



## Environmental Services

# CITY OF TUCSON CLOSED LANDFILLS INSPECTION AND MAINTENANCE REPORTING AND PROCEDURES MARCH 2011



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EXPIRES 6/2013

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## EXECUTIVE SUMMARY

The City of Tucson – Environmental Services owns and maintains fifteen closed regulated and non-regulated landfills. While the maintenance requirements between a regulated and non-regulated vary, in all cases the City of Tucson, as the property owner has responsibilities for public safety, restriction of access and mitigation of environmental issues. This report provides reporting and maintenance protocol, forms, and maps for completing landfill inspections.

As required, regulated landfills are maintained in accordance with Environmental Protection Agency Title 40 Part 258 Code of Federal Regulations (CFR), and subsequent Arizona Department of Environmental Quality (ADEQ) Solid Waste Arizona Revised Statute (ARS) § 49-701. Regulated closed solid waste landfills, such as Harrison, Irvington, and Vincent Mullins, are maintained and inspected in accordance to their site specific permits or corrective action plan issued by the ADEQ Solid Waste Unit.

Non-regulated landfills meet the definition of a “closed solid waste facility”, and are not subject to regulation by the ADEQ Solid Waste Unit (see ARS § 49-701 (3)(b) and (29)) or by the federal EPA as they did not operate beyond October 9, 1991 (40 CFR 258.1(c)). The remaining non-regulated twelve closed solid waste landfills are inspected annually using a similar protocol as used for the regulated landfills.

## **1.0 Introduction**

The City of Tucson – Environmental Services currently owns fifteen closed landfills which Environmental Services Engineering and Assessment technical staff will inspect at least annually and perform maintenance as needed. Table 1 and the Index Map provide general information and location on the fifteen closed landfills. This document formalizes the solid waste procedures for inspecting, maintaining and documenting inspections of City of Tucson regulated and non-regulated closed landfills. While the maintenance requirements between a regulated and non-regulated vary, in all cases the City of Tucson, as the property owner has responsibilities for site safety, restriction of access and mitigation of environmental issues.

In 1983 and again in 1995, the Mayor and Council directed city staff to investigate, manage and control methane gas from City owned and/or operated landfills (Loya, 1983 and Garza, 1998). The city has owned and/or operated at twenty-four landfills. The City of Tucson Solid Waste Management Department (SWMD) was also directed by Mayor and Council to follow-up on further environmental concerns such as investigations of pollutants in groundwater and in deep soil vapor, construction of improved final closure caps, and determination of land reuse options at city-owned landfills (Garza, 1998). For general information on all twenty-four landfills owned and/or operated by the City, see Appendix 1. This report addresses maintaining the fifteen closed landfills currently owned by the City today.

### **1.1 Closed Regulated Landfills Overview**

Landfills that operated after 1986 are closed, maintained, inspected and reported in accordance with Environmental Protection Agency Title 40 Part 258 CFR and subsequent Arizona Department of Environmental Quality Solid Waste Revised Statute 49-701. The Vincent Mullins and Harrison Landfill sites were closed in 2007 and 2009, respectively, and are inspected twice a year. The Irvington Landfill site was recently closed in 2010 and is inspected quarterly.

Inspection items for all three sites include the integrity of the earthen cap, storm water controls, landfill gas extraction system and well field if required, landfill gas boundary wells and any environmental remediation equipment on site including groundwater monitoring wells, pump and treat systems, or soil vapor extraction systems. In addition, any commercial or recreational activities on the sites are inspected to insure their activities do not disturb the closed landfill. As the landfills are closed and open area around the waste footprint becomes available, the sites gain commercial and recreational businesses as space allows. The Harrison landfill has a three acre BMX bicycle track located at the southwest corner of the property and the Irvington Landfill has an End-Use Master plan on file to create a park area on the site as development funds become available through City of Tucson Parks and Recreation (Acacia, 1999).

## **1.2 Closed Non-Regulated Landfills Overview**

The remaining twelve closed non-regulated landfill sites, A-Mountain, Congress, Nearmont, Cottonwood, Mission, Prudence, Rio Nuevo North, Ryan Airfield, Ryland, Silverbell, St. Mary's and Tumamoc, were closed prior to 1986 and the enactment of solid waste state statutes. The closure dates range from 1962 to 1985. These facilities were closed in accordance with the City of Tucson Solid Waste Operation procedures that were in place during the time period of the closure which included minimal dirt coverage over the waste, minimal fencing, and storm water controls usually consisting of earthen berms.

The closed non-regulated landfills are inspected at least once per year. Inspections items for all twelve sites include the integrity of the earthen cap, storm water controls, landfill gas extraction system and well field if required, landfill gas boundary wells and any environmental remediation equipment on site including groundwater monitoring wells, pump and treat system, or soil vapor extraction systems.

In addition, similar to the closed regulated landfills, commercial and recreational businesses have developed on and around the closed sites that must be inspected to ensure they do not impact the landfill. The A-Mountain landfill shares property boundary with the Mission Garden area that has redirected storm water flows on the earthen cap that must be inspected frequently and repaired as needed. The Congress and Nearmont site have the remains of the uncompleted Rio Nuevo garage pit and Convento and Chapel below grade cooling infrastructure that must be inspected frequently and maintained. The Rio Nuevo North landfill is covered by asphalt and supplies parking for the Commerce Loop building facilities including the City of Tucson Community Services, United Way and Pima Community College. The parking lot cover is constantly settling as the solid waste degrades and annual maintenance includes placing additional soil and new asphalt to maintain storm water drainage off of the site. The St. Mary's landfill site has an apartment complex and ball field adjacent to the waste and the site must be inspected frequently to ensure the earthen cover is intact.

## **2.0 Inspections and Reporting**

### **2.1 Regulated Sites**

The closed landfill regulated sites have varied closure dates and different inspection schedules based on when the sites were closed. The Vincent Mullins and Harrison landfill sites are inspected twice a year in April and October. The Irvington landfill site is inspected within the quarters ending March 31, June 30, September 30, and December 31. The inspections are required to be performed by a professional registered engineer using the inspection forms and maps provided in this report. A general list of inspection requirements are provided as Table 2 while the site specific forms and maps are provided alphabetically in Appendix 2 and 3, respectively. The site specific forms and maps were designed to be stand alone documents for field inspections. The landfill

number in Table 1 corresponds to same numbers in the Main Map Index and also to the individual map numbers in Appendix 3.

Upon completion of the inspections, the forms and a cover letter with a professional registrant seal will be will be issued to the Deputy Director of ES, the Environmental Manager of ES Engineering and Assessment and filed in the appropriate Operations file for each landfill for 30 years after closure.

## **2.2 Non-Regulated Sites**

The closed landfill non-regulated sites will be inspected annually in the last quarter of the calendar year to ensure all facilities are inspected at least one time per year after the monsoon season. The inspections can be performed by any ES staff familiar with landfills using the inspection forms and maps provided in this report. The non-regulated sites are also inspected for the same items as regulated sites (Table 2). The site specific forms and maps are provided alphabetically in Appendices 4 and 5. The landfill number in Table 1 corresponds to the same numbers in the Main Map Index and also to the individual map numbers in Appendix 5.

Upon completion of the inspections for all eleven sites (2 close proximity landfills, Congress and Nearmont, were combined together to make one site) the forms will be collated and the inspection forms and cover letter will be issued to the Deputy Director of ES, the Environmental Manager of ES Engineering and Assessment and the Closed Landfill Operations file.

## **3.0 Maintenance**

During the annual inspection, discrepancy or issues of concern will be noted on the inspection forms and marked on the inspection maps. In addition, a recommendation and time frame for repairs will be noted. All required repairs will be listed in the inspection cover letter to ensure the repair items have been addressed by ES personnel. The prior year inspection report shall be reviewed during the annual inspection to confirm previous discrepancies have been addressed.

## 4.0 References

Acacia Group, Inc, Irvington Road Landfill End-Use Masterplan City of Tucson Solid Waste Management Department with Parks and Recreation Department, December 1999

Garza, Eliseo Jr., Director of Solid Waste Management Department, Memo to Mayor and Council, RE: Closed Landfill Investigation Summary, February 18, 1998

Loya, Hector Environmental Services Superintendent of Sanitation Division, Memo To Thomas O. Price, Director of Operations, RE: Methane Gas Monitoring Program, May 11, 1983