



## LAND USE CONTROL IMPLEMENTATION PLAN



### FORMER DRUM STORAGE AREA (SWMU 037) NATIONAL AERONAUTICS AND SPACE ADMINISTRATION KENNEDY SPACE CENTER BREVARD COUNTY, FLORIDA

**FACILITY:** Former Drum Storage Area  
Solid Waste Management Unit 037

**CONTAMINANTS:** VOCs in Groundwater

**CONTROL:** Prohibit Groundwater Use, Prevent Hypothetical Future Residential Exposure to Groundwater, and Prevent Potential Discharge of Contaminated Groundwater to Adjacent Surface Water

#### 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 Former Drum Storage Area (FDSA) of institutional controls that have been implemented at the site<sup>1</sup>. Although there are no current unacceptable risks to human health or the environment associated with FDSA, institutional land use controls (LUCs) are necessary to prohibit the use of groundwater from the site, to prevent hypothetical future residential exposure to groundwater, and to prevent potential discharge of contaminated groundwater to adjacent surface water bodies that have been designated as Outstanding Florida Waters (OFW). Controls will include periodic inspection, condition certification, and agency notification.

#### WHY LAND USE CONTROLS ARE NEEDED

Human health and ecological risk assessments were completed as part of FDSA Confirmatory Sampling activities in 2005. No

ecological risks were identified; therefore, ecological risks were not evaluated further. Human health risks were updated based on additional data collected during the Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). Chemicals of concern identified for human health risk during the RFI that exceeded Florida Department of Environmental Protection (FDEP) and Environmental Protection Agency (EPA) cleanup target levels were chlorinated volatile organic compounds (VOCs) in groundwater.

#### SITE DESCRIPTION

Approximately 100 drums were stored by NASA at FDSA from 1988 through 1994, primarily on a concrete pad in the northern portion of the site but also at multiple locations across the site (Figure 1). Three tankers reported at the site during this period were parked in the southern retention area; the contents of the tankers are not known. The contents of the drums were reported as asbestos materials, solidified paint and debris, adhesives, petroleum-contaminated soils and absorbents, aerosol cans, photo developer solutions, wastewater, latex paints, hydrazine-

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

contaminated materials (hoses) contained in dilute citric acid solutions, nitrogen tetroxide-contaminated materials contained in dilute ammonium hydroxide solution, glycol-based coolants, polyol resin foam components, polymeric isocyanates foam components, polychlorinated biphenyl (PCB) and non-PCB lighting ballasts, and fluorinated oils.

## **SITE LOCATION**

FDSA includes approximately 6 acres located on the northeastern portion of the turnaround loop of Fluid Servicing Road and consists of the Building J7-2112A area (Figure 1). The site is located within Section 5 of Township 22S, Range 37E which is in the Orsino Quadrangle. The groundwater use control area covered by the LUCIP are shown on Figure 2. Coordinates of the corners of the LUC are provided in Figure 2 in the State Plane Coordinate System NAD 1983 meters, Florida East.

## **SITE CONTAMINATION AND CONTROL**

Groundwater at the site contains VOCs at concentrations greater than FDEP's Groundwater Cleanup Target Levels. The past, current, and projected future land use of FDSA is industrial in nature. LUCs are therefore required to prohibit the use of groundwater at

the site. Indoor air quality shall be evaluated prior to any construction within the groundwater use control area.

## **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-10432, 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 a Memorandum of Agreement (MOA)<sup>2</sup> between NASA, FDEP, and EPA, 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.

<sup>2</sup> By separate MOA effective February 23, 2001, with the EPA and FDEP, 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 EPA and 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, EPA 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 and will be conducted by KSC's Environmental Assurance Branch. The inspections will verify that no residential groundwater use is occurring.

**REPORTING**

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

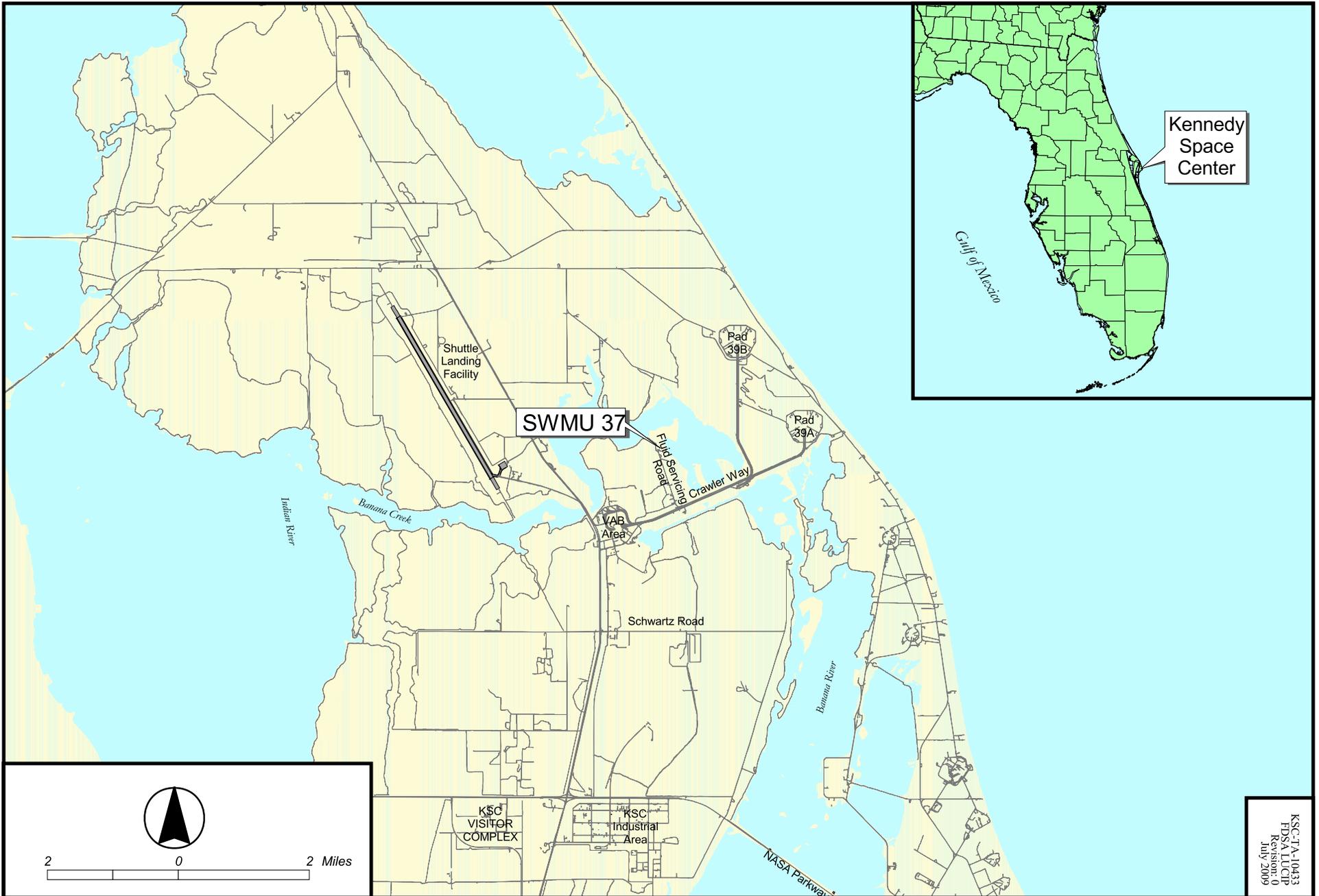
**ENFORCEMENT**

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

**MAINTENANCE**

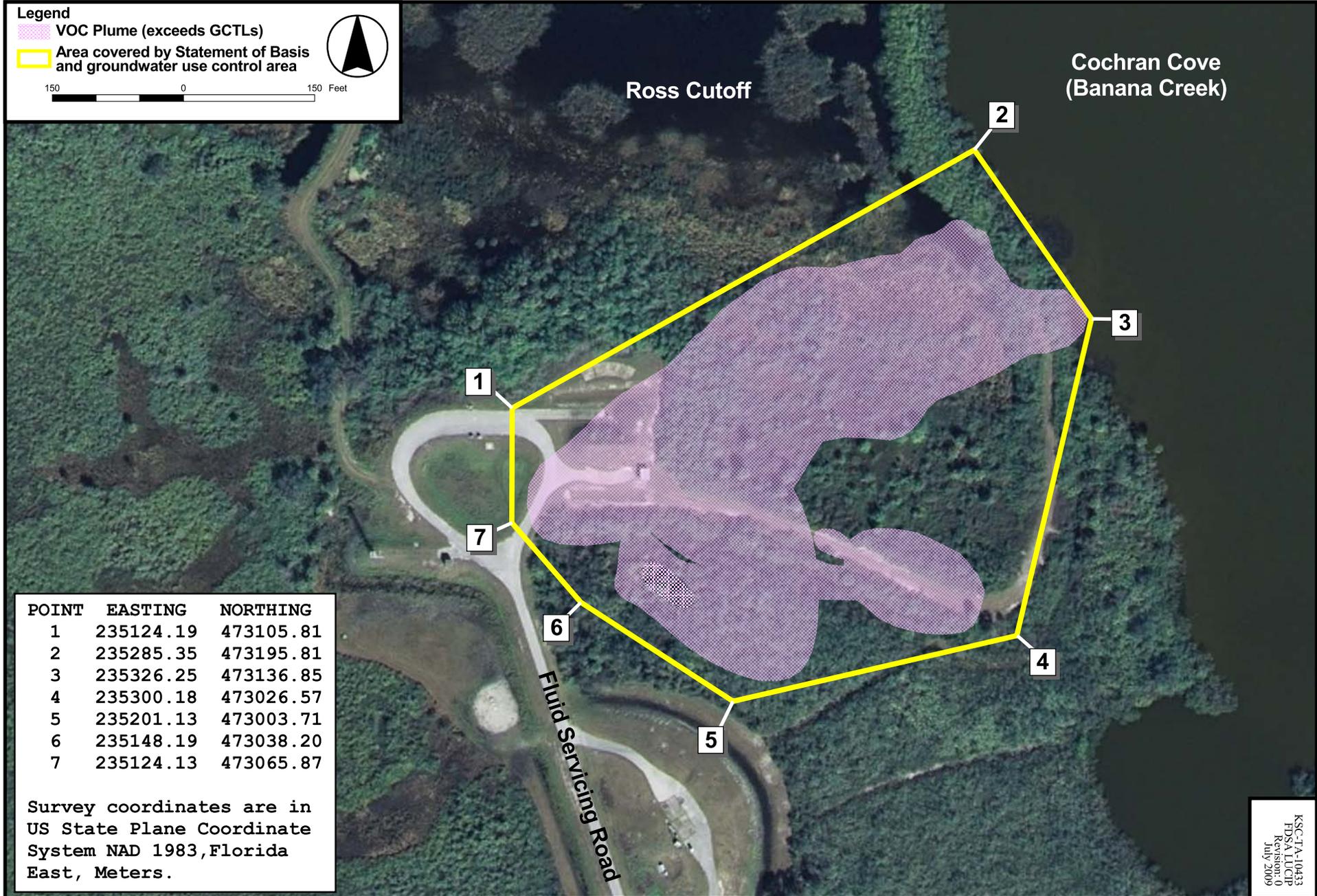
The LUCIP shall remain in place until a land use change is implemented and the concerns managed by the LUCIP are mitigated; or there is a discovery, based upon analytical evidence, that scenarios managed by the LUCIP are no longer a concern. Any change in LUC management must be approved by the EPA and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

FIGURE 1 LOCATION OF KENNEDY SPACE CENTER AND SWMU 37  
 SWMU 37 - FORMER DRUM STORAGE AREA, KENNEDY SPACE CENTER, FLORIDA



4

FIGURE 2 GROUNDWATER LAND USE CONTROL AREA  
 SWMU 37 - FORMER DRUM STORAGE AREA, KENNEDY SPACE CENTER, FLORIDA



**Legend**

- VOC Plume (exceeds GCTLs)
- Area covered by Statement of Basis and groundwater use control area

150 0 150 Feet

Ross Cutoff

Cochran Cove  
(Banana Creek)

POINT	EASTING	NORTHING
1	235124.19	473105.81
2	235285.35	473195.81
3	235326.25	473136.85
4	235300.18	473026.57
5	235201.13	473003.71
6	235148.19	473038.20
7	235124.13	473065.87

Survey coordinates are in US State Plane Coordinate System NAD 1983, Florida East, Meters.

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 FDSA LLICP  
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