



LAND USE CONTROL IMPLEMENTATION PLAN

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION KENNEDY SPACE CENTER BREVARD COUNTY, FLORIDA

FACILITY: CITGO Service Station
Potential Release Location 129

CONTAMINANTS: Benzene, total xylenes, MTBE, and naphthalene in groundwater

CONTROL: Prohibit Groundwater Use

PURPOSE OF LAND USE CONTROL IMPLEMENTATION PLAN

This Land Use Control Implementation Plan (LUCIP) has been prepared to inform current and potential future users of the CITGO Service Station (CGO; the Site) of institutional controls that have been implemented at the Site¹. In 2011, the Site was rebranded to a Mobil Station. Although there are no current unacceptable risks to human health or the environment associated with the CGO, an institutional land use control (LUC) is necessary to prohibit groundwater use at the Site. Controls will include periodic inspection, condition certification, and agency notification.

WHY LAND USE CONTROLS ARE NEEDED

Four chemicals of concern (COCs; total xylenes, methyl tert-butyl ether [MTBE], and naphthalene) exceeded the Florida Department of Environmental Protection (FDEP) Groundwater Cleanup Target Levels (GCTLs) and one COC (benzene) exceeded

the Natural Attenuation Default Concentration (NADC). The four COCs were identified as posing potential human health risks during a Petroleum Site Assessment.

SITE DESCRIPTION

The Site is currently developed with the Mobil Service Station (CGO; M6-0596) and a fuel canopy (M6-0596A). The CGO currently maintains one compartmentalized 22,000-gallon underground storage tank (UST) containing unleaded gasoline and diesel fuel, one 5,000-gallon ethanol aboveground storage tank, and the associated dispensers.

SITE LOCATION

The CGO is located in the Industrial Area of Kennedy Space Center (KSC), south of the Headquarters Building (M6-0399). The facility is located in Section 5, Township 23S, and Range 37E, in the Orsino Quadrangle. The facility is bordered by a vacant parcel to the north and east, by 3rd Street SE to the south, and by C Avenue SE to the west. (Figure 1). The groundwater use control area covered by the LUCIP is shown on Figure 2.

¹ This LUCIP summarizes institutional controls regarding the NASA CGO. For detailed information on the site, consult the CGO administrative file, which is available for review by contacting the KSC Environmental Assurance Branch at telephone number (321) 867-8402.

Coordinates of the corners of the LUC are provided on [Figure 2](#) in the U.S. State Plane Coordinate System NAD 1983, meters, Florida East.

SITE CONTAMINATION AND CONTROL

Concentrations of total xylenes, MTBE, and naphthalene are present in groundwater above the FDEP GCTLs but are less than the FDEP NADCs. The concentration of benzene in one monitoring well is above the NADC. Two pilot tests were performed at the Site prior to the installation of the compartmentalized UST in March 2010. In October 2008, an in-situ air sparge and vapor extraction system was installed. The results indicated that lithologic constraints hindered the remedial effectiveness of the system. In 2009, a chemical oxidation pilot study was conducted to determine the effectiveness of injecting RegenOx to reduce the remaining petroleum hydrocarbons at the Site. The results of the chemical oxidation pilot test indicated that the subsurface lithology limited the distribution of the oxidant; therefore this technology was not retained for further consideration. Based on the pilot test results and the lithologic constraints at the Site, a long-term monitoring (LTM) plan was recommended and approved for the Site. Since groundwater exceeds the FDEP GCTLs and NADCs, LUCs prohibiting the use of groundwater are required until the cleanup level is achieved. The current and projected land use of the CGO does not

include the use of site groundwater; therefore, there is no current or projected exposure risk.

DECISION DOCUMENT

A Statement of Basis (SB) establishes institutional controls as a component of the remedy for the Site. The SB for the site, KSC document number KSC-TA-12114, is available for review by contacting the KSC Environmental Assurance Branch at telephone number (321) 867-8402.

IMPLEMENTATION

Institutional controls will be implemented by the KSC Environmental Assurance Branch in accordance with their RCRA permit and a Land Use Control Assurance Plan included in the Memorandum of Agreement (MOA)² between NASA and the FDEP, effective February 23, 2001. Upon approval of this LUCIP, it will be incorporated into the permit by reference. Property transfer (if conducted in the future) will be conducted in accordance with Section X of the MOA.

KSC's Environmental Assurance Branch will provide KSC's Master Planning Office with survey coordinates of the LUCs. Restrictions will specify limitations on development and reuse for the area for as long as LUCs are necessary to protect human health and the environment.

² By separate MOA effective February 23, 2001, with the FDEP and KSC, on behalf of NASA, agreed to implement Center-wide, certain periodic site inspections, condition certification, and agency notification procedures designed to ensure the maintenance by Center personnel of any site-specific LUCs deemed necessary for future protection of human health and the environment. A fundamental premise underlying execution of that agreement was that through the Center's substantial good faith compliance with the procedures called for herein, reasonable assurances would be provided to the FDEP as to the permanency of those remedies which included the use of specific LUCs.

Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by NASA KSC and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent upon the Center's substantial good faith compliance with the specific LUC maintenance commitments reflected herein. Should such compliance not occur or should the MOA be terminated, it is understood that the protectiveness of the remedy concurred in may be reconsidered and that additional measures may need to be taken to adequately ensure necessary future protection of human health and the environment.

MONITORING

Quarterly inspections to monitor that the institutional controls specified herein are in place and operating will be conducted by KSC’s Environmental Assurance Branch. The inspections will verify that no groundwater use is occurring at the Site.

REPORTING

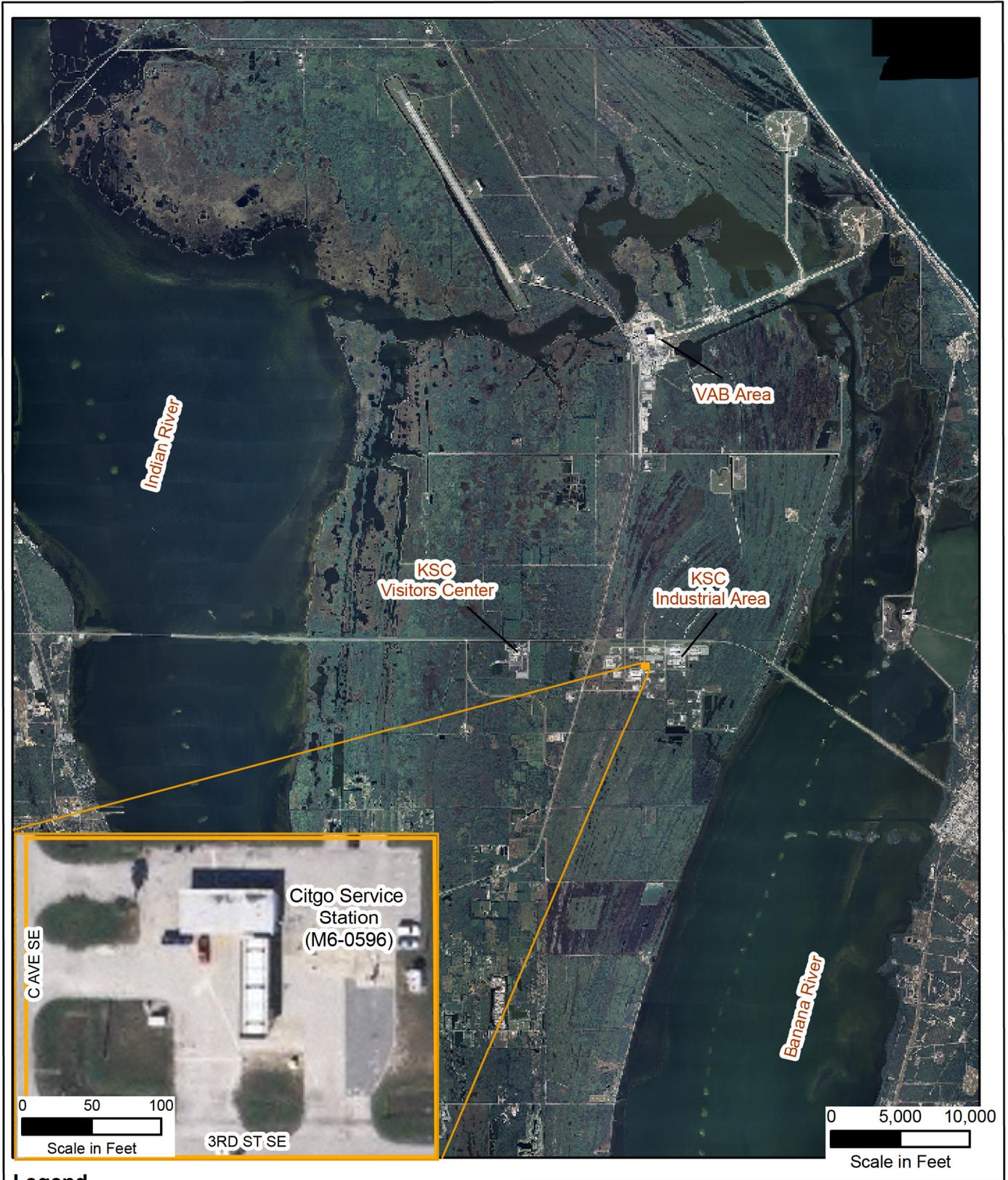
KSC’s Environmental Assurance Branch will submit annual reports to FDEP certifying retention of the implemented LUCs.

ENFORCEMENT

KSC’s Environmental Assurance Branch will be responsible for stopping any activities that are not compliant with this LUCIP.

MAINTENANCE

The LUCIP shall remain in place until the concerns managed by the LUCIP are mitigated, or until there is a discovery, based upon analytical evidence, that scenarios managed by the LUCIP are no longer a concern. Any change in LUC management must be approved by the FDEP and implemented by modification of NASA’s operating permit.



Legend

 PRL Boundary

Notes:

- CGO - CITGO Service Station
- KSC - Kennedy Space Center
- LUCIP - Land Use Control Implementation Plan
- NASA - National Aeronautics and Space Administration
- PRL - Potential Release Location
- VAB - Vehicle Assembly Building

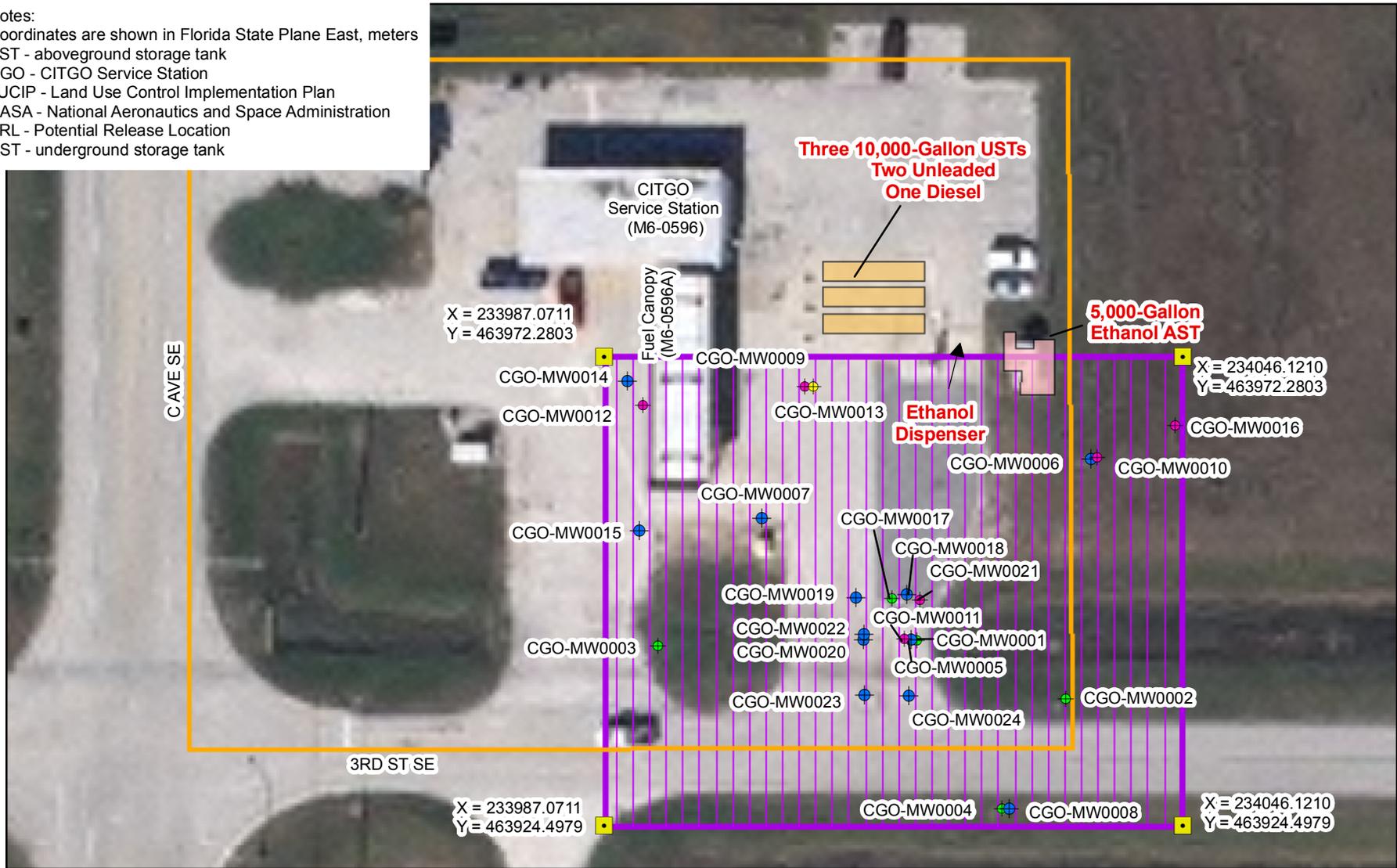
**Site Location Map - PRL 129
Land Use Control Implementation Plan**

CITGO Service Station
NASA Kennedy Space Center, Florida

Project Number: TL014022.0000

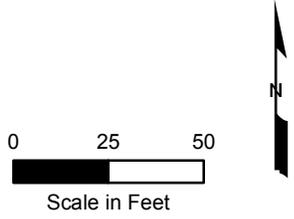
Figure 1

Notes:
 Coordinates are shown in Florida State Plane East, meters
 AST - aboveground storage tank
 CGO - CITGO Service Station
 LUCIP - Land Use Control Implementation Plan
 NASA - National Aeronautics and Space Administration
 PRL - Potential Release Location
 UST - underground storage tank



Legend

- ◆ Monitoring Well Screened 2 to 12 ft bls
 ■ AST
- ◆ Monitoring Well Screened 20 to 30 ft bls
 ■ UST
- ◆ Monitoring Well Screened 30 to 40 ft bls
 PRL Boundary
- ◆ Monitoring Well Screened 40 to 50 ft bls
 LUCIP Area



**Area Under Institutional Controls - PRL 129
 Land Use Control Implementation Plan**

CITGO Service Station
 NASA Kennedy Space Center, Florida