

19th Avenue Landfill Superfund Site 2010 Five Year Review

Appendix I - Site Inspection Checklist

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. O&M Documents

- | | | | |
|--|---|--|------------------------------|
| <input type="checkbox"/> O&M manual | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
| <input type="checkbox"/> As-built drawings | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
| <input type="checkbox"/> Maintenance logs | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |

Remarks 2010 O&M Vacuum & Weekly Reports notebooks were kept at both A & A-1 flare stations. O&M notebooks from previous years kept at Pub works Dept., 3060 S. 27th Ave., Phx., AZ. These notebooks contain daily flare operations logs, weekly operations logs, vacuum readings and preventative maintenance checklists.

2. Site-Specific Health and Safety Plan

- | | | | |
|--|---|--|------------------------------|
| <input checked="" type="checkbox"/> Contingency plan/emergency response plan | <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
|--|---|--|------------------------------|

Remarks HASP booklet kept at both A & A-1 Flare Stations. There is also an emergency plan for when the methane gas collection system stops working.

3. O&M and OSHA Training Records

- | | | |
|--|-------------------------------------|------------------------------|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
|--|-------------------------------------|------------------------------|

Remarks Consultant, Chris Fine of Brian Stirrat & Associates (Tetra Tech) who maintains the flare systems and gas collection systems for the City of Phoenix had his 40-hr OSHA training card when asked during inspections; All 19th Ave. Landfill site staff are trained yearly.

4. Permits and Service Agreements

- | | | | |
|--|---|-------------------------------------|---|
| <input checked="" type="checkbox"/> Air discharge permit | <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
| <input checked="" type="checkbox"/> Effluent discharge | <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> Waste disposal, POTW | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
| <input type="checkbox"/> Other permits _____ | <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |

Remarks Maricopa Co. Air Permit/Plan kept on site at both Flare stations A & A-1, Permit # 010048, Revision 5, 1.0.3.0; issued 8/08/01, renewal date 8/31/11. Dust Control/Demolition Permit also kept on site, permit # E041500; issued 5/05/04, fee \$2,000.00. Pursuant ARS 49-502 updated yearly with MCC.

5. Gas Generation Records

- | | | |
|---|--|------------------------------|
| <input checked="" type="checkbox"/> Readily available | <input checked="" type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
|---|--|------------------------------|

Remarks Monthly Flare Station Summaries are produced for both flare stations A & A-1. Weekly monitoring readings of Methane, Carbon Dioxide, Oxygen, Balance Gas as Nitrogen and the flow (CFM) are taken.

6. Settlement Monument Records

- | | | |
|---|-------------------------------------|------------------------------|
| <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
|---|-------------------------------------|------------------------------|

Remarks Daily operations & maintenance logs and incident records are kept at both flare stations. Crews visually inspect and look for erosion and settlement of the ground. A survey of the levy was done approximately three years ago, there was no movement of the levy just a little erosion.

7. Groundwater Monitoring Records

- | | | |
|---|-------------------------------------|------------------------------|
| <input checked="" type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input type="checkbox"/> N/A |
|---|-------------------------------------|------------------------------|

Remarks City of Phoenix does quarterly groundwater monitoring and produces quarterly reports on this.

8. Leachate Extraction Records

- | | | |
|--|-------------------------------------|---|
| <input type="checkbox"/> Readily available | <input type="checkbox"/> Up to date | <input checked="" type="checkbox"/> N/A |
|--|-------------------------------------|---|

Remarks _____

9. Discharge Compliance Records
 Air Readily available Up to date N/A
 Water (effluent) Readily available Up to date N/A
 Remarks _____

10. Daily Access/Security Logs Readily available Up to date N/A
 Remarks November 1996, when the remedy was in place security fences with gates were put up around the site perimeter. The City of Phoenix personnel and their consultants perform daily maintenance at the site; records of all the daily site activities are logged and kept. on site.

IV. O&M COSTS

1. O&M Organization
 State in-house Contractor for State
 PRP in-house Contractor for PRP
 Federal Facility in-house Contractor for Federal Facility
 Other The City of Phoenix Public Works Department, Solid Waste Disposal Management does the Operations and Maintenance of the 19th Ave. Landfill site and consultants Bryan Stirrat & Associates (Tetra Tech) are hired as backup for technical assistance and to maintain the flare stations and gas collection systems.

2. O&M Cost Records
 Readily available Up to date
 Funding mechanism/agreement in place
 Original O&M cost estimate _____ Breakdown attached
 Total annual cost by year for review period if available

From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost	
From _____	To _____	_____	<input type="checkbox"/> Breakdown attached
Date _____	Date _____	Total cost	

3. Unanticipated or Unusually High O&M Costs During Review Period
 Describe costs and reasons: _____

V. ACCESS AND INSTITUTIONAL CONTROLS Applicable N/A

A. Fencing

1. Fencing damaged Location shown on site map Gates secured N/A
 Remarks Fencing and gates encompass whole site, and are undamaged and in good condition.

B. Other Access Restrictions

1. Signs and other security measures Location shown on site map N/A
 Remarks The site is enclosed with security fence and locked gates; there are city of phoenix no trespassing signs posted on the fence all around the site.

C. Institutional Controls (ICs)

1. Implementation and enforcement
 Site conditions imply ICs not properly implemented Yes No N/A
 Site conditions imply ICs not being fully enforced Yes No
 N/A

Type of monitoring (*e.g.*, self-reporting, drive by) All site monitoring and reporting of data is done by the City of Phoenix and their consultant Bryan A. Stirrat & Associates.
 Frequency Methane probe done monthly and the groundwater done quarterly.
 Responsible party/agency City of Phoenix
 Contact Name Chuck Hamstra Title Landfill Compliance Officer Date 3/09/10 phone no. 602-495-0496

Reporting is up-to-date Yes No N/A
 Reports are verified by the lead agency Yes No N/A

Specific requirements in deed or decision documents have been met Yes No N/A
 Violations have been reported Yes No N/A
 Other problems or suggestions: Report attached

2. Adequacy ICs are adequate ICs are inadequate N/A
 Remarks The City of Phoenix is following the CD and DEUR for the 19th Ave. Landfill and also the State of Arizona and U.S. EPA, CERCLA standards and regulations.

D. General

1. Vandalism/trespassing Location shown on site map No vandalism evident
 Remarks Since the implementation of more security controls, like no trespassing signs and gates with locks vandalism is no longer a problem.

2. Land use changes on site N/A
 Remarks The City of Phoenix is considering installing a solar landfill cap.

3. Land use changes off site N/A
 Remarks _____

VI. GENERAL SITE CONDITIONS

A. Roads <input type="checkbox"/> Applicable <input type="checkbox"/> N/A			
1. Roads damaged <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Roads adequate <input type="checkbox"/> N/A Remarks <u>Site roads are dirt with gravel. Soil stabilization and good maintenance are used to hold down emissions from the unpaved roads.</u> _____			
B. Other Site Conditions			
Remarks The 19th Avenue closed landfill is so clean and well maintained, it almost looks like a park. I have seen birds, a chicken, ducks, a coyote and a jackrabbit at the site. _____ _____ _____ _____			
VII. LANDFILL COVERS <input checked="" type="checkbox"/> Applicable <input checked="" type="checkbox"/> N/A			
A. Landfill Surface			
1. Settlement (Low spots) Areal extent _____ Remarks The CAP and ground are kept. in good condition with no erosion, settlement or cracks. _____		<input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Settlement not evident Depth _____	
2. Cracks Lengths _____ Widths _____ Depths _____ Remarks The CAP and ground are kept. in good smooth condition with natural vegetation, graded roads and gravel in order to keep down dust and dirt emissions. _____		<input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Cracking not evident	
3. Erosion Areal extent _____ Remarks Constant maintenance where ground is graded smooth and flat; use of riverbed rocks and concrete blocks help prevent erosion and mud slides. The Levy is also regularly maintained. _____		<input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Erosion not evident Depth _____	
4. Holes Areal extent _____ Remarks _____ _____		<input checked="" type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Holes not evident Depth _____	

5. Vegetative Cover	G Grass	G Cover properly established	X No signs of stress
G Trees/Shrubs (indicate size and locations on a diagram)			
Remarks 2009 El Niño Winter rains caused green desert shrubs and weeds to grow on site. Good maintenance has kept. Overgrowth down.			

6. Alternative Cover (armored rock, concrete, etc.)	G N/A		
Remarks Channels around site lined with armorflex and maintained as new.			

7. Bulges	G Location shown on site map	X Bulges not evident	
Areal extent_____	Height_____		
Remarks_____			

8. Wet Areas/Water Damage	G Wet areas/water damage not evident		
G Wet areas	G Location shown on site map	Areal extent_____	
G Ponding	G Location shown on site map	Areal extent_____	
G Seeps	G Location shown on site map	Areal extent_____	
G Soft subgrade	G Location shown on site map	Areal extent_____	
Remarks_Days prior to and day of site inspections were rainy which made the dirt wet and muddy. There were areas of small ponds but nothing big or deep. There were no mud slides or runoff of water.			
9. Slope Instability	G Slides	G Location shown on site map	X no evidence of slope instability
Areal extent_____			
Remarks_Site originally constructed with a 2% slope and is maintained nicely._____			

B. Benches	G Applicable	X N/A	
(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.) One bench at far southern end of site A, which is maintained nicely.			
1. Flows Bypass Bench	G Location shown on site map	G N/A or okay	
Remarks_____			

2. Bench Breached	G Location shown on site map	G N/A or okay	
Remarks_____			

3. Bench Overtopped	G Location shown on site map	G N/A or okay	
Remarks_____			

<p>C. Letdown Channels G Applicable G N/A</p> <p>Remarks Drainage system channel is around the entire perimeter of cell A and cell A-1 which diverts water</p> <p>To the southwest corner of the site for cell A. The channel is lined with Armorflex (concrete blocks)</p> <p>At the drainage corners the pipes are concrete with riverbed rocks around them.</p>		
<p>1. Settlement</p> <p>Areal extent _____</p> <p>Remarks The City of Phoenix does regular maintenance and keeps daily logs.</p>	<p>G Location shown on site map</p> <p>Depth _____</p>	<p>X No evidence of settlement</p>
<p>2. Material Degradation</p> <p>Material type _____</p> <p>Remarks The city of Phoenix replaces and or fixes any part (s) both mechanical and land immediately upon any signs of degradation; daily maintenance and preventative logs are kept. on this.</p>	<p>G Location shown on site map</p> <p>Areal extent _____</p>	<p>X No evidence of degradation</p>
<p>3. Erosion</p> <p>Areal extent _____</p> <p>Remarks The City of Phoenix does regular maintenance and keeps daly logs.</p>	<p>G Location shown on site map</p> <p>Depth _____</p>	<p>X No evidence of erosion</p>

<p>4. Undercutting</p> <p>Areal extent _____</p> <p>Remarks _____</p>	<p><input type="checkbox"/> Location shown on site map</p> <p>Depth _____</p>	<p>X No evidence of undercutting</p>
<p>5. Obstructions Type _____</p> <p><input type="checkbox"/> Location shown on site map Areal extent _____</p> <p>Size _____</p> <p>Remarks _____</p>	<p>X No Obstructions</p>	
<p>6. Excessive Vegetative Growth</p> <p>X No evidence of excessive growth</p> <p><input type="checkbox"/> Vegetation in channels does not obstruct flow</p> <p><input type="checkbox"/> Location shown on site map Areal extent _____</p> <p>Remarks _____</p>	<p>Type _____</p>	
<p>D. Cover Penetrations <input type="checkbox"/> Applicable <input type="checkbox"/> N/A</p>		
<p>1. Gas Vents</p> <p>X Properly secured/locked X Functioning X Routinely sampled X Good condition</p> <p><input type="checkbox"/> Evidence of leakage at penetration <input type="checkbox"/> Needs Maintenance</p> <p><input type="checkbox"/> N/A</p> <p>Remarks _____</p>	<p><input type="checkbox"/> Active <input type="checkbox"/> Passive</p>	

2. Gas Monitoring Probes

Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage at penetration Needs Maintenance N/A

Remarks Gas Monitoring Probes are monitored monthly and are maintained as new.

3. Monitoring Wells (within surface area of landfill)

Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage at penetration Needs Maintenance N/A

Remarks All monitoring wells are in good condition and maintained as new.

4. Leachate Extraction Wells

Properly secured/locked Functioning Routinely sampled Good condition
 Evidence of leakage at penetration Needs Maintenance N/A

Remarks _____

5. Settlement Monuments

Located Routinely surveyed N/A

Remarks _____

E. Gas Collection and Treatment <input type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1. Gas Treatment Facilities X Flaring <input type="checkbox"/> Thermal destruction <input type="checkbox"/> Collection for reuse <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks <u>The site produces so little methane, it can only be burned off and not used.</u>		
2. Gas Collection Wells, Manifolds and Piping X Good condition <input type="checkbox"/> Needs Maintenance Remarks _____		
3. Gas Monitoring Facilities (<i>e.g.</i> , gas monitoring of adjacent homes or buildings) X Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks <u>Perimeter probes monitored regularly to make sure no gas is leaving property boundaries.</u>		
F. Cover Drainage Layer <input type="checkbox"/> Applicable <input type="checkbox"/> N/A		
1. Outlet Pipes Inspected X Functioning <input type="checkbox"/> N/A Remarks <u>All looks great.</u>		
2. Outlet Rock Inspected X Functioning <input type="checkbox"/> N/A Remarks <u>Riverbed rocks used to help with drainage and maintained nicely.</u>		
G. Detention/Sedimentation Ponds X Applicable <input type="checkbox"/> N/A		
1. Siltation Areal extent _____ Depth _____ <input type="checkbox"/> N/A X Siltation not evident Remarks _____		
2. Erosion Areal extent _____ Depth _____ X Erosion not evident Remarks <u>Concrete blocks, waddles an riverbed rocks all used throughout to prevent erosion and mud slides when it rains.</u>		
3. Outlet Works X Functioning <input type="checkbox"/> N/A Remarks _____		
4. Dam <input type="checkbox"/> Functioning X N/A Remarks _____		

H. Retaining Walls <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1. Deformations <input type="checkbox"/> Location shown on site map Horizontal displacement _____ Vertical displacement _____ Rotational displacement _____ Remarks _____ _____	<input type="checkbox"/> Deformation not evident
2. Degradation <input type="checkbox"/> Location shown on site map Remarks _____ _____	<input checked="" type="checkbox"/> Degradation not evident
I. Perimeter Ditches/Off-Site Discharge <input checked="" type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1. Siltation <input type="checkbox"/> Location shown on site map Areal extent _____ Depth _____ Remarks _____ _____	<input checked="" type="checkbox"/> Siltation not evident
2. Vegetative Growth <input type="checkbox"/> Location shown on site map <input checked="" type="checkbox"/> Vegetation does not impede flow Areal extent _____ Type _____ Remarks _____ _____	<input type="checkbox"/> N/A
3. Erosion <input type="checkbox"/> Location shown on site map Areal extent _____ Depth _____ Remarks _____ _____	<input checked="" type="checkbox"/> Erosion not evident
4. Discharge Structure <input type="checkbox"/> Functioning <input type="checkbox"/> N/A Remarks <u>Drainage system put in as part of remedy which goes around all of site with concrete piping. This system diverts runoff into the Salt River, which is maintained clean and nice.</u> _____ _____	
VIII. VERTICAL BARRIER WALLS <input type="checkbox"/> Applicable <input type="checkbox"/> N/A	
1. Settlement <input type="checkbox"/> Location shown on site map Areal extent _____ Depth _____ Remarks _____ _____	<input type="checkbox"/> Settlement not evident
2. Performance Monitoring Type of monitoring _____ <input type="checkbox"/> Performance not monitored Frequency _____ <input type="checkbox"/> Evidence of breaching Head differential _____ Remarks _____ _____	

C. Treatment System		<input type="checkbox"/> Applicable	<input checked="" type="checkbox"/> N/A
1. Treatment Train (Check components that apply) <input type="checkbox"/> Metals removal <input type="checkbox"/> Oil/water separation <input type="checkbox"/> Bioremediation <input type="checkbox"/> Air stripping <input type="checkbox"/> Carbon adsorbers <input type="checkbox"/> Filters _____ <input type="checkbox"/> Additive (<i>e.g.</i> , chelation agent, flocculent) _____ <input type="checkbox"/> Others _____ <input type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> Sampling ports properly marked and functional <input type="checkbox"/> Sampling/maintenance log displayed and up to date <input type="checkbox"/> Equipment properly identified <input type="checkbox"/> Quantity of groundwater treated annually _____ <input type="checkbox"/> Quantity of surface water treated annually _____ Remarks _____ _____			
2. Electrical Enclosures and Panels (properly rated and functional) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
3. Tanks, Vaults, Storage Vessels <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Proper secondary containment <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
4. Discharge Structure and Appurtenances <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition <input type="checkbox"/> Needs Maintenance Remarks _____ _____			
5. Treatment Building(s) <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Good condition (<i>esp.</i> roof and doorways) <input type="checkbox"/> Needs repair <input type="checkbox"/> Chemicals and equipment properly stored Remarks _____ _____			
6. Monitoring Wells (pump and treatment remedy) <input checked="" type="checkbox"/> Properly secured/locked <input type="checkbox"/> Functioning <input checked="" type="checkbox"/> Routinely sampled <input type="checkbox"/> Good condition <input type="checkbox"/> All required wells located <input type="checkbox"/> Needs Maintenance <input type="checkbox"/> N/A Remarks _____ _____			
D. Monitoring Data			
1. Monitoring Data <input checked="" type="checkbox"/> Is routinely submitted on time <input checked="" type="checkbox"/> Is of acceptable quality			
2. Monitoring data suggests: <input checked="" type="checkbox"/> Groundwater plume is effectively contained <input checked="" type="checkbox"/> Contaminant concentrations are declining			

D. Monitored Natural Attenuation			
1. Monitoring Wells (natural attenuation remedy)			
X Properly secured/locked	G Functioning	X Routinely sampled	G Good condition
G All required wells located	G Needs Maintenance		G N/A
Remarks _____			
X. OTHER REMEDIES			
If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.			
XI. OVERALL OBSERVATIONS			
A. Implementation of the Remedy			
Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).			
Remedy objectives consist of keeping landfill refuse in place, prevent the landfill from eroding during flood seasons, and to control underground soil gas produced due to the decomposing waste. This is being accomplished with levees in place along both the north and south banks of the Salt River at the landfill site to provide for flood protection with widening the Salt River in preparation for a 100-year flood event. A soil cap with vegetative/erosion layer that prevents rain water from getting into the landfill material and creating leachate. Gas collection and treatment systems are in place burning off the decreasing, small amounts of landfill gas produced. Regular monitoring of the landfill gas, groundwater and ambient air show that landfill gas has substantially decreased through time and remains contained. Groundwater monitoring shows occasional hits of arsenic that exceed AWQS, which has been traced to an outside source otherwise groundwater meets AWQS and is also contained. Air quality continues to meet AAAQG and NAAQS and be below background levels			
The 19th Avenue Landfill site shows progress in remediation, restoring public and__ environmental health and safety. The City of Phoenix now wants to utilize the_____ previously disturbed site and is currently looking at developing renewable energy at the 19th Avenue Landfill site. _____			

B. Adequacy of O&M			