South Transfer Station Phase II Project (STSII)

Interim Action Work Plan

February 2015
Interim Action Work Plan

AGENDA

Current Site Status

- Purpose and Objectives
- Site Background
- Interim Action Work Plan
  - Capping Control Elements
  - LFG Control Technologies
  - Existing LFG Control Systems and Conditions

Proposed Interim Action Approach
Purpose and Objectives

SPU proposes to re-purpose the 11 acre site

- Demolish existing structures and pavement
- Cover system elements
- LFG controls
- Future use to accommodate several SPU services and functions.
Refuse thickness approx. 15 feet thick
Methane in easterly probes has not been detected (since 1999)
Interim Action Work Plan

- Cap to mitigate exposure, infiltration, and LFG migration
- LFG Control System to mitigate lateral (offsite) and vertical migration
- Integrate with SPPD, KIP, and adjacent control systems
- Separate occupied building control systems
- Mitigate preferential pathways (utilities)
Potential Capping Systems

- Warning/Identifier layer and soil cover
- Geomembrane and Soil cover
- Asphalt/Concrete barriers
- Geotextiles with spray on barriers
- Buildings Foundations/slabs
- Landscape areas allowing venting
LFG Control

- Active – blower vacuum control
- Passive – atmospheric venting
- Combined
  - Passive System
  - Sized for active vacuum flows
  - Manifolded for zone control
  - Valved to easily allow passive-to-active conversion
## Typical LFG Collection

<table>
<thead>
<tr>
<th>Wells</th>
<th>Trenches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Localized extraction/venting control (limited ROI)</td>
<td>Continuous extraction/venting control</td>
</tr>
<tr>
<td>Can fully penetrate refuse</td>
<td>Can be installed with and without liners</td>
</tr>
<tr>
<td>Can add, as needed</td>
<td>Not affected by groundwater table</td>
</tr>
<tr>
<td>More effective in landfills with deeper refuse</td>
<td>No specialized certification for contractor installation</td>
</tr>
<tr>
<td>Commonly used with active collection systems</td>
<td>Used for active and passive perimeter control and interior collection</td>
</tr>
</tbody>
</table>
Typical LFG Treatment

- Direct venting
- Dispersion
- Bioberm (odor control and degradation)
- GAC (odor control)
- Flare (>20% methane – utility or enclosed flares) – Not applicable at this site
Existing Systems (SPPD and KIP)

- High flow active system on SPPD
- KIP has had ACP cover since approx. 1968
SPPD – High Flow Active Collection

- Gridded well system
- Perimeter wells
- Shallow collector trenches
- Buildings connected to site system
Proposed Interim Action Approach
Perimeter Trench with Geomembrane Flap under Pedestrian Path
Perimeter Trench with Membrane Flap
Example Liner Construction

- Pedestrian Trail – West Seattle
Perimeter Trench with Asphalt Cover
Perimeter Trench with Asphalt Cover
Shallow Trench
Shallow Trench

With Asphalt Cover

With Membrane
Active/Passive Valve Box
Active/Passive Valve Box
Open Vent
Barometric Vent
Example Building
Building – Under Slab Collection Piping and Liners
Building - Under Slab Collection Piping
Building – Liner Under Pile Caps
Building - Membrane

- Liquid Boot, PVC, HDPE
Building – Example Methane Detector and Alarms
Building – Example Methane Detectors
Utilities

- Utilities to be constructed in pre-excavated corridors to allow future maintenance without exposure.
- Identifier layer in trenches for cover system separation
- Trench plugs to mitigate migration
- Conduit seal-offs
- Utility pipe flex-Joints
Utility Corridor

WITH ASPHALT COVER

WITH SOIL COVER
Utility Trench Seal