



## LAND USE CONTROL IMPLEMENTATION PLAN

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



**FACILITY:** Orbiter Processing Facility 1 and 2  
Solid Waste Management Unit No. 72

**CONTAMINANTS:** Aluminum and VOCs in Groundwater,  
Metals, PAHs, and TRPH in Soil and/or Soil/Dry Sediment (Swale Soil)

**CONTROL:** Prohibit Residential and Groundwater Use, Restrict Industrial Use Access  
to Soil and Soil/Dry Sediment (Swale Soil), and Maintain the Swale  
Configuration

#### 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 Orbiter Processing Facility 1 and 2 (OPF 1 and 2) 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 the OPF 1 and 2, institutional land use controls (LUCs) are necessary to: (i) prohibit the use of groundwater from the site; (ii) prohibit residential use of the site; (iii) restrict industrial use access to soil and soil/dry sediment (swale soil); and (iv) ensure the swales at the site remain in their current configuration and that human activity within the swales is limited to intermittent maintenance. 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 (COCs) 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 aluminum and volatile organic compounds (VOCs) in groundwater, and metals, polynuclear aromatic hydrocarbons (PAHs), and Total Recoverable Petroleum Hydrocarbons (TRPH) in soil and/or soil/dry sediment (swale soil).

#### SITE DESCRIPTION

The OPF 1 and 2 is a NASA-operated facility that was constructed in the late-1970s and early-1980s to support space flight efforts at KSC. The facility includes two (OPF 1 and OPF 2) of the three processing facilities for the Space Shuttle

*1. This LUCIP summarizes institutional controls regarding the NASA KSC OPF 1 and 2 site. For detailed information on the site, consult the OPF 1 and 2 site administrative file, which is available for review by contacting the KSC Environmental Program Office at telephone number (321) 867-8411.*

Orbiters. The facility buildings include two, 29,000 square feet (ft<sup>2</sup>) high bays separated by a 23,600 ft<sup>2</sup> low bay. An equipment area, which is commonly known as the “back yard” and includes an oxidizer and fuel processing equipment (scrubbers), is located immediately south of the OPF 1 and OPF 2. The remaining grounds consist primarily of disturbed/developed areas covered with limestone gravel, bare earth/grass or cement/asphalt. Numerous drainage swales are located along the western and southern boundaries of the site (Figures 1 and 2); however, these swales are dry for a majority of the year. Past and current operations at the OPF 1 and 2 include safing procedures for the removal of residual fuels, oxidizers, and explosive ordnance from the Space Shuttle Orbiters immediately following landing at the nearby Shuttle Landing Facility.

#### **SITE LOCATION**

The OPF 1 and 2 has no marked or legally designated property boundaries and is located in the Vehicle Assembly Building (VAB) area in the central portion of KSC (Figure 1). It is located approximately (i) 300 feet east of Kennedy Parkway North (State Road 3) and immediately south of Towway Road, (2) 800 feet west of the VAB, and (3) 800 feet southwest of the OPF 3. The site is located in Section 7 of Township 22S, Range 37E which is in the Orsino Quadrangle. The groundwater, and soil and soil/dry sediment (swale soil) use control areas covered by the LUCIP are shown on Figure 2. Coordinates of the corners of the LUC are provided on Figure 2 in the State Plane Coordinate System NAD 1983 meters, Florida East.

#### **SITE CONTAMINATION AND CONTROL**

Groundwater at the site contains aluminum and VOCs above FDEP’s groundwater cleanup target levels (GCTLs). Metals, PAHs, and TRPH were present in soil and/or soil/dry sediment (swale soil) above FDEP’s residential and/or industrial soil cleanup target levels (SCTLs). Sampling has not been conducted in the immediate vicinity (within 10 feet) of the railroad tracks along the western property boundary. Soil in the vicinity of the railroad tracks was not assessed because the past, current, and projected future land use of the OPF 1 and 2 is continued use as a Space Shuttle Orbiter processing facility. LUCs are therefore required to prohibit groundwater usage at the site, prohibit residential use of the site; restrict industrial use access to soil and soil/dry sediment (swale soil); and ensure the swales at the site remain in their current configuration and that human activity within the swales is limited to intermittent maintenance. Indoor air quality shall be evaluated prior to any construction within the groundwater, and soil and soil/dry sediment (swale soil) 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-7060, 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.

### **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 the site is being operated exclusively as a Space Shuttle Orbiter processing facility and that no unauthorized use of the site is taking place that may result in adverse environmental impacts.

### **REPORTING**

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

### **ENFORCEMENT**

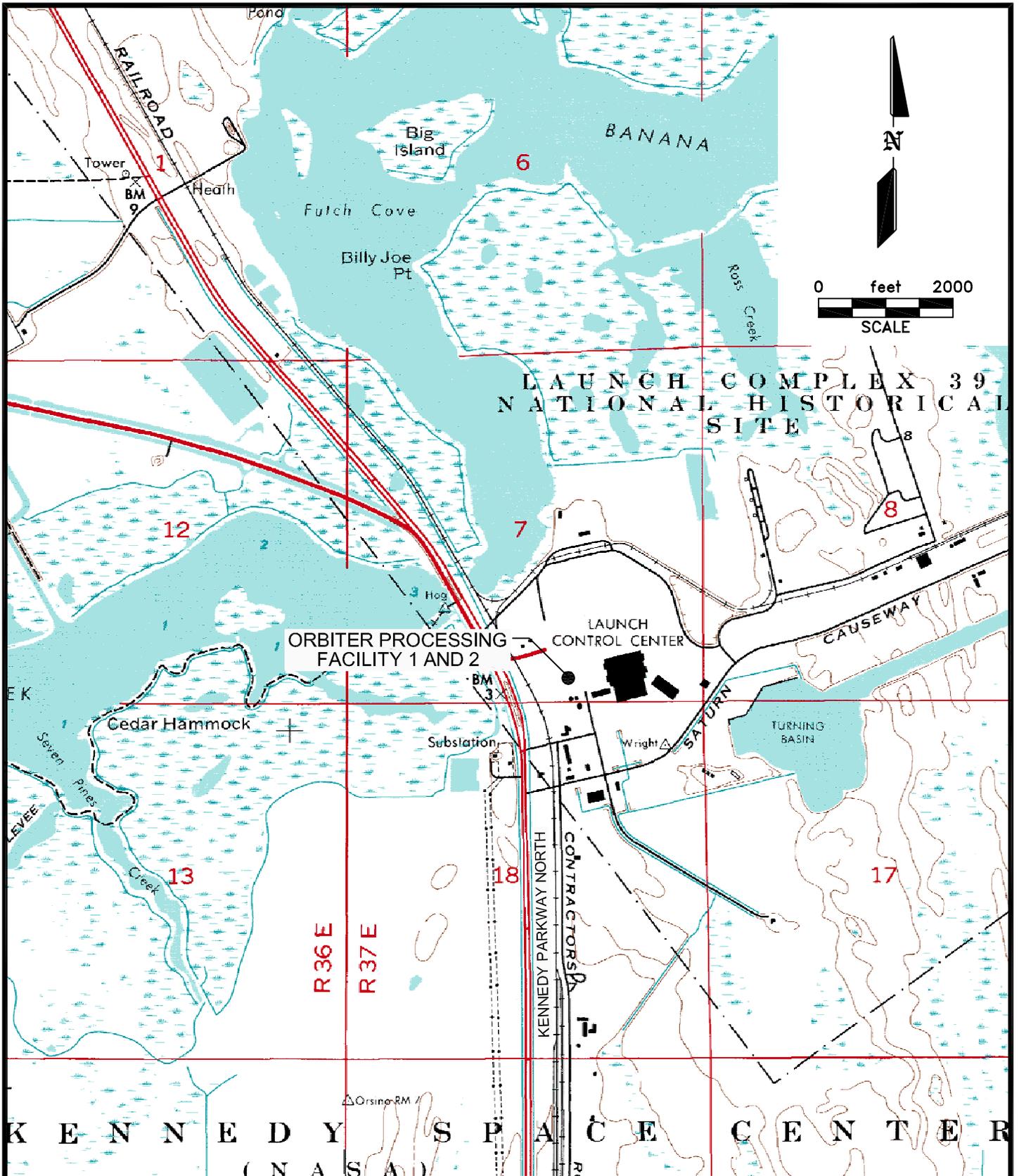
KSC's Environmental Program Office will be responsible for stopping any activities at KSC that are not compliant with this LUCIP.

### **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 EPA and FDEP and implemented by modification of NASA's operating permit.

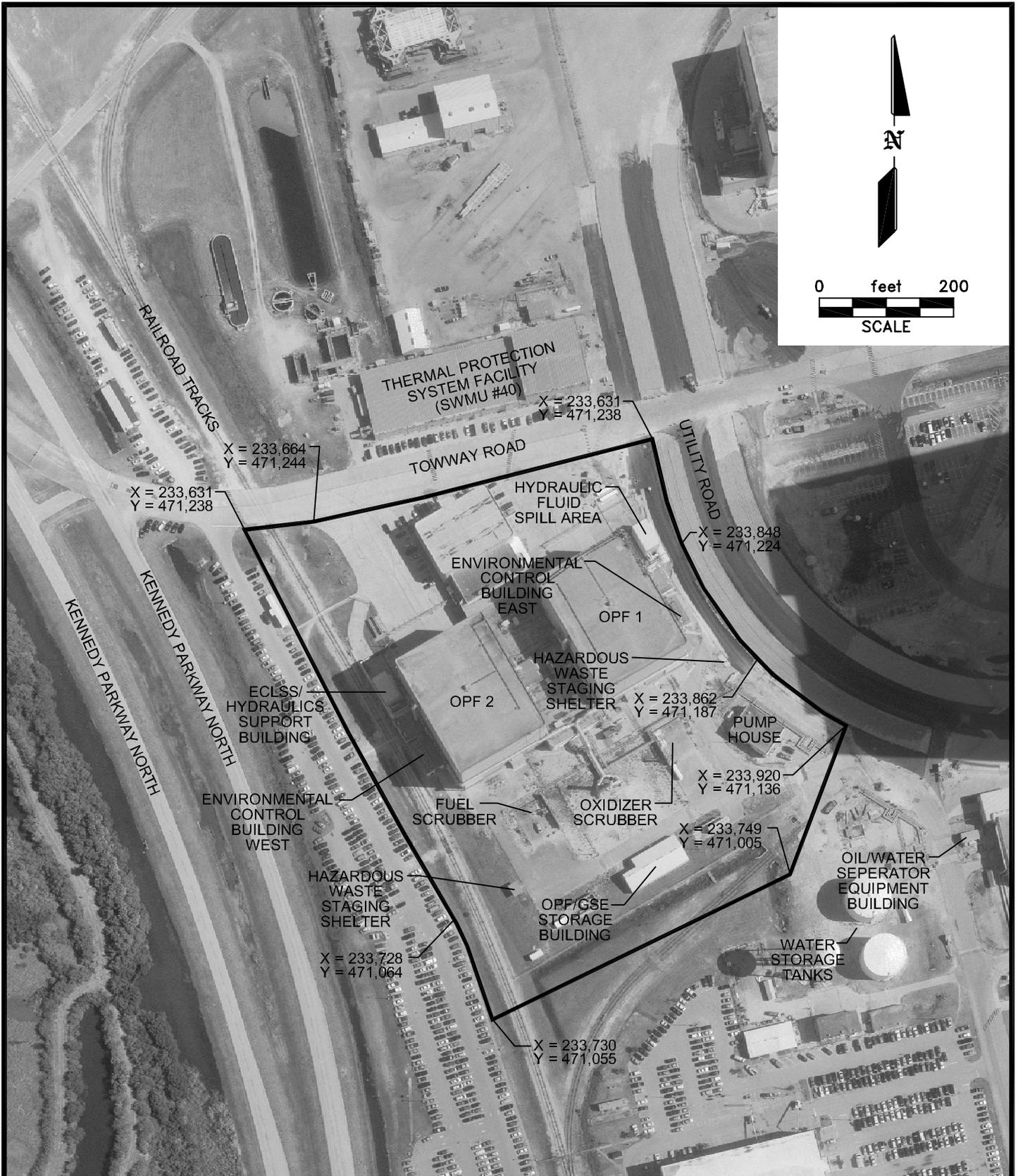
*2. By separate MOA effective February 23, 2001, with the EPA and FDEP, KSC, on behalf of NASA, agreed to implement Center-wide, certain periodic site inspections, condition certification, and agency notification procedures designed to ensure the maintenance by Center personnel of any site-specific LUCs 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.*



SOURCE: 7.5 MINUTE SERIES USGS QUADRANGLE MAP, ORSINO AND FALSE CAPE, FLORIDA, DATED 1976.

FIGURE 1  
 LOCATION MAP  
 ORBITER PROCESSING  
 FACILITY 1 AND 2



SURVEY COORDINATES ARE IN STATE PLANE COORDINATE SYSTEM NAD 1983 METERS, FLORIDA EAST.

SECTION: 7 TOWNSHIP: 22 S RANGE: 37 E

FIGURE 2  
 SITE MAP  
 ORBITER PROCESSING FACILITY 1 AND 2

 AREA COVERED BY GROUNDWATER, SOIL, AND SOIL/DRY SEDIMENT USE CONTROL AREA