



**LAND USE CONTROL IMPLEMENTATION PLAN
SPACEFLIGHT TRACKING AND DATA NETWORK STATION
SWMU 86
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION**



FACILITY: Spaceflight Tracking and Data Network Station
Solid Waste Management Unit No. 86

CONTAMINANTS: Benzene, Chlorobenzene, and Isopropyl Benzene 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 Spaceflight Tracking and Data Network Station (STDNS) of institutional controls that have been implemented at the site¹. Although there are no current unacceptable risks to human health or the environment associated with the STDNS, institutional land use controls (LUCs) are necessary to prohibit the use of groundwater from the site to ensure an acceptable risk to human health. Controls will include periodic inspection, condition certification, and agency notification.

WHY LAND USE CONTROLS ARE NEEDED

A human health assessment was completed as part of a Resource Conservation and Recovery Act (RCRA) Facility Investigation (RFI). The chemicals of concern retained for evaluation of potential human health risk are benzene, chlorobenzene, and isopropyl benzene in groundwater.

SITE DESCRIPTION

The STDNS (Figures 1 and 2) was constructed in 1966 to provide tracking, data acquisition, and pre-flight communication checks for both manned and unmanned spacecraft. The facility has been referred to as the Unified S-Band Station (S-BAND) and the Merritt Island Launch Annex (MILA). Operations at the STDNS are classified as hazardous due to the use of radio frequency/microwave-producing equipment and equipment operating over frequencies that pose potentially hazardous sources of non-ionizing radiation (RF radiation). Since the Apollo Program, the station has evolved into a multi-purpose communications center. The STDNS allows for receiving and transmitting voice, tracking, telemetry, television, and command data to a spacecraft. The STDNS operates two 30-foot-diameter dish antennas and several other antennas that provide tracking information for the Space Shuttle and other unmanned spacecraft.

Records from the KSC Real Property office indicate that fourteen structures were constructed from 1966 to 1992 at the STDNS facility. Facilities that have been or are cur-

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

rently located at the Site include the Operations Building (M5-1494), AN-Power Building (M5-1444), Hydromechanical Building (M5-1544), Collimation Tower Equipment Building (M5-791), Sewage Treatment Plant Number 11 (M5-1494A), Transmitter Building (M5-1545), TDRS Antenna Site (M5-1695), Engineering Support Building (M5-1495), Hazardous Waste Staging Facility (M5-1594), Gate House (M5-1394), Lift Truck Shelter (M5-1595), Support Service Building (M5-1443), Backup Generator Building (M5-1494B), and MILA Relay System Building (M5-1546). A 25,000-gallon aboveground storage tank (AST) containing diesel fuel is also located approximately 30 feet north of the AN-Power Building. A concrete secondary containment structure was installed around the AST in 1992. Prior to 1992, containment consisted of an earthen dike surrounding the tank. The 1962 aerial photograph indicates that the area was undeveloped prior to the construction of the STDNS. The site is currently surrounded by a chain link security fence with a guard gate.

SITE LOCATION

The STDNS is located on the northern portion of Merritt Island, between the Indian and Banana Rivers in Brevard County, Florida. The STDNS is located on E Avenue S.W. approximately 1 mile south of NASA Parkway West. The STDNS is found in Section 2, Township 23S, Range 36E, as shown on the 7.5-minute Orsino topographic quadrangle map (USGS 1986). The groundwater use control area covered by the LUCIP is shown on Figure 2. Coordinates of the corners of the LUC are provided in the State Plane Coordinate System NAD 1983 meters, Florida East.

SITE CONTAMINATION AND CONTROL

Groundwater at the site contains benzene, chlorobenzene, and isopropyl benzene above the Florida Department of Environmental Protection (FDEP) groundwater cleanup target levels. The only contributor to the lifetime excess cancer risk for groundwater at the STDNS facility is benzene, and the Preliminary Risk Evaluation (PRE) estimated the lifetime excess cancer risk for the hypothetical future resident was 1.7×10^{-5} , which exceeds the threshold value of 1×10^{-6} used by FDEP. The contributors to the non-cancer risks (by target organ) for groundwater at the STDNS include chlorobenzene and isopropyl benzene. The PRE results for potential non-cancer risks indicated that chlorobenzene (6.8) and isopropyl benzene (1.4) each exceed the calculated total Hazard Quotient of 1.0 for multiple target organs used by FDEP. The total Hazard Index was 8.2, which is also above the threshold value of 1.0 used by FDEP to indicate potentially significant non-cancer risks. Both of these scenarios assume use of site groundwater as a drinking water source. However, there is no current use of site groundwater and no exposure or current risks. The past, current and projected future land use of the STDNS is industrial in nature. However, LUCs are required to prohibit potential future residential 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-8125, is available for review by contacting the KSC En-

vironmental 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)² 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

KSC's Environmental Program Office will conduct quarterly inspections to monitor that the institutional controls specified herein are in place and operating. The inspection will verify that groundwater is not used as drinking water.

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.

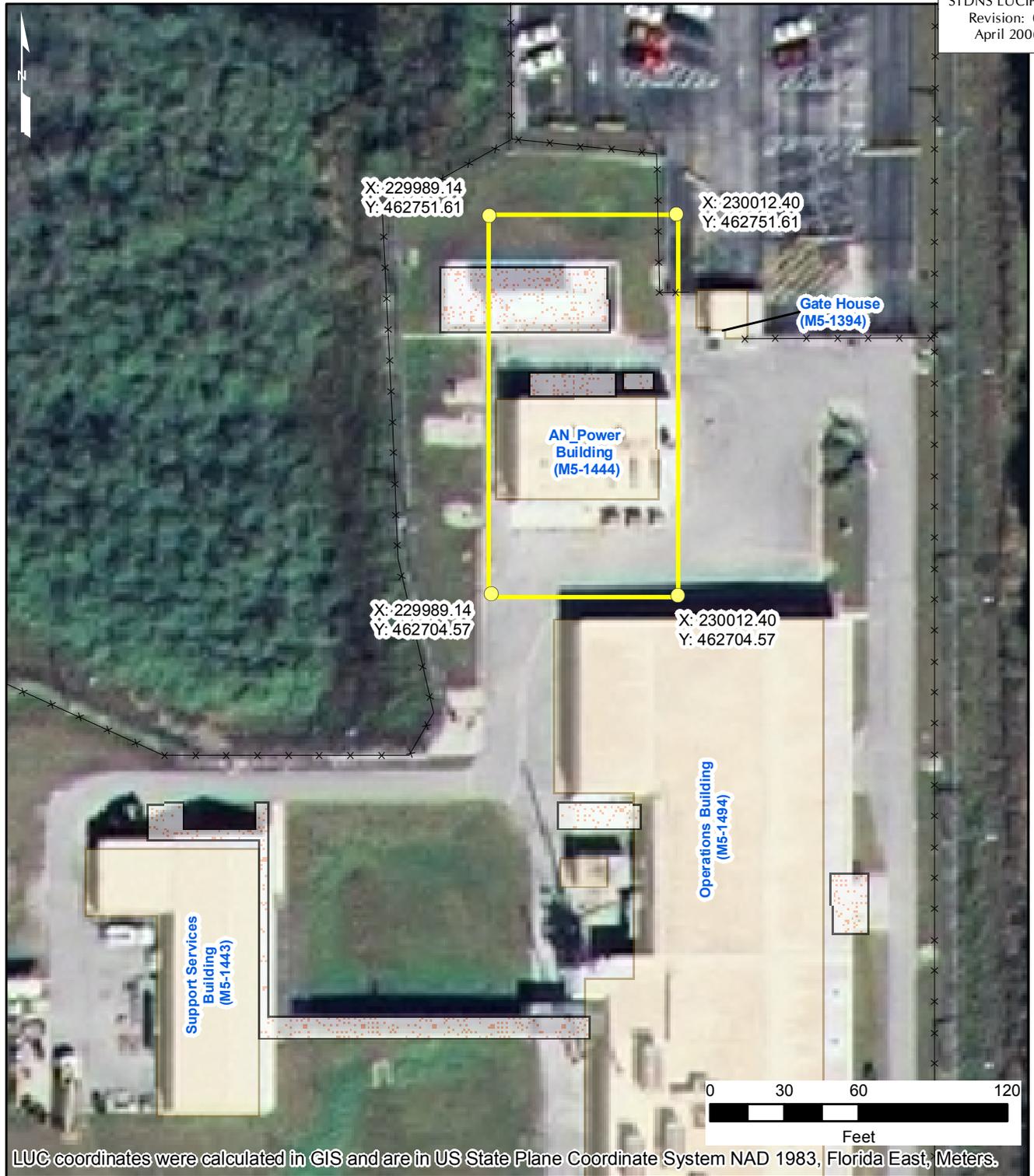
Although the terms and conditions of the MOA are not specifically incorporated or made enforceable herein by reference, it is understood and agreed by NASA KSC, EPA, and FDEP that the contemplated permanence of the remedy reflected herein shall be dependent upon the Center's substantial good faith compliance 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.



**Site Location Map
STDNS
Land Use Control Implementation Plan**

NASA Kennedy Space Center, Florida

Note:
KSC - Kennedy Space Center
LUCIP - Lane Use Control Implementation Plan
NASA - National Aeronautics and Space Administration
STDNS - Spaceflight Tracking and Data Network Station (MILA)
VAB - Vehicle Assembly Building



LUC coordinates were calculated in GIS and are in US State Plane Coordinate System NAD 1983, Florida East, Meters.

Legend

- Structure
- Concrete
- Fence
- Groundwater LUC Area

Notes:
 LUC - Land Use Control
 LUCIP - Land Use Control Implementation Plan
 STDNS - Spaceflight Tracking and Data Network Station (MILA)

**Site Plan
 STDNS
 Land Use Control Implementation Plan**

NASA Kennedy Space Center, Florida