



## LAND USE CONTROL IMPLEMENTATION PLAN



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

- FACILITY:** Launch Complex 39B  
Solid Waste Management Unit 9 (Group B)
- CONTAMINANTS:** Chlorinated Solvents and Metals in Groundwater, Benzo(a)pyrene, Polychlorinated Biphenyls, Arsenic, and Nickel in Surface Soil and Zinc in Swale Soil
- CONTROL:** Prohibit Groundwater Use and Residential Exposure to Surface and Swale Soil and prevent migration of contamination from select swales to the outside perimeter swale

#### 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 Launch Complex 39B (LC39B) of institutional controls that have been implemented at the site<sup>1</sup>. Institutional land use controls (LUCs) are necessary to: prohibit the use of groundwater from the site; and prohibit residential exposure to soil and swale soil present at the site. 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 a 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 volatile organic compounds (VOCs) and metals (aluminum, arsenic, barium, lead, mercury, and thallium) in groundwater, and benzo(a)pyrene and metals (arsenic and nickel) in soil, and zinc in swale soil.

#### SITE DESCRIPTION

LC39B is an active National Aeronautics and Space Administration (NASA)-operated facility. The area where LC39B resides was undeveloped prior to the mid-1960s when construction for the Apollo Space Program commenced. The facility encompasses approximately 170 acres at Kennedy Space Center (KSC). The pad structure was retrofitted to support Space Transportation System (STS) operations in 1975. It is the northernmost of the two space shuttle launch sites situated along the eastern boundary of KSC (Figure 1). The launch pad is located in the center of the LC39B site. The facility is registered as a National Historic Site located within Brevard County.

<sup>1</sup> This LUCIP summarizes institutional controls regarding the NASA KSC Launch Complex 39B. For detailed information on the site, consult the LC39B administrative file, which is available for review by contacting the KSC Environmental Program Office at telephone number (321) 867-8411.

## SITE LOCATION

A portion of LC39B is located within the northwest corner of the False Cape, Florida 7.5- minute United States Geological Survey (USGS) Quadrangle Map [USGS 1976] and a portion is in the southeast corner of the Wilson, Florida Quadrangle Map [USGS 1949]. The site is located within Sections 28 and 33 of Township 21S and Range 37E. The groundwater use and soil residential control area covered by this LUCIP is shown on Figure 2. Coordinates of the corners of the LUCIP provided on Figure 2 are in the State Plane Coordinate System NAD 1983 meters, Florida East.

## SITE CONTAMINATION AND CONTROL

Groundwater at the site contains VOCs and metals above the FDEP groundwater cleanup target level values. Soil remaining on site contains benzo(a)pyrene (Heating, Ventilation, and Air Conditioning [HVAC]) area, polychlorinated biphenyls (PCBs) (Deluge Basin Area [DBA]), arsenic (HVAC), and nickel (Compressed Air Building Area [CBA]) and swale soil contains zinc all at concentrations above Residential Soil Cleanup Target Level (SCTL) values as discussed in the Corrective Measures Study (CMS) Report <sup>1</sup>. The past, current, and projected future land use of LC39B is and will remain as an active launch pad in nature. LUCs are therefore required to prohibit the use of residential exposure to surface soil and swale soil.

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-7022, is available for review by contacting the KSC Environmental Program Office at telephone number (321) 867-8411.

## IMPLEMENTATION

Institutional controls will be implemented by the KSC Environmental Program Office 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 Program Office 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 Centerwide, 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 will be conducted by KSC's Environmental Program Office. The inspection will verify that no groundwater use or residential exposure to surface soil is occurring.

**REPORTING**

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

**ENFORCEMENT**

KSC's Environmental Program Office 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 FDEP and implemented by modification of NASA's operating permit.

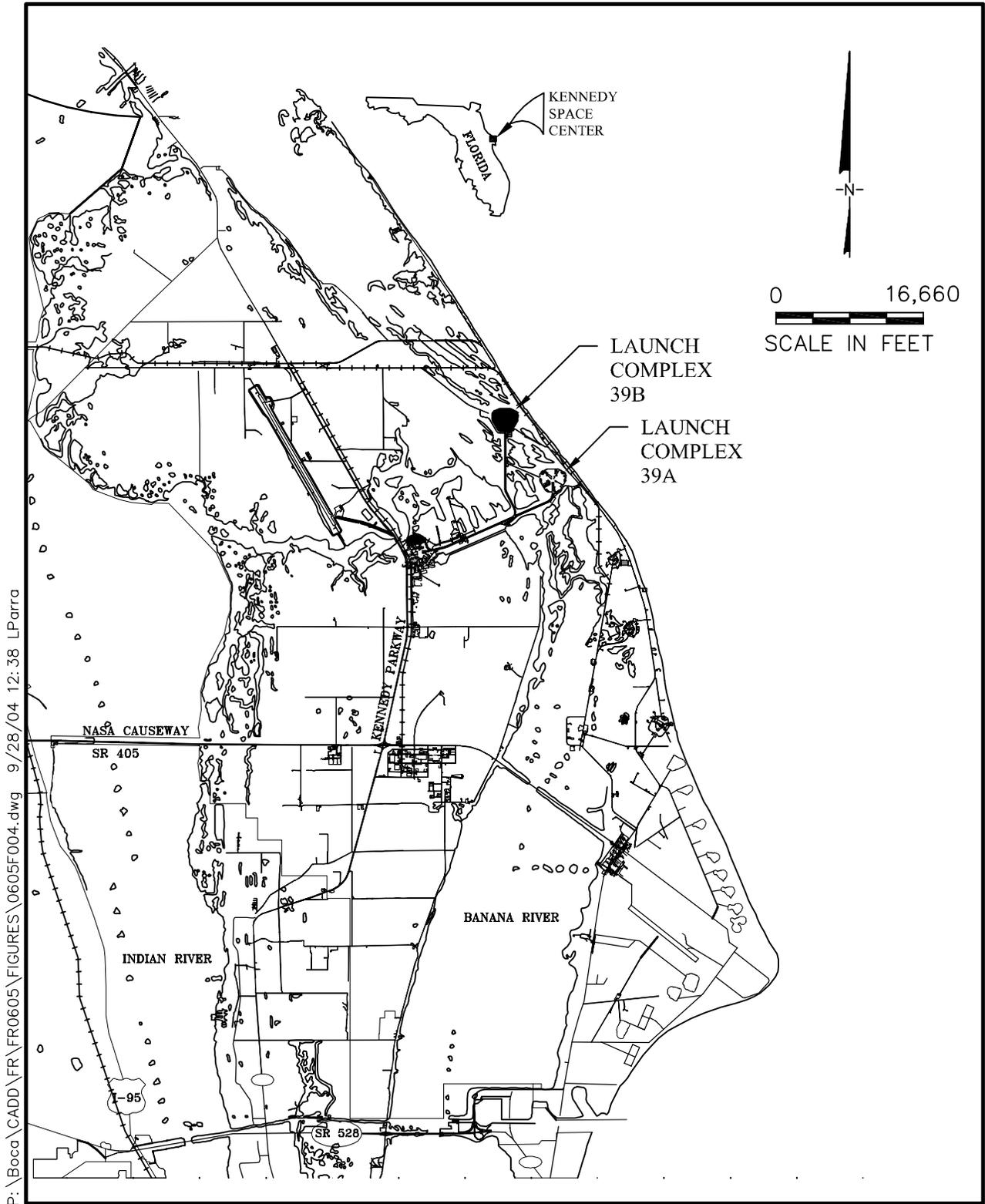
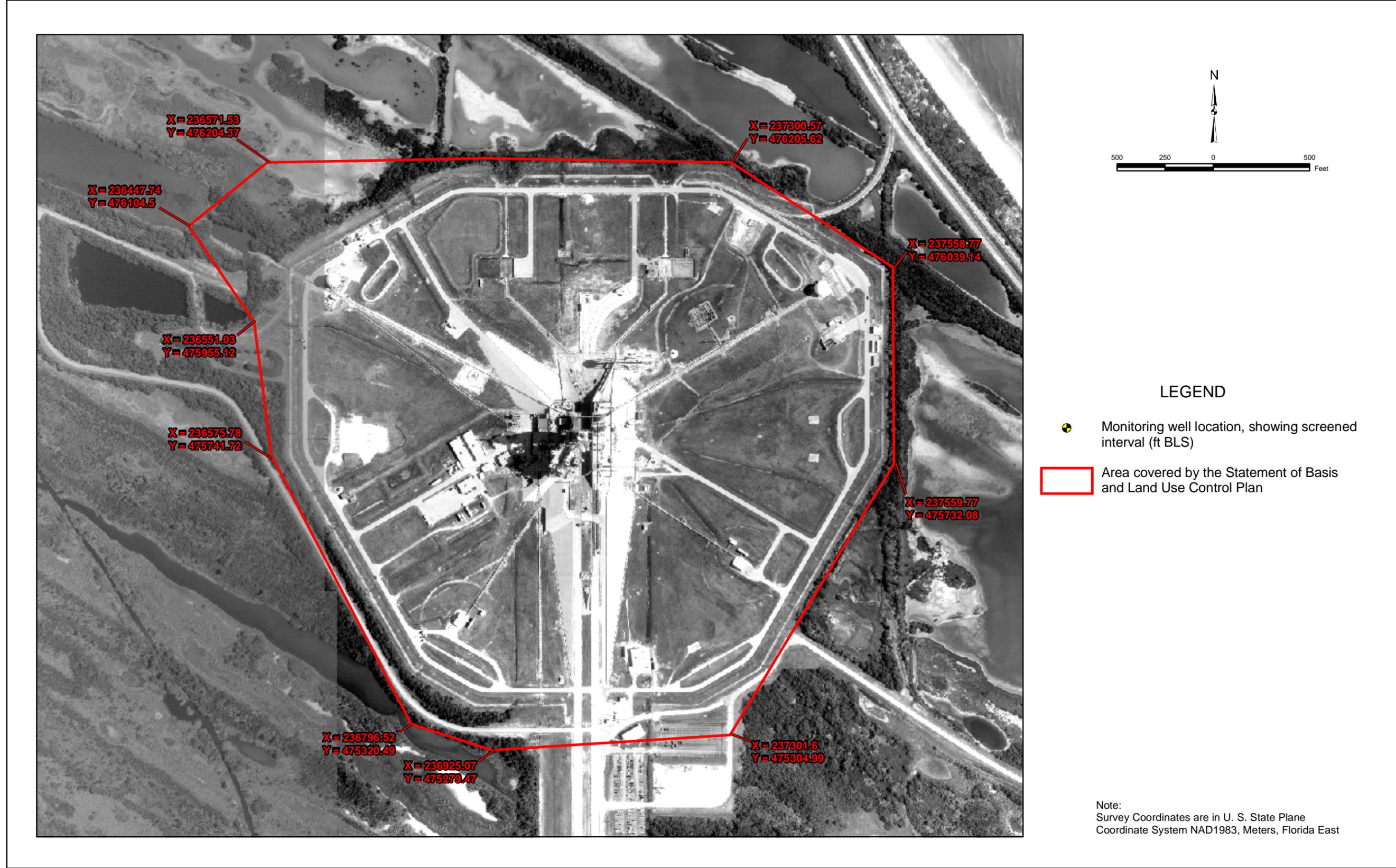


Figure 1  
Location of Launch Complex 39B  
at Kennedy Space Center



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Figure 2  
 Site Map of LC39B