

# ANNOUNCEMENT

## PART I: STI PRODUCT DESCRIPTION (To be completed by Recipient/Contractor)

### A. STI Product Identifiers

1. REPORT/PRODUCT NUMBER(s)  
DOE/ID/14036-1
2. DOE AWARD/CONTRACT NUMBER(s)  
DE-FG36-01ID14036
3. OTHER IDENTIFYING NUMBER(s)  
None

### B. Recipient/Contractor

Technological Research and Development Authority  
Titusville, FL

### C. STI Product Title

Final Report DE-FG36-01ID14036

### D. Author(s)

Culp, James  
Kershaw, David  
E-mail Address(es):  
jculp@trda.org  
dkershaw@trda.org

### E. STI Product Issue Date/Date of Publication

04/21/2006 (mm/dd/yyyy)

### F. STI Product Type (Select only one)

1. TECHNICAL REPORT  
 Final  Other (specify) \_\_\_\_\_
2. CONFERENCE PAPER/PROCEEDINGS  
Conference Information (title, location, dates)  
\_\_\_\_\_  
\_\_\_\_\_
3. JOURNAL ARTICLE
- a. TYPE:  Announcement Citation Only  
 Preprint  Postprint
- b. JOURNAL NAME  
\_\_\_\_\_
- c. VOLUME \_\_\_\_\_ d. ISSUE \_\_\_\_\_
- e. SERIAL IDENTIFIER (e.g. ISSN or CODEN)  
\_\_\_\_\_
- OTHER, SPECIFY  
\_\_\_\_\_

### G. STI Product Reporting Period (mm/dd/yyyy)

01/26/2001 Thru 01/25/2006

### H. Sponsoring DOE Program Office

Golden Field Office

### I. Subject Categories (list primary one first)

Biomass Fuels-Ethanol-E85

### J. Description/Abstract

Construction of an E85 fueling facility at the Kennedy  
Space Center, Florida

### K. Intellectual Property/Distribution Limitations

(must select at least one; if uncertain contact your  
Contracting Officer (CO))

1. UNLIMITED ANNOUNCEMENT (available to  
U.S. and non-U.S. public; the Government  
assumes no liability for disclosure of such data)
2. COPYRIGHTED MATERIAL: Are there any  
restrictions based on copyright?  Yes  No  
If yes, list the restrictions as retained in your contract
3. PATENTABLE MATERIAL: THERE IS  
PATENTABLE MATERIAL IN THE DOCUMENT  
INVENTION DISCLOSURE SUBMITTED TO DOE:  
DOE Docket Number: S- \_\_\_\_\_  
(Sections are marked as restricted distribution  
pursuant to 35 USC 205)
4. PROTECTED DATA:  CRADA  Other  
If other, specify  
Release date (mm/dd/yyyy) \_\_\_\_\_
5. SMALL BUSINESS INNOVATION RESEARCH  
(SBIR) DATA  
Release date (Required, \_\_\_\_\_  
(No more than 4 years from date listed in part 1.E above)
6. SMALL BUSINESS TRANSFER (STTR) DATA  
Release date (Required, \_\_\_\_\_  
No more than 4 years from date listed in part 1.E above)
7. OFFICE OF NUCLEAR ENERGY APPLIED  
TECHNOLOGY

### L. Recipient/Contractor Point of Contact Contact

for additional information (contact or organization name to be  
included in published citations and who would receive any  
external questions about the content of the STI Product or the  
research contained therein)

David Kershaw, Deputy Director, TRDA  
Name and/or Position  
[DKershaw@TRDA.org](mailto:DKershaw@TRDA.org) 321-269-6330  
E-mail Phone  
Technological Research and Development  
Authority  
Organization

# ANNOUNCEMENT

## PART II: STI PRODUCT MEDIA/FORMAT and LOCATION/TRANSMISSION

(To be completed by Recipient/Contractor)

### A. Media/Format Information:

1. MEDIUM OF STI PRODUCT IS:  
 Electronic Document     Computer medium  
 Audiovisual material     Paper     No full-text
2. SIZE OF STI PRODUCT    5 pages
3. SPECIFY FILE FORMAT OF ELECTRONIC DOCUMENT BEING TRANSMITTED, INDICATE:  
 SGML     HTML     XML     PDF Normal     PDF Image  
 WP-Indicate Version (*5.0 or greater*) \_\_\_\_\_  
Platform/operating system \_\_\_\_\_  
 MS-Indicate Version (*5.0 or greater*)    2002  
Platform/operating system \_\_\_\_\_  
 Postscript \_\_\_\_\_
4. IF COMPUTER MEDIUM OR AUDIOVISUAL
  - a. Quantity/type (*specify*) \_\_\_\_\_
  - b. Machine compatibility (*specify*) \_\_\_\_\_
  - c. Other information about product format a user needs to know: \_\_\_\_\_

### B. Transmission Information:

- STI PRODUCT IS BEING TRANSMITTED:
1. Electronic via Elink
  2. Via mail or shipment to address indicated in award document (*Paper products, CD-ROM, diskettes, videocassettes, et.*)  
\_\_\_\_\_
  - 2a. Information product file name  
(*of transmitted electronic format*)  
\_\_\_\_\_

## PART III: STI PRODUCT REVIEW/RELEASE INFORMATION

(To be completed by DOE)

### A. STI Product Reporting Requirement Review:

1. THIS DELIVERABLE COMPLETES ALL REQUIRED DELIVERABLES FOR THIS AWARD
2. THIS DELIVERABLE FULFILLS A TECHNICAL REPORTING REQUIREMENT, BUT SHOULD NOT BE DISSEMINATED BEYOND DOE.

### B. DOE Releasing Official

1. I VERIFY THAT ALL NECESSARY REVIEWS HAVE BEEN COMPLETED AS DESCRIBED IN DOE G 241.1-1A, PART II, SECTION 3.0 AND THAT THE STI PRODUCT SHOULD BE RELEASED IN ACCORDANCE WITH THE INTELLECTUAL PROPERTY/DISTRIBUTION LIMITATION ABOVE.

Released by (*name*) \_\_\_\_\_

Date \_\_\_\_\_  
(mm/dd/yyyy)

E-mail \_\_\_\_\_

Phone \_\_\_\_\_

**Purpose:** DOE F 241.3 provides the Office of Scientific and Technical Information (OSTI) information required to appropriately identify, process, and/or announce and disseminate the results of work funded by the U.S. Department of Energy (DOE). For general information or assistance with this form, contact OSTI at (865) 241-6435, or at the following e-mail address: 241user@adonis.osti.gov.

**When to use:** Submit this form with each scientific and technical information (STI) Product. Electronic format is the preferred method for submitting the announcement record and STI Product. When submitting electronically, use the electronic version of the form (<http://www.osti.gov/elink>; discuss with your DOE Contracting Officer).

**Describing the data fields:** Descriptions of the various DOE F 241.3 data fields, STI Products, format, etc., can be found in ATTACHMENT 3 and other sections of the DOE G 241.1-1A, Guide to the Management of Scientific and Technical Information. Available online at <http://www.osti.gov/stip>

**DOE Financial Assistance Recipients/Contractors** Recipients and Contractors should complete Parts I and II of the form and forward the form along with the STI product to the DOE Contracting Officer who will complete the rest of the form and submit the package to OSTI.

**NOTE:** Sensitive, proprietary, or other STI Products for which access is restricted by statute or regulation shall not be transmitted via open systems networks (e.g., the Internet) unless authorization and/or encryption has been coordinated with OSTI in advance. This form, unless it in itself is classified, can be transmitted via open systems networks (e.g., the Internet).

**RECORD STATUS** - This is a required field. The record status identifies the announcement record or the STI Product as new, or revised. If the record status is not provided, the record is considered "New."

**Part I: STI PRODUCT DESCRIPTION** (To be completed by Recipient/Contractor)

**A. STI PRODUCT IDENTIFIERS.**

1. **Report/Product Number(s).** This is a required field. The unique primary report or product number assigned to the STI product. If a report number is not provided, the word "NONE" should be entered.

Following are examples of report number formats for multiple volumes, parts, or revisions:

DOE/ID/13734-2

DOE/NE/01834--1-Pt. 1

More than one report number may be provided. Multiple numbers are separated with a semicolon and a space. When more than one number is entered, the first number, considered the primary number, should identify the submitting organization. All other numbers are considered secondary numbers.

2. **DOE Award/Contract Number(s).** This is a required field. Enter the DOE award/contract number under which the work was funded. Additional DOE award/contract numbers related to the product may be entered. Multiple numbers are separated with a semicolon and a space. When more than one number is entered, the first number is considered the primary number.

3. **Other Identifying Number(s).** An additional unique identifying number assigned to the STI product. (e.g., CRADA numbers, Non-DOE contract numbers). More than one other identifying number may be provided. Multiple numbers are separated with a semicolon and a space.

**B. RECIPIENT/CONTRACTOR** - This is a required field. Provide the name and location of the organization that performed the research or issued the STI product. More than one organization may be provided; separate multiples with a semicolon and a space.

Example: University of Tennessee, Knoxville, TN

**C. STI PRODUCT TITLE** - This is a required field. Provide the title exactly as given on the product itself, including part, volume, edition, and similar information.

**D. AUTHOR(s)** - This is a required field. Provide the name of the author (last name first) of the STI product. More than one author may be provided; separate multiple entries with a semicolon and a space. If an author does not exist, the word "None" should be entered.

Examples: Jones, T.M.; Markay, Arthur R. III  
Fields, J.M., ed.

**Author(s) E-mail Address(es).** Provide the e-mail address for each author. Multiples may be provided; they should be listed in the same order as the authors and should be separated by a semicolon and a space.

**E. STI PRODUCT ISSUE DATE/DATE OF PUBLICATION** - This is a required field. Provide the date when the information product was published or issued.

**F. STI PRODUCT TYPE** - This is a required field. It should agree with the reporting requirement identifier in the reporting requirements checklist; federal assistance reporting checklist; or in the statement of work if the product is a required deliverable that warrants accountability.

1. **Technical Report.** Identify the type of technical report provided.
2. **Conference Paper.** Provide all available conference information. An agenda alone is not sufficient for announcement.
3. **Journal Article.** Provide all available Journal Article information.

**G. STI PRODUCT REPORTING PERIOD.** Specify the beginning and ending dates of the period covered by the STI product.

**H. SPONSORING DOE PROGRAM OFFICE** - Enter the name or acronym of the DOE Program Office (e.g., Office of Science or SC) providing the funding for the work described in the STI product. For projects funded by more than one Program Office, indicate all sources of the DOE funding in descending order of dollar amount of funding appropriated. Separate multiple program offices with a semicolon and a space. If no sponsoring DOE Program Office is provided, "DOE" will be the sponsor.

**I. SUBJECT CATEGORIES** - Select one or more categories from the list provided. List the primary one first. A list of subject categories is available at (<http://www.osti.gov/elink/>).

**Keywords.** Provide terms which describe the content of the publication. More than one term may be entered; separate multiple terms with a semicolon and a space.

**J. DESCRIPTION/ABSTRACT** - Provide a clear, concise, and publicly releasable English language summary of the information content of the STI product. The abstract length should be no more than 5,000 characters. If you are utilizing paper media, you may provide via attachment.

**K. INTELLECTUAL PROPERTY/DISTRIBUTION LIMITATIONS** - This is a required field. STI products should be written for public release; therefore, STI products should not contain proprietary, classified or any information subject to export control. Recipients/Contractors are responsible for notifying their DOE contracting officer if the document contains other than unclassified data before submitting to the DOE address in the award document. Recommendations to restrict access to STI products must have a legal basis or be accompanied by written programmatic guidance. For questions concerning current laws and guidance, refer to Part II or ATTACHMENT 7 of the DOE G 241.1-1A, Guide to the Management of Scientific and Technical Information, or contact your DOE Contracting Officer.

1. **Unlimited Announcement.** The unrestricted, unlimited distribution of the product (will be made publicly available). The Government assumes no liability for disclosure of such data.

2. **Copyrighted Material.** A copyright restriction on part or all of the contents of the STI product may affect the reproduction and distribution of the product by OSTI. Any restriction must be specified.

3. **Patentable Material.** Provide all applicable patent information.

4-6. No special instructions.

7. Office of Nuclear Energy Applied Technology pursuant to 10 CFR 810.

**L. RECIPIENT/CONTRACTOR POINT OF CONTACT.** Provide the organization or individual(s) name with corresponding contact information who will be included in the published citation as the point of contact and will respond to external questions about the content of the STI product.

**Part II. STI PRODUCT MEDIA/FORMAT AND LOCATION/ TRANSMISSION**  
(To be completed by recipient/contractor)

**A. MEDIA/FORMAT INFORMATION**

1. **Medium.** This is a required field. Select one of the medium options provided. Note: When announcement record only is submitted, select "No full-text."

2. **Size of STI Product.** Provide the total number of pages or other designation which gives an indication of the size of the information product (e.g., 200 pages; 20 images; 3500 kilobytes; 3-3 1/2 inch diskettes).

3. **File Format.** This is a required field if the STI product is electronic full-text. Select one of the options provided.

4. **If Computer Medium or Audiovisual Material** (do not include software packages).

a. Indicate the quantity and type of medium, e.g., 2 videocassettes, 1 magnetic tape.

b. Indicate the machine with which the medium is compatible, i.e., with which it can be used (e.g., VHS; IBM PC compatible, hard disk, 8 Megs.)

c. Enter any other information which would be helpful to the user of the STI product (e.g., programming language, file format, etc.)

**B. LOCATION/TRANSMISSION INFORMATION**

STI PRODUCT IS BEING TRANSMITTED:

1. This is a required field. Provide if the full-text STI product is being transmitted electronically. Indicate if product is being transmitted via Internet-accessible system called Elink at <https://www.osti.gov/elink/>.

2. This is a required field. Provide an electronic copy of the STI product that is being transmitted via other computer-generated medium or other method. Indicate if product is being transmitted via mail or other shipment method (paper products, CD-ROM, diskettes, videocassettes, etc.). Provide information product filename of transmitted electronic format, if applicable.

**Part III: STI PRODUCT REVIEW/RELEASE INFORMATION** (To be completed by DOE)

**A. STI PRODUCT REPORTING REQUIREMENT REVIEW**

1. This is a required field if all other required STI products have been received for this award by OSTI and this STI product is the final deliverable required according to the technical information reporting requirement.

2. Indicated if the STI product is not suitable for dissemination beyond DOE based on report type or content, it is being submitted because it fulfills a technical information reporting requirement.

**B. RELEASEING OFFICIAL** - This is a required field. Provide the name and additional information of the site's individual(s) responsible for the appropriate review and release of the STI product. Do not forward this form or the STI product until after it has been reviewed and released for announcement.

**OMB BURDEN DISCLOSURE STATEMENT**

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to the Office of Information, Records and Resource Management, SO-31, FORS, U.S. Department of Energy, Washington, DC 20585 and to the Office of Management and Budget (OMB), Paperwork Reduction Project (1910-1400), Washington, D.C. 20503.

**Project Title:** Deployment of Ethanol Fuel Infrastructure for Federal Fleets in Melbourne-Titusville, Florida

**Award Number:** DE-FG36-01ID14036

**Recipient:** Technological Research and Development Authority  
5195 South Washington Avenue  
Titusville, Florida 32780

**Project Location:** NASA, Kennedy Space Center

**Project Period:** January 26, 2001 – January 25, 2006

**Date of Report:** April 21, 2006

**Written By:** David Kershaw  
[dkershaw@trda.org](mailto:dkershaw@trda.org)  
James Culp  
[jculp@trda.org](mailto:jculp@trda.org)

**Subcontractors:** KC Petroleum, Inc  
Dr. Mihalis Halkides  
Dr. John Thomas  
Ms. Roberta Sirmons, P.E.

**Cost-Sharing Partners:** NASA, Kennedy Space Center

**Project Contact(s) / Email Address:** Dave Kershaw  
[dkershaw@trda.org](mailto:dkershaw@trda.org)

**DOE Project Team:** DOE-HQ contact, Valerie Sarisky-Reed  
DOE Field Project Officer, Fred Gerdeman  
DOE Contract Specialist, Margo Gorin  
DOE Project Monitor, Bryna Berendzen

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.



## **FINAL TECHNICAL REPORT FOR DE-FG36-01ID14036: DEPLOYMENT OF ETHANOL FUEL INFRASTRUCTURE FOR FEDERAL FLEETS IN MELBOURNE-TITUSVILLE, FLORIDA**

### **Executive Summary**

The Energy Policy Act of 1992 (EPA Act) requires that 75% of a Federal Fleet's covered vehicle acquisitions be Alternatively Fueled Vehicles (AFVs). Executive Order (EO) 13149 required that federal agencies operating 20 or more vehicles reduce their entire fleet's petroleum consumption by 20% by the end of FY 2005 compared with FY 1999 petroleum consumption. Reductions were to be achieved through alternative fuels use and increases in efficiency. EO 13149 further requires that alternative fuels be used in AFVs a majority of the time that the vehicles are in operation.

The Kennedy Space Center (KSC) currently has 511 ethanol-capable AFVs, and this number is expected to rise to 611 by the end of the year. These vehicles are able to use E85 (85% ethanol/15% gasoline) fuel. The Government Services Administration leases

these vehicles to KSC and intends to procure more E85 vehicles annually. Until the deployment of the E85 fueling station which is the subject of this report, these KSC-based vehicles used regular unleaded gasoline as no other source of E85 was available.

In January 2001, the Florida Technological Research and Development Authority (TRDA) received a grant from the U. S. Department of Energy to deploy ethanol-85 infrastructure in the Melbourne-Titusville, Florida area. The grant provided \$90,925 from the Department of Energy. The TRDA was required to provide a dollar for dollar match of either cash or in-kind contributions.

The overall objective of this grant was to support the U.S. Department of Energy (DOE), Office of Transportation Technologies Federal Alternative Fuel Vehicle (AFV) USER Program through completion of alternative fuel infrastructure projects. This program was created to support the establishment of alternative fuel infrastructures by concentrating large quantities of federal AFVs and substantially increasing the use of alternative fuels in six selected cities. Metropolitan Statistical Areas (MSAs) selected for infrastructure development were San Francisco, CA; Denver, CO; Albuquerque, NM; Minneapolis, MN; Salt Lake City, UT; and Melbourne – Titusville, FL.

In addition to developing and deploying new infrastructure projects, awardees were also tasked with ancillary responsibilities such as alternative fuel market promotion and customer education. Although the project was primarily structured to benefit federal fleets, the secondary focus was on state and local government fleets, commercial fleets, and alternative fuel vehicles owned and operated by the public. Despite the fact that the deployed E85 refueling station is located in a secure area, not accessible by the general public, both government and subcontractor employees with KSC identification badges are authorized and encouraged to refuel their personal E85 compatible vehicles at this facility.

This project has clearly aided in the removal of the “infrastructure availability” barrier to alternative fuel use, and further supported the marketability of alternative fuel vehicles. The initiative has improved the overall public good by: 1) increasing the use of ethanol in both fleet and personal vehicles at Kennedy Space Center, 2) reducing emissions from mobile sources, and 3) promoting E85 availability and its use as an alternative fuel.

During the project period, two no-cost extensions to the contract were requested and granted to accommodate delays created by: 1) slower than expected progress in the design and construction phases of the project, and 2) technical challenges encountered as drivers first began to use the fueling station in their GSA-leased vehicles. These delays are described in the body of this report.

## **Project Summary**

In January of 2001, the TRDA entered into an agreement with the U.S. Department of Energy to manage the project titled *Deployment of Ethanol Fuel Infrastructure for*

*Federal Fleets in Melbourne-Titusville, Florida.* The project was funded by grant # DE-FG07-01ID14036, and was later changed to grant # DE-FG36-01ID14036. The initiative was devised as a means to supply fuel (E85) primarily to alternative fuel vehicles in federal fleets, and secondly for state and local government fleets, commercial fleets and alternative fuel vehicles owned and operated by the public. The purpose of the project was to aid in the removal of the “infrastructure availability” barrier to alternative fuel use, thereby supporting the marketability of alternative fuel vehicles.

The Kennedy Space Center in Brevard County, Florida was selected as the infrastructure deployment site due to the presence of a federal fleet initially containing approximately 200 AFVs. Over the project period that number has increased to 511 ethanol-capable AFVs with over 100 expected to arrive by the close of 2006.

As the project commenced a Project Team was appointed consisting of the following organizations:

- The Florida Technological Research and Development Authority (project lead and manager).
- General Services Administration (owner of the Federal Fleet at KSC).
- Space Gateway Support (provided design and planning support).
- Florida Institute of Technology (monitored usage of fuel and provided reporting).
- KSC Energy Office (assisted with planning and deployment).
- KSC Environmental Office (assisted with environmental permitting).
- Harbor Petroleum, Inc. (fuel provider and operator of the alternative fuel site).

After the project team was formed, an existing Citgo fueling station located on the Kennedy Space Center was selected as the deployment site. The fueling station is owned by the KSC Exchange Council and operated by Harbor Petroleum, a local petroleum products service company, under a lease arrangement.

Soon after the project commenced, progress was stalled when Harbor Petroleum declined to sign any agreement to be a provider of E85 unless a certain minimum profit margin could be guaranteed. A delay in schedule was incurred while other potential fuel providers were investigated.

When the question of the fuel provider was eventually settled, a Request for Proposals was issued on June 9, 2002 for the design and construction of a vehicular fueling facility consisting of a 5,000 gallon storage tank, dispenser, piping, pay-at-the-pump card reader, paved apron and signage. Additionally, the permitting process for locating the facility at the Kennedy Space Center was commenced.

In the third quarter of 2002, success was achieved in identifying the operator of the fueling station when the operator of the KSC Citgo station, Harbor Petroleum, agreed to amend its concessionaire contract to include the E85 services. As this process was being concluded, a Space Act Agreement was being drafted between the Kennedy Space Center



and the TRDA to allow for station construction at KSC. The Space Act Agreement was executed on January 21, 2003.

By the third quarter of 2003, station construction was completed by K. C. Petroleum of Jacksonville, Florida, and Ward Oil Company was identified as an available blender of record for E85. However, over the course of the next 15 months, technical problems were encountered that delayed the opening of the station and later, impacted the amount of E85 consumption.

First, it was discovered that a modem and associated equipment were needed to fully activate the card reader and fuel pricing mechanism. The problem was resolved in early 2004 when these items were installed. Second, it was discovered in the first quarter of 2004 that the station had been constructed using sealants and some piping that was not compatible with *The Department of Energy Handbook for Handling, Storing, and Dispensing E85*. Delay was encountered as the contractor made corrections. Third, and perhaps most vexing, was an array of problems encountered as customers attempted to dispense fuel into their GSA-leased vehicles.

Although the station contractor was to ensure the capability for stand-alone operations, the phone line that was installed to facilitate Voyager (credit card) transactions was actually shared with non-E85 customers. Consequently, E85 customers could not complete transactions when a gasoline customer was using a credit card at the nearby island. Also, E85 customers were frequently denied purchase authorization when they attempted to use their Voyager cards. The problem was ultimately traced to the Paymentech system installed as part of the project. Finally, software problems produced confusing prompts at the card reader and incorrect inputs by customers caused the pump to shut down early.

In addition to operational issues caused by the dispenser and card reader, the level of E85 sales was also impacted by a pump shut down caused by a lightning strike in August 2004 (pump inoperable between August 3-12) and two hurricane-related evacuations in September 2004. Although the contractor that constructed the station aggressively worked to remedy problems, NASA officials decided to replace certain system components. In December 2004, the modifications were completed by NASA and E85 usage increased.

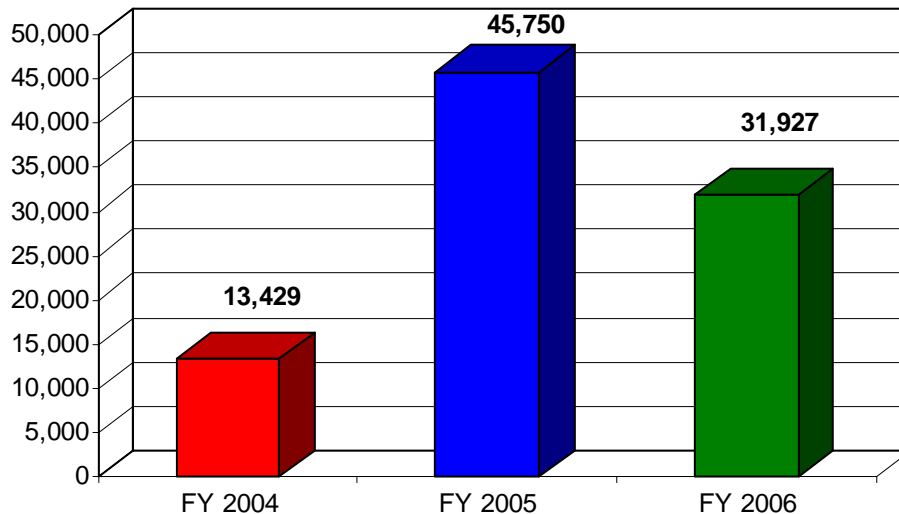
In January 2005, the TRDA requested and received DOE approval for a no-cost extension that extended both the project and budget periods to January 25, 2006. These expenses of approximately \$5,000.00 were for the expansion of the entrance to the E85 station. The original entrance was very narrow, resulting in difficult maneuvering for large vehicles and a blocking of the dispenser island when fuel deliveries took place. For safety reasons the widening of the entrance was necessary. The apron modifications have been made, and now provide a safer entry for customers, better conditions for product delivery, and increased usage of E85.

## Project Accomplishments

<u>Objectives</u>	<u>Result</u>
1. E85 Infrastructure Deployment	January 2005 (Apron)
2. Alternative Fuel Dispensing	October 2003
3. E85 Promotion and Marketing	Ongoing
4. AFV Driver Awareness Program	Ongoing

Despite the difficulties, E85 sales have steadily grown, resulting in a fiscal year end total of 45,750 gallons sold for 2005 (See chart on page 5.). These results have been bolstered by a strong driver-awareness program led by NASA transportation managers and include informational notices in the *KSC Daily News*, highly-visible vehicle decals, automobile key tags, notifications provided to vehicle coordinators, and even training at the E85 pump.

### E85 Dispensed (Gallons)



(Oct 05 – Feb 06)

**End of fiscal year 2005 fuel sales increased by 32,892 gallons over first year operations. KSC transportation managers forecast that ~73,000 gallons will be sold during FY 2006.**

With technical and weather “interventions” apparently behind, and widespread driver awareness of E85 availability achieved by NASA, the future holds great promise that the KSC AFV operators will meet or achieve the Energy Policy Act objectives that precipitated the grant.