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ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY

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Benjamin H. Grumbles
Director

MUNICIPAL SOLID WASTE LANDFILL MASTER FACILITY PLAN APPROVAL NUMBER 12001800.03

1.0 FACILITY INFORMATION AND APPROVAL SIGNATURE

In accordance with the provisions of Arizona Revised Statutes (A.R.S.) Title 49, Chapter 4:

Facility Name: Rio Rico Sanitary Landfill (RRSL)
1500 West Frontage Road
Rio Rico, Arizona 85648

Permittee as Owner: Rio Rico Properties, Inc.
P.O. Box 4038
Rio Rico, Arizona 85648

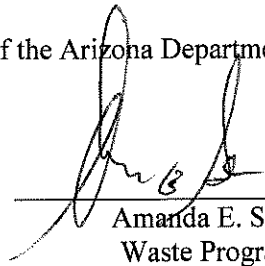
Permittee as Operator: Santa Cruz County (SCC)
Public Works Department, Solid Waste Division
2150 North Congress Drive, Room 117
Nogales, Arizona 85621

is authorized to operate with all approvals granted under 40 CFR Part 258 and A.R.S. 49-762.03, and not previously amended or revoked, since the original solid waste facility plan approval on December 28, 1998, and specifically described in the Master Facility Plan Approval (MFPA) that follows. RRSL is located at 1500 West Frontage Road, Rio Rico, Arizona, approximately 1 mile north of the Peck Canyon interchange on the west side of Interstate 19, in the NW ¼ of Section 16, Township 22 South, Range 13 East, of the Gila and Salt River Base Line and Meridian.

Latitude: 31° 31' 05" North
Longitude: 111° 01' 25" West

This MFPA is effective on the date of the Waste Programs Division Director's signature below. The facility must be operated and maintained in accordance with all conditions described in this approval document.

Approved on behalf of the Arizona Department of Environmental Quality:



Amanda E. Stone, Director
Waste Programs Division

Signed this 4th day of November, 2009

Northern Regional Office
1801 W. Route 66 • Suite 117 • Flagstaff, AZ 86001
(928) 779-0313

Southern Regional Office
400 West Congress Street • Suite 433 • Tucson, AZ 85701
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1.1 Approval

This Municipal Solid Waste Landfill MFPA for the Rio Rico Sanitary Landfill (RRSL) operated by Santa Cruz County (SCC), incorporates the following changes in accordance with the *Rio Rico Sanitary Landfill Solid Waste Facility Plan (SWFP)*, prepared by SCS Engineers, dated November 21, 2008, with the revision dates listed in Section 6.0:

- a. A Type IV change is approved for a vertical expansion that increases the maximum elevation of the landfill by 28 feet from 3,680 feet above mean sea level (amsl) to 3,708 feet amsl. The vertical expansion increases the disposal capacity from 1,917,993 cubic yards to 2,849,512 cubic yards, which advances the estimated closure date to December 2018. RRSL began disposal operations in June 1981. The waste footprint of the landfill remains unchanged, and occupies 25.5 acres of the 60-acre facility. The following provisions are required by ADEQ:
 1. The grade of the front slope of the landfill shall not exceed 2.5:1 (horizontal:vertical) as shown in Drawing No. 3 of 7, *Grading Plan*, of the *SWFP*.
 2. To ensure adequate drainage, the top deck of the landfill shall have a minimum slope of 3%.
 3. Drainage structures, including stormwater channel design and benches with turf reinforcement mats, shall be constructed in accordance with Drawing No. 3 of 7, *Grading Plan*, and Drawing Nos. 6 of 7 and 7 of 7, *Drainage Details*, of the *SWFP*.
 4. The existing retention basin volume of 263,896 cubic feet, as shown in Drawing No. 3 of 7, *Grading Plan*, of the *SWFP*, shall be increased to 389,750 cubic feet by cutting down the bottom of basin by approximately nine (9) feet at a 2:1 (H:V) sideslope to a bottom elevation of 3,383 feet amsl. The retention basin outfall elevation shall be 3,400 feet amsl, with an outfall freeboard of two (2) feet required.
 - i. Construction activities to deepen the retention basin shall commence no later than one (1) year from the effective date of this MFPA, and be completed in compliance with Section 1.1(a)(4)(ii) of this MFPA.
 - ii. A construction quality assurance/quality control report documenting the completion of construction activities for the deepening of the retention basin shall be submitted to the Solid Waste Plan Review Unit no later than one (1) year and sixty (60) days from the effective date of this MFPA.
- b. An alternative final cover system is approved as detailed below:
 1. For Area 1 (top deck of the landfill at an elevation of 3,700 feet amsl or higher), as shown on Drawing No. 3 of 7, *Grading Plan*, of the *SWFP*, the final cover shall consist of the following from bottom to top, as shown on Drawing No. 7 of 7, *Drainage Details* (Detail B), of the *SWFP*:
 - i. A minimum of twelve (12) inches of operational soil cover.

- ii. An infiltration barrier layer consisting of at least thirty (30) inches of soil with a permeability less than or equal to 8.8×10^{-5} centimeters/second (cm/s) compacted to at least 95% of the maximum dry density determined by standard Proctor test results (ASTM D698).
2. For Area 2 (sloped areas of the landfill below an elevation of 3,700 feet amsl), as shown on Drawing No. 3 of 7, *Grading Plan*, of the *SWFP*, the final cover shall consist of the following from bottom to top, as shown on Drawing No. 7 of 7, *Drainage Details* (Detail B), of the *SWFP*:
 - i. A minimum of twelve (12) inches of operational soil cover.
 - ii. An infiltration barrier layer consisting of at least twenty-four (24) inches of soil with a permeability less than or equal to 5.2×10^{-4} cm/s compacted to at least 95% of the maximum dry density determined by standard Proctor test results (ASTM D698).
 - iii. An erosion layer consisting of at least six (6) inches of soil.
3. The final cover system shall be constructed in lifts no greater than eight (8) inches thick after spreading and leveling.
4. The final cover infiltration barrier layer of soil shall not be classified as clay material.

1.2 Alternative Landfill Liner Design (approved 09/29/1997)

A Hydrologic Evaluation of Landfill Performance (HELP) model demonstration was approved by ADEQ on September 29, 1997. The results of the model indicated that no leachate will be released from the landfill throughout the operational life of the landfill or during the 30-year post-closure period.

2.0 STATUTORY PROVISIONS

SCC shall operate RRSL in a manner consistent with the *SWFP* and this approval pursuant to A.R.S. § 49-791(A)(5).

2.1 General Provisions

- a. This MFPA, issued pursuant to A.R.S. § 49-762, § 762.03, § 762.04, § 762.06 and § 857, grants permission to operate a municipal solid waste landfill as defined in A.R.S. § 49-701(20) at the location referenced in Part 1.0. Federal regulations governing the design and operation of landfills, codified in 40 CFR § 258, are also applicable to this approval pursuant to A.R.S. § 49-761(B). This approval is granted under the conditions listed herein to protect human health and the environment.
- b. This MFPA does not relieve SCC of its responsibility to comply with federal, state, county or local requirements or ordinances adopted under A.R.S. § 49-704 and shall not be construed as permission to create a public health hazard, environmental nuisance or cause contamination to the environment.

- c. Specific words related to landfill design, construction and operations used throughout this MFPA have the same meaning as defined in 40 CFR § 258, Subpart A, Arizona Administrative Code (A.A.C.) R18-13-701, A.A.C. R18-13-1301, A.A.C. R18-13-1401, or A.R.S. §§ 49-701 and 701.01 unless otherwise defined.
- d. Design, construction, operation, and monitoring conditions listed in this MFPA have the same meaning as referenced in either 40 CFR § 258; A.A.C. Title 18, Chapter 13; or A.R.S. Title 49, unless otherwise specified.
- e. All previously approved modifications to the original *SWFP* approval remain in effect.

2.2 General Limitations

- a. This MFPA is applied to the landfill elements and facility structures as set forth in the *SWFP*, the existing landfill elements and structures as of the date of this approval, and components that have already received ADEQ approval prior to this MFPA. Any additions to the approved facility structures and any modification to the approved facility operations plan, closure and post-closure care, corrective action and monitoring plans shall require prior approval by ADEQ pursuant to A.R.S. § 49-762.06.
- b. RRS� is not permitted to accept the following:
 - 1. Hazardous waste as defined in 40 CFR Part 261 and A.R.S. § 49-921 except for conditionally exempt small quantity generator hazardous waste as set forth in 40 CFR § 261.5 and A.R.S. § 49-922(E), and household hazardous waste as described in 40 CFR § 261.4(b)(1).
 - 2. Biohazardous medical waste as defined in A.A.C. R18-1301-1401(5), including experimental or research animal carcasses as defined in A.A.C. R18-13-1420(A)(3) and radioactive medical wastes, except for household generated biohazardous medical waste as set forth in A.A.C. R18-13-1403(A)(4).
 - 3. Polychlorinated biphenyl (PCB) waste as defined in 40 CFR Part 761, except as allowed pursuant to 40 CFR § 761.61 (PCB remediation waste), 40 CFR § 761.62 (PCB bulk product waste) and 40 CFR § 761.63 (PCB household waste).
 - 4. Bulk or non-containerized liquid waste as defined in 40 CFR § 258.28 (c)(1) including containers with more than 2% of the original liquid volume or free liquids as defined in EPA Method 9095 (Paint Filter Test).
 - 5. Waste that contains radioactive materials subject to the Atomic Energy Act of 1954 (42 United States Code §§ 2011 through 2297, 68 Stat. 919) or Title 30, Chapter 4, as defined in A.R.S. § 49-701.01(B)(2).
 - 6. Regulated asbestos-containing materials defined as friable asbestos material containing more than one percent (1%) asbestos as determined using the method specified in Appendix A, Subpart F, 40 CFR Part 763, Section 1, Polarized Light Microscopy or when dry can be crumbled, pulverized or reduced to powder by hand pressure.
 - 7. Sewage sludge from waste water treatment plants

8. Septage
9. Petroleum contaminated soils (PCS) and auto-shredder fluff (special wastes as defined in A.R.S. § 49-852)
10. Industrial and commercial process wastes (liquid and solid)
11. Automobiles
12. Any other waste prohibited by federal, State of Arizona statute or regulation from disposal at any municipal solid waste landfill.

2.3 Notifications

- a. SCC shall submit a notification of any Type II, III, or IV changes to the MFPA in accordance with A.R.S. § 49-762.06. A Type II change notification shall be in accordance with Section 3.12(c) of this MFPA. SCC shall not implement any Type III or IV changes prior to ADEQ approval.
- b. The following notifications are required if there is a methane gas exceedance:
 1. Within twenty-four (24) hours or one (1) business day of any methane gas exceedance where the gas concentration in facility structures exceeds 25% of the lower explosive limit (LEL) or gas levels at the landfill boundary exceed the LEL, SCC shall notify ADEQ.
 2. Within seven (7) days of detection, SCC shall place in the operating record a description of the steps taken to protect human health. A copy of this description shall be sent to the ADEQ Solid Waste Plan Review Unit.
 3. Within sixty (60) days of detection of any methane gas exceedance, a remediation plan shall be implemented and a copy of the plan placed in the operating record. A copy of the plan, accompanied by a notification that the plan has been implemented, shall be sent to ADEQ in accordance with 40 CFR § 258.23.
- c. SCC shall submit a notification to ADEQ if a regulated hazardous waste as defined in 40 CFR § 261.3 or prohibited PCB waste is discovered at the facility in accordance with 40 CFR § 258.20 (a)(4).
- d. If there is a statistically significant increase over background for one or more of the groundwater constituents listed in 40 CFR 258, Appendix I, or an alternative list approved in accordance with 40 CFR § 258.54(a)(2) in any compliance monitoring well, SCC shall do the following:
 1. Within fourteen (14) days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify ADEQ that this notice was placed in the operating record; and
 2. Within ninety (90) days of this finding, establish an assessment monitoring program meeting the requirements of 40 CFR § 258.55 except as provided for in

40 CFR § 258.54(c)(3).

2.4 Precautionary Provisions

- a. ADEQ reserves the right to issue administrative orders pursuant to A.R.S. § 49-781 and 862 or to seek other legal remedies as provided by law if the RRSL creates a public health hazard, safety hazard, or environmental nuisance, if violation of State law occurs, or if the RRSL is in violation of the MFPA.
- b. For the purposes of A.R.S. §§ 49-764 and 866, ADEQ considers issuance of this document as certification of all pollution control devices, machinery, or equipment described in the *SWFP* are necessary for collection and control at the source of any pollutants.
- c. ADEQ reserves the right to conduct inspections of the RRSL, pursuant to A.A.C. R18-13-304, A.R.S. §§ 49-763, 860 and 865. During the inspection, the ADEQ inspector may take photographs of activities, take samples, and/or conduct other recognized monitoring activities.
- d. Pursuant to A.R.S. § 49-782(A), ADEQ reserves the right to suspend, amend, withdraw, condition, or revoke this MFPA if it is determined that the facility is in violation of A.R.S. Title 49, Chapter 4, or any rule adopted thereunder.

2.5 Financial Assurance

- a. SCC shall continue to meet closure and post-closure care financial assurance requirements as per A.R.S. § 49-770 and 40 CFR 258, Subpart G until released by notification from ADEQ.
- b. The cost estimate for landfill closure and post-closure care shall be updated annually:
 1. By a new cost estimate sealed by an Arizona registered professional engineer; or
 2. If no changes have occurred since the preceding year's submittal by use of an approved or demonstrated inflation factor that modifies the existing cost estimates.
- c. Landfill cost estimates for closure and post-closure care shall be updated whenever a Type III or Type IV change to the solid waste facility will result in an increase in either closure or post-closure costs.

3.0 OPERATIONAL APPROVALS AND CONDITIONS

3.1 Approval of the Facility Plan

This MFPA, issued pursuant to A.R.S. §§ 49-762, 762.03, 762.04, 762.06 and 857, grants permission to operate RRSL as set forth in the *SWFP*.

- a. The following wastes may be accepted at the RRSL facility:
 1. Municipal solid waste as defined in 40 CFR § 258.2 which includes household waste [A.R.S. § 49-701(14)], household hazardous waste [A.R.S. § 49-401(13)]

commercial solid waste, non-hazardous sludge, conditionally exempt small quantity generator waste, and industrial solid waste.

2. Vegetative (green) waste as defined in A.R.S. § 49-701(36).
 3. Construction debris and demolition debris as defined in A.R.S. §§ 49-701(5) and 49-701(7), respectively.
 4. Inert materials as defined in A.R.S. § 49-701(15).
 5. Household-generated untreated biohazardous medical waste when commingled with regular household waste.
 6. Animal carcasses except those that meet the definition of biohazardous medical waste (A.A.C. R18-13-1401.5(e)), or those weighing more than 75 pounds. All animal carcasses shall be covered immediately.
 7. Shredded, sliced or quartered tires, including roadside-generated "alligator" tire pieces.
 8. Household appliances; however, prior to disposal CFC-containing appliances will conform to the requirements of 40 CFR 82 Subparts E and F.
 9. Non-hazardous, non-infectious, treated, biomedical waste.
 10. Punctured, triple-rinsed pesticide containers in accordance with 40 CFR § 156.146 and RCRA-empty containers as defined by 40 CFR § 261.7.
- b. Materials accepted for temporary storage in designated areas include white goods or large appliances, whole tires, automobile batteries and other materials for recycling.

3.2 Approved Alternative Daily Cover

This MFPA grants permission to apply alternative daily covers (ADC) at RRSL. The following conditions shall govern all ADC use at RRSL:

- a. Should the application of any ADC become impracticable or contribute to conditions hazardous to public health, safety, or the environment, then RRSL will terminate such use and revert to using compacted earthen material or other approved ADC.
- b. RRSL shall place compacted earthen material over the entire working face at the end of any operating day preceding a period of time when the facility is closed for more than twenty-four (24) hours unless, otherwise specified.
- c. All waste-derived materials used as ADC shall be subject to solid waste landfill disposal fees.
- d. A minimum of a one (1) day stockpile of earthen cover material and required equipment shall be available to ensure a corrective response to any violation of performance of any ADC.
- e. The following are approved landfill ADC:

1. Foam (approved on 09/02/1999):
 - i. Foam will be used in accordance with the manufacturer's recommendations and instructions.
 - ii. Foam shall not be applied during rain events.
 - iii. Foam shall be applied only to the inclined slope of the working face.
 - iv. Foam shall be covered with soil or additional waste within 72 hours of placement.
2. Tarps (approved on 04/23/2004):
 - i. Tarps shall only be used for a twenty-four (24) hour period before additional waste or other approved cover materials must be applied.
 - ii. Tarps shall not be used during adverse weather conditions.
 - iii. Frayed, torn, ripped, or otherwise ineffective tarps shall not be used.
3. Tarpomatic® Automatic Tarping Machine System (current approval):
 - i. Tarps placed with the Tarpomatic® Automatic Tarping Machine System may be used for up to seventy-two (72) hours. This ADC shall be used to cover the advancing daily working face after operations have ceased prior to weekends, holidays, and periods of inclement weather. Once the tarps are removed, the uncovered area shall be filled over during the next business day's disposal activities.
4. Posi-Shell® Cover System, Advanced Formulation, Spray Application (current approval):
 - i. This system employs Posi-Shell® PSM-200 as a setting agent that is mixed with Posi-Pak P-100 fibers, earth-tone or green dye, and Portland cement at various ratios as recommended by the manufacturer and is applied with a hydroseeding unit.
 - ii. The average thickness of 1/8-3/16 of an inch for application of the Posi-Shell® cover must be maintained to provide an effective control for preventing windblown litter, odor, fires, disease vectors, animal scavenging, and erosion.
 - iii. The Posi-Shell® cover may be applied up to five (5) consecutive days. After the fifth day, at least one (1) application of the standard six (6) inches of earthen material must be applied as the daily cover before resuming use of the Posi-Shell® cover system.

3.4 Operations

- a. Adequate supervision and operational controls shall be in place to ensure that all personnel working within the facility are aware of and understand the operational requirements as described in 40 CFR 258, Subpart C, the monitoring criteria described in 40 CFR 258, Subpart E, the operational conditions mentioned in this permit, and the operating criteria as stated in the *SWFP*.
- b. Use of water for dust suppression must be limited to the minimum quantity necessary for dust control. Water shall not be allowed to pond within the roadways or any other areas that use water to control dust.
- c. Litter control measures:
 1. Waste hauling vehicles operated by SCC or its contractors must be either enclosed or tarped during trips to the landfill.
 2. During random load inspections RRSL staff will inform commercial haulers if tarps on incoming loads are ripped or torn and need to be replaced.

3.5 Operational Provisions

Pursuant to A.R.S. Title 49, Chapter 4, Article 4, ADEQ requires that SCC must:

- a. Operate RRSL in a manner that protects public health and safety and the environment and prevents and abates environmental nuisances.
- b. Control wind dispersion and other surface dispersions of landfill materials so that they do not create a public nuisance or pose an imminent and substantial endangerment to public health or the environment. Visible materials that have dispersed beyond the boundaries of the current work face shall be collected on a regular basis.
- c. Cover disposed solid waste with a minimum of six (6) inches of earthen material or approved ADC at the end of each operating day to control vectors, fires, odors, blowing litter, and scavenging.
- d. Prevent or control on-site populations of disease vectors using techniques appropriate for the protection of human health and the environment.
- e. Ensure that the concentration of methane gas generated by the facility does not exceed 25% of the LEL for methane in facility structures and exceed the LEL at the property boundary.
- f. Ensure that the landfill units do not violate any applicable requirements developed under a State Implementation Plan approved by the EPA Administrator pursuant to Section 110 of the Clean Air Act, as amended.
- g. Control public access and prevent unauthorized vehicular traffic and illegal dumping of wastes by using artificial barriers, natural barriers, or both, as appropriate.
- h. Ensure that there is no discharge of pollutants into the waters of the United States from the landfill.

- i. Ensure that bulk or non-containerized liquids are not placed in the landfill.
- j. Record and retain in a daily operating record for the following items:
 - 1. Any location restriction demonstrations required under 40 CFR § 258, Subpart B.
 - 2. Random inspection, training, and notification documentation required by 40 CFR § 258.20.
 - 3. Gas monitoring results and any remediation plans required by 40 CFR § 258.23.
 - 4. Municipal solid waste landfill (MSWLF) unit design documentation for placement of gas condensate in a landfill cell as required by 40 CFR § 258.28(a)(2).
 - 5. Groundwater monitoring/corrective action sampling, analytical data, demonstrations, certifications, findings, etc. as required under 40 CFR § 258, Subpart E.
 - 6. Closure and post-closure care plans and monitoring, testing and/or analytical data as required by 40 CFR §§ 258.60 and 258.61.
 - 7. Financial assurance documentation required by 40 CFR § 258, Subpart G.

3.6 Excluding the Receipt of Hazardous Waste

Pursuant to 40 CFR § 258.20, SCC must implement a program at the facility for detecting and preventing the disposal of regulated hazardous waste as defined in 40 CFR § 261 and unacceptable PCB wastes as defined in 40 CFR § 761. This program must include at minimum:

- a. Random inspections of incoming loads to ensure that loads do not contain unapproved materials as listed in Section 2.2(b) of this MFPA.
- b. Records of any inspections.
- c. Training of facility personnel to recognize regulated hazardous waste and unacceptable PCB wastes.
- d. Notification of the ADEQ Solid Waste Inspections and Compliance Unit if a regulated hazardous waste or unacceptable PCB waste is discovered at the facility.

3.7 Storm Water Management

- a. The proper control of surface water drainage shall be implemented to prevent storm water from running onto the site pursuant to 40 CFR § 258.26. Regular maintenance will be conducted to correct any ponding or soil erosion on the landfill from storm water.
- b. The drainage diversion system must be capable of diverting surface water run-on and run-off resulting from a rainfall event equal to a 24-hour, 25-year storm away from active landfill areas in accordance with 40 CFR § 258.26.

- c. Drainage structures, including stormwater channel design and benches with turf reinforcement mats, shall be constructed in accordance with Drawing No. 3 of 7, *Grading Plan*, and Drawing Nos. 6 of 7 and 7 of 7, *Drainage Details*, of the *SWFP*.
- d. The existing retention basin volume of 263,896 cubic feet, as shown in Drawing No. 3 of 7, *Grading Plan*, of the *SWFP*, shall be increased to 389,750 cubic feet by cutting down the bottom of basin by approximately nine (9) feet at a 2:1 (H:V) sideslope to a bottom elevation of 3,383 feet amsl. The retention basin outfall elevation shall be 3,400 feet amsl, with an outfall freeboard of two (2) feet required.
 - 1. Construction activities to deepen the retention basin shall commence no later than one (1) year from the effective date of this MFPA, and be completed in compliance with Section 1.1(a)(4)(ii) of this MFPA.
 - 2. A construction quality assurance/quality control report documenting the completion of construction activities for the deepening of the retention basin shall be submitted to the Solid Waste Plan Review Unit no later than one (1) year and sixty (60) days from the effective date of this MFPA.
- e. RRS� units shall not cause the discharge of pollutants into waters of the United States.
- f. Prior to beginning operations in each individual module of each phase, all storm water management systems will be constructed incrementally including berms, channels, and storm water storage facilities which are unique to each phase as these future modules are developed as referenced in *SWFP*.
- g. All surface water collection systems shall be constructed to resist the maximum horizontal acceleration in lithified earth at this site.

3.8 Groundwater Monitoring

Groundwater monitoring at RRS� shall be conducted as follows:

- a. In accordance with 40 CFR § 258.51(a), SCC shall maintain a groundwater monitoring system at RRS� that consists of a sufficient number of wells, installed at appropriate locations, and depths, to yield groundwater samples from the uppermost aquifer, as defined in 40 CFR § 258.2.
 - 1. Semiannual groundwater monitoring shall be conducted in monitoring wells MW-1, MW-3, and MW-4. As of July 2009, the depth to groundwater varies from 115.60 feet in MW-1 to 373 feet in MW-4. The direction of groundwater flow is generally to the west-northwest.
- b. Monitoring equipment required by this MFPA shall be installed and maintained so that representative groundwater samples can be collected. Should a new groundwater well(s) be determined to be necessary, a well installation plan shall be submitted within sixty (60) days to the ADEQ Solid Waste Plan Review Unit for approval as a Type III change pursuant to A.R.S. § 49-762.06(A)(3). Upon installation of the well, the construction details, including the latitude and longitude, shall also be submitted to the ADEQ Solid Waste Plan Review Unit.

- c. At a minimum, the groundwater monitoring system and other requirements must comply with the following:
1. An upgradient groundwater monitoring well that represents the quality of background groundwater that has not been affected by leakage from the landfill. A determination of background quality may include sampling of wells that are hydraulically upgradient of the waste management area. Upgradient or background water quality may also be established pursuant to Section 3.8(c)(8) of this MFPA.
 2. A sufficient number of downgradient groundwater monitoring wells representing the quality of groundwater passing the relevant point of compliance specified by ADEQ as in accordance with 40 CFR § 258.40(d), to detect groundwater contamination in the uppermost aquifer. When physical obstacles preclude installation of groundwater monitoring well(s) at the relevant point of compliance the downgradient monitoring system may be installed at the closest practicable distance hydraulically downgradient from the relevant point of compliance that will ensure detection of groundwater contamination in the uppermost aquifer.
 3. In accordance with 40 CFR § 258.51(b), ADEQ may approve a multi-unit groundwater monitoring system instead of separate groundwater monitoring systems for each MSWLF unit when the facility has several units, provided the multiunit groundwater monitoring system meets the requirement of 40 CFR § 258.51(a) and will be as protective of human health and the environment as individual monitoring systems for each MSWLF unit, based on the following factors:
 - i. Number, spacing, and orientation of the MSWLF units;
 - ii. Hydrogeologic setting;
 - iii. Site history;
 - iv. Engineering design of the MSWLF units; and
 - v. Type of waste accepted at the MSWLF units.
 4. Pursuant to 40 CFR § 258.51(c), monitoring wells must be cased in a manner that maintains the integrity of the monitoring well borehole. This casing must be screened or perforated and packed with gravel or sand, where necessary, to enable collection of groundwater samples. The annular space (i.e., the space between the borehole and well casing) above the sampling depth must be sealed to prevent contamination of samples and the groundwater.
 5. Prior to commission, SCC must submit installation reports and as-built drawings to ADEQ for each monitoring well that is completed.
 6. Pursuant to 40 CFR § 258.53(a), the groundwater monitoring program must include consistent sampling and analysis procedures that are designed to ensure monitoring results that provide an accurate representation of groundwater quality at the background and downgradient wells installed in compliance with 40 CFR § 258.51(a).
 - i. The program must include procedures and techniques for:
 - a) Sample collection;

- b) Sample preservation and shipment;
 - c) Analytical procedures;
 - d) Chain of custody control; and
 - e) Quality assurance and quality control.
- ii. The groundwater monitoring program must include sampling and analytical methods that are appropriate for groundwater sampling and that accurately measure hazardous constituents and other monitoring parameters in groundwater samples.
 - iii. Groundwater samples shall not be field-filtered prior to laboratory analysis.
 - iv. The sampling procedures and frequency must be protective of human health and the environment.
7. Pursuant to 40 CFR § 258.53(d), groundwater elevations must be measured in each well immediately prior to purging, each time groundwater is sampled. SCC must determine the rate and direction of groundwater flow each time groundwater is sampled. Groundwater elevations in wells that monitor the same waste management area must be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction.
8. Pursuant to 40 CFR § 258.53(e), SCC must establish background groundwater quality in a hydraulically upgradient or background well(s) for each monitoring parameter or constituent in Appendix I to 40 CFR Part 258 or an alternative list approved by the Director in accordance with 40 CFR § 258.54(a)(2). Background groundwater quality may be established at wells that are not located hydraulically upgradient from the MSWLF unit if it meets the requirements of 40 CFR § 258.51(a)(1).
9. Pursuant to 40 CFR § 258.53(f), the number of samples collected to establish groundwater quality data must be consistent with the appropriate statistical procedures determined in accordance with 40 CFR § 258.53(g). The sampling procedures shall be those specified under 40 CFR § 258.54(b) for detection monitoring, 40 CFR § 258.55(b) and (d) for assessment monitoring and 40 CFR § 258.56(b) for corrective action.
10. In accordance with 40 CFR § 258.54(a), detection monitoring is required at MSWLF units at all groundwater monitoring wells defined under 40 CFR §§ 258.51(a)(1) and 258.51(a)(2). At a minimum, a detection monitoring program must include the monitoring for the constituents listed in Appendix I to 40 CFR Part 258 or an alternative list approved by the ADEQ Director in accordance with 40 CFR § 258.54(a)(2).
- i. In accordance with 40 CFR § 258.54(b), the monitoring frequency for all constituents shall be at least semiannually during the active life of the facility, including closure, and the post-closure care period.

- ii. A minimum of four (4) independent samples from each well (background and downgradient) must be collected and analyzed during the first semiannual sampling event.
 - iii. At least one (1) sample from each well (background and downgradient) must be collected and analyzed during subsequent semiannual sampling events.
- 11. In accordance with 40 CFR § 258.54(c), if SCC determines, pursuant to 40 CFR § 258.53(g), that there is a statistically significant increase over background for one or more of the constituents listed in Appendix I to 40 CFR Part 258 or in the alternative list approved in accordance with 40 CFR § 258.54 (a)(2), at any monitoring well at the boundary specified under 40 CFR § 258.51(a)(2), SCC must:
 - i. Within fourteen (14) days of this finding, place a notice in the operating record indicating which constituents have shown statistically significant changes from background levels, and notify ADEQ; and
 - ii. Establish an assessment monitoring program meeting requirements of 40 CFR § 258.55 within ninety (90) days except as provided in 40 CFR § 258.54(c)(3).
- 12. SCC may demonstrate that a source other than a MSWLF unit caused the contamination or that the statistically significant increase resulted from error in sampling, analysis, statistical evaluation, or natural variation in groundwater quality. A report documenting this demonstration must be certified by a qualified groundwater scientist or approved by the ADEQ Director and placed in the operating record. If a successful demonstration is made and documented, SCC may continue detection monitoring as specified in 40 CFR § 258.54. If after ninety (90) days, a successful demonstration is not made, SCC must initiate an assessment monitoring program as required in 40 CFR § 258.55.
- 13. Pursuant to 40 CFR § 258.56(a), if a statistically significant increase in one or more compounds is detected and confirmed by assessment monitoring, within ninety (90) days SCC must initiate an assessment of corrective measures as described in 40 CFR § 258.56(c). Any necessary remedy selection and implementation of the resulting corrective action program must comply with 40 CFR §§ 258.57 and 258.58 criteria.
- d. An alternative list of groundwater parameters for detection monitoring was approved on June 27, 2001. In accordance with the revised list, groundwater samples shall be analyzed for volatile organic compounds (VOCs), metals (copper, iron, manganese and zinc), and inorganic compounds (calcium, magnesium, potassium, sodium, bicarbonate, chloride, nitrate, sulfate, total dissolved solids and chemical oxygen demand).

3.9 Landfill Gas Monitoring

- a. SCC shall continue the routine methane monitoring program to ensure that the standards of 40 CFR § 258.23(a) are met. Such routine methane monitoring shall be designed to include:

1. Facility structures (excluding gas control or recovery systems), and
 2. Facility property boundaries.
- b. Routine methane monitoring shall be conducted at least quarterly based on the requirements of 40 CFR § 258.23(b)(2) and may be changed by the ADEQ Director after a reported landfill gas exceedance.
 - c. Pursuant to 40 CFR § 258.23, if a methane gas exceedance occurs at facility structures or at the facility property boundaries, SCC shall immediately take all necessary steps, as specified in Section 2.3(b) of this MFPA, to ensure protection of human health and the environment.
 - d. Maintenance of gas monitoring equipment after landfill closure shall be performed as specified in Section 4.3 of this MFPA.

3.10 New Construction

- a. All future construction shall follow ADEQ-approved designs, drawings and specifications.
- b. Pursuant to A.R.S. § 49-762.06, SCC shall submit a notification to ADEQ of any Type II, III, or IV change to the approved solid waste facility plan. Type III and IV changes require prior ADEQ approval before implementation.
- c. The configuration of the final landfill slopes and elevations shall be consistent with the plans that are part of this approval.
- d. A quality assurance engineer (QAE) shall be responsible for all construction quality assurance (CQA) and construction quality control (CQC) procedures. The QAE shall be an Arizona registered professional engineer. The QAE shall be responsible for reporting, inspecting, collection and interpretation of field and laboratory results. The QAE shall certify that all construction, including excavation, soil segregation, subgrade preparation, operation layer construction, and any other construction or installation work, is performed according to the CQA plan contained in Section 6.2 of the *SWFP*, and the manufacturer's specifications, engineering testing standards and/or the federal, state, or local regulations that may apply to the work.
- e. SCC shall submit the CQA/CQC report, as-built drawings, and certifications of completion to the ADEQ Solid Waste Plan Review Unit. If the CQA/CQC report is not submitted to ADEQ within sixty (60) days of completion of new construction, ADEQ may rescind this approval.

3.11 Safety Issues

- a. Access: SCC must limit and control public access, unauthorized vehicular traffic, and illegal dumping of wastes by using natural barriers, artificial barriers, or both, as appropriate, to protect human health and the environment pursuant to 40 CFR § 258.25.
- b. Scavenging: No material can be removed or scavenged from the working face except to remove unauthorized waste materials identified after disposal.

- c. Working face: The size of the working face must be limited to the smallest possible area to provide easy manageability, ensure vehicle and public safety and minimize public health nuisances.
- d. Landfill gas: SCC must ensure the concentration of methane gas does not exceed:
 - 1. 25% of the LEL for gases in facility structures, and
 - 2. The LEL for gases at the property boundary.

3.12 Recordkeeping

- a. Landfill gas and groundwater exceedances, must be reported as in accordance with 40 CFR §§ 258.23 and 258.54, respectively.
- b. SCC shall comply with all other recordkeeping requirements pursuant to 40 CFR § 258.29 for at least three (3) years from the date of occurrence. These records shall be available for ADEQ personnel upon request.
- c. SCC shall submit a summary of all Type II change modifications to ADEQ annually, by March 31, for the preceding calendar year.
- d. SCC shall maintain any Type I change records in the facility file for a minimum of three (3) years from the date of occurrence in accordance with A.R.S. § 49-762.06(A)(1). These records shall be available to ADEQ personnel upon request. Additional operational records such as landfill fire, visual settlement or subsidence, explosions, discharge of hazardous or other wastes not permitted at the landfill facility, flood damage or erosion shall be placed in a file that is retained on site.

3.13 Annual Registration and Disposal Fee Schedules:

- a. SCC shall comply with A.R.S. § 49-747 and A.A.C. R18-13-2101 through 2103 and shall pay an annual registration fee for RRSL to ADEQ.
- b. SCC shall comply with A.R.S. § 49-836 and pay solid waste landfill disposal fees to ADEQ based on the amount of the waste landfilled at RRSL.

4.0 CLOSURE AND POST-CLOSURE PROVISIONS

SCC must update the approved closure plan prior to closure if conditions have changed from the originally approved closure plan. The updated plan requires ADEQ approval if the approved landfill capacity, closure configuration, or storm water management systems are modified.

4.1 Final Closure

The following steps will occur during the landfill closure process:

- a. In accordance with 40 CFR § 258.60(e), SCC must notify ADEQ of the intent to close the landfill.
- b. In accordance with 40 CFR § 258.60(g), closure activities for RRSL must:

1. Begin no later than thirty (30) days after the date on which RRSL receives its known last receipt of waste or if the landfill has remaining capacity and there is a reasonable likelihood that RRSL will receive additional waste, no later than one (1) year after the most recent receipt of waste.
 2. Follow the approved closure plan that is part of the *SWFP*.
- c. Closure activities must be completed within one hundred eighty (180) days following beginning of closure as specified in paragraph (b) above.
 - d. Following closure construction, SCC shall notify ADEQ through a certification document, signed and sealed by an independent Arizona registered professional engineer, that the closure has been completed in accordance with the approved RRSL closure plan and this MFPA.
 - e. Upon approval of the closure certification report by ADEQ, a letter will be issued notifying SCC that RRSL is officially closed and released from future annual registration fees and operational financial assurance.

4.2 Final Cover Construction

An alternative final cover system is approved as detailed below:

- a. For Area 1 (top deck of the landfill at an elevation of 3,700 feet amsl or higher), as shown on Drawing No. 3 of 7, *Grading Plan*, of the *SWFP*, the final cover shall consist of the following from bottom to top, as shown on Drawing No. 7 of 7, *Drainage Details* (Detail B), of the *SWFP*:
 1. A minimum of twelve (12) inches of operational soil cover.
 2. An infiltration barrier layer consisting of at least thirty (30) inches of soil with a permeability less than or equal to 8.8×10^{-5} centimeters/second (cm/s) compacted to at least 95% of the maximum dry density determined by standard Proctor test results (ASTM D698).
- b. For Area 2 (sloped areas of the landfill below an elevation of 3,700 feet amsl), as shown on Drawing No. 3 of 7, *Grading Plan*, of the *SWFP*, the final cover shall consist of the following from bottom to top, as shown on Drawing No. 7 of 7, *Drainage Details* (Detail B), of the *SWFP*:
 1. A minimum of twelve (12) inches of operational soil cover.
 2. An infiltration barrier layer consisting of at least twenty-four (24) inches of soil with a permeability less than or equal to 5.2×10^{-4} cm/s compacted to at least 95% of the maximum dry density determined by standard Proctor test results (ASTM D698).
 3. An erosion layer consisting of at least six (6) inches of soil.
- c. The final cover system shall be constructed in lifts no greater than eight (8) inches thick after spreading and leveling.

- d. The final cover infiltration barrier layer of soil shall not be classified as clay material.
- e. All construction shall be in accordance with the CQA/CQC Plan contained within Section 6.2 of the *SWFP*. Any changes to the approved final cover system shall be approved in writing by ADEQ in accordance with A.R.S. § 49-762.06 prior to implementation of the changes.

4.3 Post-Closure Care

Post-closure care shall be provided at RRS� for thirty (30) years from the date of final closure acknowledgment by ADEQ under 40 CFR § 258.61(a), except as provided under 40 CFR § 258.61(b), and shall consist of:

- a. Maintaining the integrity and effectiveness of any final cover, including making repairs to the cover as necessary to correct the effects of differential settlement, subsidence, erosion, or other events, and preventing run-on and run-off from eroding or otherwise damaging the final cover.
- b. Maintaining and operating the landfill gas collection and monitoring system in accordance with the requirements of 40 CFR § 258.23 and 40 CFR § 258, Subpart F.
- c. Maintaining and operating the groundwater monitoring system in accordance with the requirements of 40 CFR § 258.61(a)(3).
- d. Maintaining in good repair all storm water control structures, internal roads, signs, fences, and any other structures required for monitoring activities and post-closure care of the closed landfill facility.

4.4 Post-Closure Financial Assurance

Yearly financial assurance demonstrations for the thirty (30) years of post-closure care, as required by Section 2.5 of this MFPA, will continue until SCC is notified by ADEQ that it is released from this requirement.

5.0 COMPLIANCE SCHEDULE

In accordance with Section 2.5 of this MFPA, SCC must meet closure and post-closure financial assurance requirements and update its financial assurance demonstration annually. The last financial assurance approval for SCC was issued in January 2008 for fiscal year 2006. A current financial assurance demonstration must be submitted to ADEQ by December 31, 2009. A financial assurance update is considered a Type III change, and the applicable review fee must accompany the submittal.

6.0 APPROVAL HISTORY

12/08/81	EPA Open Dump Inventory Form
08/13/87	Notice of Disposal
09/29/97	Approval of alternative liner design concept
12/22/97	Approval of 6-month research project to determine feasibility of wastewater grit for use as ADC
12/28/98	Plan Approval No. 12001800: RRS� Solid Waste Facility Plan approved
09/02/99	Type II Change Approval to use Sanifoam as ADC

06/27/01	Plan Approval No. 12001800.01: Type III Change approval for the modification of groundwater detection monitoring parameters
06/30/02	Approval of 90-day ADC demonstration project for the Enviro Cover System utilizing a biodegradable polyethylene film
11/21/02	Approval to continue EPI Biodegradable film membrane ADC until 06/30/03
04/23/04	Plan Approval No. 12001800.02: Type III Change for revisions to waste disposal boundaries and grading plans, tarps as approved ADC
Current	MFPA No. 12001800.03: Type IV Change for 28-foot vertical expansion, alternative final cover and ADCs (Posi-Shell® and Tarpomatic® System)

7.0 REFERENCES

03/09/81	<i>Santa Cruz County Specifications for Operation of a Sanitary Landfill in Rio Rico, Arizona</i> , Cella Barr Associates
03/12/81	<i>Soil Report, Santa Cruz County, Proposed Sanitary Landfill in Rio Rico, Arizona</i> , Cella Barr Associates
Feb. 1993	<i>Rio Rico Sanitary Landfill, Aquifer Protection Permit, Pre-application Proposal</i> , Malcolm Pirnie, Inc.
Jan. 1994	<i>Rio Rico Sanitary Landfill, Aquifer Protection Permit Application</i> , Malcolm Pirnie, Inc.
12/07/95	<i>Provisions for Monitoring Well Installation, Rio Rico Sanitary Landfill, Rio Rico, Arizona</i> , SCS Engineers
Jan. 1996	<i>Rio Rico Sanitary Landfill, Preliminary Solid Waste Facility Plan</i> , SCS Engineers
05/02/96	<i>Preliminary LFG Migration Control Evaluation Report, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona</i> , SCS Engineers
09/13/96	<i>Groundwater Monitoring Well MW-3 Construction and Facility Groundwater Sampling Report, Rio Rico Sanitary Landfill</i> , SCS Engineers
12/06/96	<i>Groundwater Monitoring Report for Rio Rico Sanitary Landfill, Santa Cruz County, Arizona</i> , SCS Engineers
04/04/97	<i>Rio Rico Sanitary Landfill, Alternative Liner Design Demonstration</i> , SCS Engineers
06/30/97	<i>Groundwater Monitoring Report for Rio Rico Sanitary Landfill, Santa Cruz County, Arizona</i> , SCS Engineers
09/08/97	<i>Rio Rico Sanitary Landfill, Supplemental Information for Alternative Liner Design Demonstration</i> , SCS Engineers
03/20/98	<i>Solid Waste Facility Plan, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona</i> , SCS Engineers
04/08/98	<i>Phase 1 LFG Migration Control System, Construction Documentation Report for Rio Rico Sanitary Landfill</i> , SCS Engineers
05/29/98	<i>Responses to ADEQ SWFP Administrative Completeness Review Comments, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona</i> , SCS Engineers
10/23/98	<i>Responses to ADEQ SWFP Technical Review Comments, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona</i> , SCS Engineers
12/28/98	Letter, <i>Facility Plan Approval, Rio Rico Sanitary Landfill</i> , ADEQ
09/02/99	Letter, <i>Approval to utilize Sanifoam as ADC, Rio Rico Landfill</i> , ADEQ
04/17/01	Letter, <i>Request for Revised Groundwater Detection Monitoring Constituents, Rio Rico Sanitary Landfill</i> , SCS Engineers
06/27/01	Approval to modify groundwater monitoring parameters at Rio Rico Landfill, ADEQ
09/28/01	<i>Groundwater Detection Monitoring Report, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona</i> , SCS Engineers

- 05/08/02 *Groundwater Detection Monitoring Report Addendum, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona, SCS Engineers*
- 06/20/02 *Letter, Alternative Daily Cover Demonstration, Enviro Cover, Three-Month Demonstration Project, ADEQ*
- 11/21/02 *Groundwater Detection Monitoring Report, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona, SCS Engineers*
- 11/21/02 *Letter, Continuation of Envirocover Demonstration Project 06/30/03, ADEQ*
- 04/14/03 *Groundwater Detection Monitoring Report, Rio Rico Sanitary Landfill, Santa Cruz County, Arizona, SCS Engineers*
- Oct. 2003 *Solid Waste Facility Plan, Rio Rico Sanitary Landfill, Revision #1, SCS Engineers*
- 11/20/03 *As-Built Construction Drawings, Rio Rico Sanitary Landfill, Santa Cruz County, AZ, SCS Engineers*
- 11/21/08 *Rio Rico Sanitary Landfill Solid Waste Facility Plan, SCS Engineers (revised January 31, April 6, May 5, May 26, August 6, September 28 and October 1, 2009)*

End of Master Facility Plan Approval No. 12001800.03