in-situ resource utilization for meeting water requirements, oxygen generation, and the production of rocket fuel. Further, LCROSS results will directly address two of the National Research Council Decadal Survey's "Twelve Key Scientific Questions that Underpin the Overall Exploration Strategy." These are "What is the history of volatile compounds, especially water, across the Solar System?" and "What global mechanisms affect the evolution of volatiles on planetary bodies?"

Scientists have long considered the possibility that water ice deposits may exist in permanently shaded craters near both lunar poles[1,2]. Whether deposited in large quantities in discrete events (e.g. comets) or accumulated slowly over long periods of time (e.g. migrating water vapor), volatiles that are delivered to the permanently shadowed regions at the lunar poles have the advantage of low temperature to help preserve them against sublimation. Research indicates that the floors of such craters should be extremely cold (<100K)[3], and that water molecules that are delivered to these craters could be cold-trapped for billions of years[4]. It has been postulated that implanted solar wind hydrogen could yield impact-liberated water molecules at concentrations as high as 4% in polar shadow.[5] To date, however, evidence of water ice from ground observations and prior mission measurements is conflicting. The Lunar Prospector neutron spectrometer (LPNS) provided data that indicated the presence of polar hydrogen enhancements[6-10]. In fact, LPNS data assessments suggest the possibility of upwards of 20 weight percent of water ice concentration in limited areas of shadowed crater floors[10]. Further, anomalous bistatic radar returns from the Clementine lunar orbital mission have been interpreted in terms of icy materials[11,12]. Earth-based radar imaging of the Moon, however, has not revealed large, bright, depolarized features like those seen at Mercury[13,14] and radar returns from the lunar poles are similar to those seen for terrain where ice could not possibly exist[15]. Other studies show, however, that cold-trapped ice residing in the spaces between regolith grains at several tens of percent by volume would not produce anomalous radar backscatter[13-15]. Surface explorations, such as those planned with LCROSS, will be required to resolve these discrepancies and measure the presence, abundance, composition, and spatial distribution of cold-trapped volatiles unambiguously.

Scheduled for launch in 2009, LCROSS will travel to the Moon as a co-manifested payload aboard an Atlas V launch vehicle with the Lunar Reconnaissance Orbiter (LRO). LCROSS Mission Objectives have been formulated to advance U.S. Space Exploration Policy by providing quantitative evaluation of the existence of water ice in permanently shadowed regions at either the Moon's North or South Pole (depending on final mission launch date). For this, LCROSS will use the LRO launch vehicle's spent Atlas V Centaur Earth departure upper stage (Centaur) as a 2000 kg kinetic impactor. The Centaur will be maneuvered by a small "adapter" Shepherding Spacecraft (S-S/C) installed between the Centaur and LRO payload. After the LRO separates, the S-S/C will guide the spent Centaur stage to a lunar impact trajectory and then separate from the Centaur about 7 hours before impact. The S-S/C will then follow the Centaur with a lag of approximately 4 minutes. The impact is planned for a shaded lunar region (location yet to be determined) with a targeting accuracy of 10 km to 3 sigma. Modeling to date

indicates that the Centaur impact-induced plume will contain on the order of 250 - 1000 metric tons of lunar material. It is anticipated that this plume will be visible from a number of Lunar-orbital, Earth-based, and other assets. The S-S/C sensor suite is designed to measure water signatures from its following position. Earth-based platforms and other assets, such as LRO and the Hubble Space Telescope will complement those taken by the S-S/C. Once the S-S/C has completed its observation, it will become a 700 kg impactor.

The LCROSS S-S/C payload consists of nine science instruments. These are a visible wavelength context imager, two near-infrared (1.0-1.4 micron / 1.0-1.7 micron) cameras, one mid-infrared (6-9 micron) thermal imager, one mid-infrared (6-17 micron) camera, a custom-built highly sensitive total luminance photometer, a UV-visible spectrometer (260-650 nm), and two compact low-power near infrared spectrometers (1.2-2.4 micron).

Multiple observation platforms (Earth- and space-based) should be able to monitor/evaluate the dust and water vapor plume caused by the two impacts (i.e., Centaur and S-S/C) on the lunar surface. Compared to the Deep Impact Mission encounter with comet 9P/Tempel, calculations indicate that the Centaur-induced impact plume should contain 100 times less mass but at 360 times closer range. Thus, the surface brightness for LCROSS is expected to be higher than that from Deep Impact. Additionally, the dust-to-ice ratio for the planned impact location regolith, assuming water ice is present, could be orders of magnitude greater, perhaps ~100 in comparison to ~0.5 for Deep Impact. Therefore, multiple ground- and space-based observatories should be able to follow both the thermal evolution of the plume and the properties of the dust. It is anticipated that 8-10 meter-class telescopes will be required to search for water vapor using rapidly evolving non-resonant fluorescent lines at ~3 μm and that longer time scale evolution of OH- lines can be followed by telescopes around the world. The timing of the two impacts should allow for observations from Hawaii, the Continental US, and/or from South America (e.g. Chile). A Workshop on the LCROSS Mission was held at ARC on February 29, 2008 and information from this workshop plus other information on the LCROSS project can be found at http://lcross.arc.nasa.gov/.

USRA is working in concert with NASA's Ames Research Center (ARC) and George C. Marshall Space Flight Center (MSFC) to coordinate an Observation Campaign (OC) for LCROSS that goes beyond the measurements to be taken by the S-S/C. The planned OC is designed to provide funding to qualified observers who have time on appropriate observatories to take measurements that will validate and complement the measurements taken by the S-S/C and other assets. This request for proposals (RFP) is open to all qualified observers and is intended to fund a number of proposals that address LCROSS Science Goals.

2. LCROSS Science Goals

The LCROSS mission Science Goals, in order of priority, are to:

- Confirm the presence or absence of water ice in a permanently shadowed region on the Moon;
- Identify the form/state of hydrogen observed by Lunar Prospector at the lunar poles;
- Quantify, if present, the amount of water in the lunar regolith, with respect to hydrogen concentrations observed by Lunar Prospector; and
- Characterize the lunar regolith within a permanently shadowed crater on the Moon.

3. References

1. Watson, K., Murray, B., and Brown, H., "On the possible presence of ice on the Moon," *J. Geophys. Res*. **66**, 1961.

2. Arnold, J.R., "Ice in the lunar polar regions," *J. Geophys. Res*. **84**, 1979.

3. Vasavada, A.R., Paige, D.A., and Wood, S.E., "Near-surface temperatures on Mercury and the Moon and the stability of polar ice deposits," *Icarus* **141**, 1999.

4. Butler, B.J., "The migration of volatiles on the surfaces of Mercury and the Moon," *J. Geophys. Res.* **102**, 1997.

5. Crider, D.H. and Vondral, R.R., "Space weathering effects on lunar cold trap deposits," *J. Geophys. Res*. **108**, 3845-3862, 2003.

6. Feldman, W.C. et al., "Fluxes of fast and epithermal neutrons from Lunar Prospector: Evidence for water ice at the lunar poles," *Science* **281**, 1998.

7. Feldman, W.C., et al., "Chemical information content of lunar thermal and epithermal neutrons," *J. Geophys. Res.* **105**, 2000.

8. Feldman, W.C, et al., "Evidence for water ice near the lunar poles," *J. Geophys. Res.* **106**, 2001.

9. Lawrence, D.J., et al., "Improved modeling of Lunar Prospector neutron spectrometer data: Implications for hydrogen deposits at the lunar poles," *J. Geophys. Res.* **111**, 2006.

10. Elphic, R.C., et al., "Models of the distribution and abundance of hydrogen at the lunar south pole," *Geophys. Res. Letters* **34**, 2007.

11. Nozette, S., et al., "The Clementine Bistatic Radar Experiment," *Science* **274**, 1996.

12. Nozette, S., et al., "Integration of lunar polar remote-sensing data sets: Evidence for ice at the lunar south pole," *J. Geophys. Res* **106**, 2001.

13. Stacy, N., Campbell, D.B., and Ford, P.G., "Arecibo radar mapping of the lunar poles," *Science* **276**, 1997.

14. Campbell, D.B., et al., "Radar imaging of the lunar poles," *Nature* **426**, 2003.

15. Campbell, D.B., et al., "No evidence for thick deposits of ice at the lunar south pole," *Nature* **443**, 2006.

4. General Guidelines and Information

4.1 General Guidelines for Response

Proposals received in response to the subject USRA RFP will be used only for evaluation purposes. USRA will not publish the proposals or make them available outside of the proposal evaluation team and the government.

A solicited proposal that results in a USRA contract award becomes part of the record of that transaction. All data and data products acquired as a result of the effort will be archived in the PDSN and a final report detailing all results will be provided to USRA. However, information or material that USRA (in discussion with NASA) and the awardee mutually agree to be of a privileged nature will be held in confidence to the extent permitted by law.

FFP contracts will be used to accomplish all efforts funded in response to this RFP. Contract award dates are anticipated in the November-December 2008 timeframe (subject to LCROSS program schedule) and the Period of Performance (POP) is expected to end no more than 60 days after the LCROSS impact takes place.

4.2 Submission of Questions

USRA does not intend to hold formal discussions as part of the award process so proposals should be as complete as possible in the initial submission. However, should a question arise after release of the RFP and prior to the date specified below, questions will be entertained under the following ground rules:

- Questions should be emailed to **LCROSS@usra.edu**
- All questions must be submitted on/before **11:59pm (Eastern Time) on October 20, 2008**
- Responses to questions will be posted on the USRA website. Please note that it is the responsibility of proposing individuals and organizations to monitor this website for responses to questions.
- Questions will be reviewed by USRA in consultation with the government and all questions and answers will be made available to both the questioner and the general public
- Proposers should submit questions as early as possible. USRA will provide a response as quickly as possible but assumes no responsibility for the impact of the questions and answers on proposal quality or on the timeliness of the proposal submission.

4.3 Structure of Awards

USRA plans to award Firm-Fixed Price Proposals (FFP) to successful bidders within 45 days of the proposal submission date. This assumes that the selected proposer will be able to demonstrate assured availability of their observatory of choice prior to LCROSS impact. Two payments are planned. The first (40%) will be made following successful completion of an interim design review to be scheduled at least one month before impact and the second (60%) will be made after the final report is received by USRA and all data and data products have been archived in the Planetary Data Systems Geosciences Node.

4.4 Eligibility

Participation in the LCROSS Observation Campaign is open to all categories of U.S. and non-U.S. organizations including educational institutions, industry, not-for-profit institutions, and the Jet Propulsion Laboratory. NASA's Centers are excluded from participation as primary proposers but teams including NASA participants as partners (paid by the prime) are encouraged. Historically Black Colleges and Universities (HBCUs), other Minority Universities (OMUs), small disadvantaged businesses (SDBs), veteran-owned small businesses, HUBZone small businesses, and woman-owned small businesses (WOSBs) are encouraged to apply. Participation in this program by non-U.S. organizations is welcome but subject to NASA's policy of no exchange of funds, in which each government supports its own national participants and associated costs (further information on foreign participation can be found in Section 1.6 of the NASA Guidebook for Proposers).

5. Proposal Format and Content Requirements

All proposals shall comply with the general formatting requirements provided below.

- Text size shall be no less than 12 point using the Arial font.
- Text occurring in figures and tables shall be no less than 9 point using the Arial font.
- Proposals shall adhere to all page limits provided in sections 5.1 through 5.4 (e.g. Technical proposals shall not exceed eight (8) pages, Cost proposals shall not exceed two (2) pages).
- A "page" is defined as one (1) side of an 8.5x11" sheet. Larger sheets (e.g. 8.5x14") will be counted as 2 pages.
- All proposal text should be printed using black type on white paper.
- Color may be used in figures or in tables, but proposers are reminded that reviewers may be printing or copying in black and white. All graphics and tables shall be designed to be readable and understandable in black and white as well as in color.
- In order to comply with total file size requirements (proposal files may not exceed 5 Megabytes – *please see section 6*) proposers are discouraged from using unnecessarily high definition graphics.

All proposals submitted in response to this solicitation shall include the sections/subsections and information specified below. Please note that page limits for each section are also provided below.

5.1 Transmittal Letter

Page limit: 1 page

Proposers shall provide a transmittal letter that includes the information listed below.

- Identification of this RFP by number and title
- The legal name and address of the organization and specific division or campus identification, if part of a larger organization
- A brief, scientifically valid project title intelligible to a scientifically literate reader and suitable for use in the public press
- The type of organization proposing (e.g., University, for profit company, not-for-profit company, etc, along with any qualifiers such as small business, minority, woman-owned, Historically Black College or University/Minority Institution, etc)
- Name, telephone number, fax number and e-mail address of the principal investigator and business personnel who may be contacted during evaluation and negotiation
- The total FFP dollar amount requested (in US Dollars) and the desired start date
- The date of submission
- Signature of PI or other official with authority to bind the proposer.

5.2 Table of Contents

Page limit: None

The Table of Contents should list all major proposal sections and subsections and be automatically generated to allow for rapid access to any specific section/subsection.

5.3 Technical Proposal

Page limit: 8 pages (limit applies to entire Scientific / Technical section)

The Technical Proposal should include the sections/subsections listed in 4.3.1 through 4.3.5, below and provide all requested information.

5.3.1 Description of Technical Effort

Include a detailed description of the technical effort proposed. This description must show how the proposed effort meets one or more of the LCROSS science goals and provide a quantitative analysis of the proposed measurements. The latter must demonstrate to a knowledgeable reviewer that the proposed measurements are sound scientifically and have a high probability of achieving the proposed results. Examples of descriptions to be provided include, but are not limited to:

- Type of data to be acquired (e.g. spectra, images);
- Frequency or wavelength range selected;
- Resolution or bandwidths selected;
- Source of data and availability/status (e.g. facility and instrument);
- Detailed calibration plans;
- Definition of data to be produced (e.g. simple table, ASCII array with detached label, FITS format file with detached PDS label) – note, all data must conform to PDS standards (See the PDS Archive Preparation Guide (APG)); and
- An estimate of the size of both typical files and total data volume to be transmitted.

5.3.2 Risk Assessment / Mitigation Plan

Include a risk assessment / mitigation plan providing an in-depth analysis of risks with risk mitigation strategies provided for all significant risks identified.

5.3.3 Demonstration of Competence

Include information demonstrating that the proposer has basic competence in the area of the proposed observations (prior use of proposed facilities is preferred but not mandatory).

5.3.4 Observatory Time Plan

Include information demonstrating that the proposer has requested and has a reasonable chance of receiving time on the observatory planned for LCROSS impact observations. (Please note that no proposal will be funded until final observatory use-authority has been obtained).

5.3.5 Distribution of Results / Final Report

Include an assurance that all results will be provided to the community on an unlimited basis and will be fully disclosed and archived in a Final Report to USRA and that all relevant data will be archived on the Planetary Data Systems Geosciences Node (PDSGN). All LCROSS data will be made available to the public through the PDS online catalog and similar resources. All LCROSS observations will be archived at the Geosciences Node of the PDS.

The Final Report shall be delivered to USRA no more than 60 days after the LCROSS impact events and that archiving data in the PDSGN shall be completed no more than 60 days following the LCROSS impact events (see below).

All proposers please note: LCROSS data products must be delivered in a standard PDS format and must be documented and calibrated in physical units usable by the scientific community at large. A peer review of assembled data sets will be performed prior to the acceptance of the data by PDS. It is anticipated that there will be a one day review of science content and format compliance in the vicinity of the Ames Research Center, and all proposers should price a trip to this review into their cost proposals. Feedback will be provided after the review, and responses to questions/issues will be expected within two weeks of receiving that feedback.

Proposers are urged to consult general information on the Geosciences Node which is available at http://pds-geosciences.wustl.edu. Proposers are also encouraged to access the PDS Archive Preparation Guide (http://pds.jpl.nasa.gov/documents/) for general information about submitting data to PDS, and to check the LCROSS-specific help page at http://pds-atmospheres.nmsu.edu/lcross.html to validate their data preparation plans.

For specific requirements, it is recommended that proposers contact Geosciences Node representatives Susan Slavney (email: Susan.Slavney@wustl.edu; phone: 314-935-9295) or Edward Guinness (email: Guinness@wustl.edu; phone: 314-935-5493). Templates and examples will be provided upon request.

5.4 Cost Proposal

Page limit: 2 pages

Provide a Firm-Fixed Price (FFP) cost proposal that demonstrates cost reasonableness and includes the following cost breakdown:

- Months (1,2, … n)
- Direct Labor - Provide Labor Categories, Total Cost per hour for each Labor Category, and Total number of hours per Labor Category
- Total Direct Labor – Provide summation of above
- Subcontracts - Provide costs and details of any planned subcontracts
- Materials and Equipment – Provide costs and details of any required materials and/or equipment
- Travel – Provide costs and details of any required travel
- Total Price – Provide summation of above

6. Proposal Submission Requirements

6.1 Submission Requirements

In order to be considered for award, all proposals shall comply with the following requirements:

- All proposals shall be submitted electronically as a single, searchable PDF (portable document format) file that includes both technical and cost proposals. (Information regarding PDF format is available at http://www.adobe.com.)
- All proposals submitted in response to this RFP must be transmitted electronically, via email, to USRA at **LCROSS@usra.edu**. Deadline for proposal submission is **11:59pm (Eastern Daylight Time), October 30, 2008.**
- All files should be scanned for viruses and confirmed to be virus-free prior to email transmission to USRA.
- The proposal file name shall be composed of the Principal Investigator's last name and first initial. For example, a proposal file submitted by a PI named John Smith would be named Smith_J.pdf
- Total size of the proposal file shall not exceed 5 Megabytes.
- All proposals shall be in English; all costs shall be proposed in US dollars.

6.2 Noncompliant Submissions

Proposals submitted by any method, in any format or any size other than those specified above will not be considered for award.

6.3 Late Submissions

Any proposal or proposal modification received after the deadline specified in section 5.1 (above) – **11:59pm (Eastern Daylight Time) October 30, 2008** – will not be considered for award.

6.4 Joint Proposals

Where multiple organizations are involved, the proposal must be submitted by only one organization. The proposal should clearly describe the role to be played by all organizations other than the submitting organization and briefly describe the legal and managerial arrangements contemplated.

Proposers are urged to consider whether simultaneous submission of related proposals from each organization, which would allow parallel awards to be made, might be appropriate.

6.5 Withdrawal of Proposals

Organizations may withdraw their proposal(s) at any time before award. Proposers are requested to notify USRA at **LCROSS@usra.edu** as soon as possible regarding withdrawal of proposals.

6.6 Representations and Certifications (See Appendices A.1 – A.3)

The required representations/certifications and shown in Appendix A. These are not to be submitted with either the proposal. Should a proposal be selected by USRA, the proposer will be asked, and must supply, fully executed originals of these representations/certifications prior to award.

7. Proposal Review and Selection

7.1 Selection Criteria

Each proposal will be scored by the panel selected by USRA (in consultation with LCROSS Project personnel). Proposals will be scored on a 1 to 5 point scale with 5 being the highest score. Points will be awarded in the following manner:

Technical merit (40%)
Each proposal must demonstrate that the proposed objectives can be met with reasonable risks (as discussed in the risk/risk mitigation plan). Quantitative calculations must be provided to support each planned observation. All assumptions must be provided (e.g. assumed mass ejected estimates taken from LCROSS program, or other, studies). Note that PDS experiences with past observing campaigns (e.g. Halley and Shoemaker-Levy 9) have revealed that calibration plans have been grossly inadequate, invalidating much of the data. LCROSS proposers should include calibration and data reduction plans in their proposals.

Science Goal Coverage (40%)
Each proposal must demonstrate, quantitatively, that the proposed measurements will meet one or more of the LCROSS Science Goals. Specific descriptions of how each goal will be met must be provided.

Past Performance (10% points)
Each proposal will be judged on the experience of the proposal team with the type of measurements proposed.

Cost Reasonableness (10%)
Each proposal will be evaluated on the basis of cost-to-benefit ratio with respect to the science return.

It is USRA's intent to select the highest-rated proposals delivered in this competition for funding. This is subject, however, to both overall coverage of the LCROSS Science Goals and total funding availability.

7.2 Review Process

USRA is functionally independent of NASA and will select a panel of reviewers for the proposal review process. This panel will consist of no less than 3 and no more than 6 reviewers who will be chosen from the government and private sectors in consultation with LCROSS project management. The process will select proposals on a competitive basis. In general, proposals with the highest technical merit (based on the selection criteria below) will be selected. As noted above, the final selections will reflect a NASA requirement to meet as many of the LCROSS scientific goals as possible while staying within overall cost constraints. USRA staff and all participants in peer reviews will follow a Conflict of Interest Avoidance Plan developed by USRA. All participants will certify as to their adherence to the Plan.

7.3 Disclosure

All interested parties need to be aware that USRA intends to publicly make available the Final Reports from all funded LCROSS studies and that all data and data products from funded efforts will be archived on the Planetary Data Systems Geosciences Node. This being the case, USRA actively discourages the use of proprietary data and/or trade secrets.

Appendix A.1 Certification Regarding Debarment, Suspension, and Other Responsibility Matter – Primary Covered Transactions

This certification is required by the regulations implementing Executive Order 12549, Debarment and Suspension, 34 CFR Part 85, Section 85.510, Participants' Responsibilities. The regulations were published as Part VII of the May, 1988 Federal Register (pages 19160-19211). Copies of the regulations may be obtained by contacting the U.S. Department of Education, Grants and Contracts Service, 400 Maryland Avenue, S.W. (Room 3633 GSA Regional Office Building No. 3), Washington, D.C. 20202-4725, telephone (202) 732-2505.

1) The prospective primary participant certifies to the best of its knowledge and belief, that it and its principals:

a) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal debarment or agency;

b) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a statute or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;

c) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (1) (b) of the certification; and

d) Have not within a three-year period preceding this application/proposal, had one or more public transactions (Federal, State or local) terminated for cause or default.

2) Where the prospective primary participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

Proposal Title:

Signature: Date:

Name and Title: Institution:

Appendix A.2 Certification Regarding Drug-Free Workplace Requirements Contractors Other Than Individuals

The Contractor certifies that it will provide a drug-free workplace by:

Publishing a statement notifying employees that the unlawful manufacture, distribution, dispensing, possession or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violation of such prohibition:

a) Establishing a drug-free awareness program to inform employees about --

   (1) The dangers of drug abuse in the workplace;

   (2) The Contractor's policy of maintaining a drug-free workplace;

   (3) Any available drug counseling, rehabilitation, and employees assistance programs; and

   (4) The penalties that may be imposed upon employees for drug abuse violations occurring;

b) Making it a requirement that each employee to be engaged in the performance of the contract be given a copy of the statement required by paragraph (a);

c) Notifying the employee in the statement required by paragraph (a) that, as a condition of employment under the contract, the employee will --

   (1) Abide by the terms of the statement; and

   (2) Notify the employer of any criminal drug statute conviction for a violation occurring in the workplace no later than five days after such conviction;

d) Notifying the agency within ten days after receiving notice under subparagraph (d) (2) from an employee or otherwise receiving actual notice of such conviction;

e) Taking one of the following actions, within 30 days of receiving notice under subparagraph (d) (2), with respect to any employee who is so convicted --

   (1) Taking appropriate personnel action against such an employee, up to and including termination; or

   (2) Requiring such employee to participate satisfactorily in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or appropriate agency;

f) Making a good faith effort to continue to maintain a drug-free workplace through implementation of paragraphs (a), (b), (c), (d), (e) and (f).

Proposal Title:

Signature: Date:

Name and Title: Institution:

Appendix A.3 Assurance of Compliance with the Regulations under Title VI of the Civil Rights Act of 1964

The (institution, corporation, firm or other organization on whose behalf this assurance is signed, hereinafter called "Applicant") HEREBY AGREES THAT it will comply with Title VI of the Civil Rights Act of 1964 (P.L. 88-352) and all requirements issued pursuant to that title, to the end that in accordance with Title VI of that Act and the Regulation, no person in the United States shall, on the ground of race, color or national origin, be excluded from participation in benefits of, or be otherwise subjected to discrimination under any program or activity for which the Applicant receives Federal financial assistance from the Government; and HEREBY GIVES ASSURANCE THAT it will immediately take any measures necessary to effectuate this Agreement.

If any real property or structure thereon is provided or improved with the aid of Federal financial assistance extended to the Applicant by the Government, this assurance shall obligate the Applicant, or in the case of any transfer of such property, any transferee, for the period during which the real property or structure is used for a purpose for which the Federal financial assistance is extended or for another purpose involving the provision of similar services or benefits. If any personal property is so provided, this assurance shall obligate the Applicant for the period during which it retains ownership or possession of the property. In all other cases, this assurance shall obligate the Applicant for the period during which the Federal financial assistance is extended to it by the Government.

THIS ASSURANCE is given in consideration of and for the purpose of obtaining any and all Federal grants, loans, contracts, property, discounts or other Federal financial assistance extended after the date hereof to the Applicant by the Government, including installment payments after such date on account of applications for Federal financial assistance which were approved before such date. The Applicant recognizes and agrees that such Federal financial assistance will be extended in reliance on the representations and agreements made in this assurance, and that the United States shall have the right to seek judicial enforcement of this assurance. This assurance is binding on the Applicant, its successors, transferees, and assignees, and the person or persons whose signatures appear below are authorized to sign this assurance on behalf of the Applicant.

Proposal Title:

Signature: Date:

Name & Title: Institution: