



Contract Number: CT. WW-14 * 503
 Effective Date : 7-1-14
 Term Date : 6-30-15
 Cost : 220,552.-
 Revenue : _____
 Total : _____ NTE: _____
 Action
 Renewal By : _____
 Term : _____
 Reviewed by: [Signature] 4-1-15
6-30-15

BOARD OF SUPERVISORS AGENDA ITEM SUMMARY

Requested Board Meeting Date: July 1, 2014

ITEM SUMMARY, JUSTIFICATION &/or SPECIAL CONSIDERATIONS: This IGA is a Cooperative Project between the U of A and Pima County Regional Wastewater Reclamation Department in a project demonstrating the viability of a treatment process capable of producing Class A Biosolids, from Regional Wastewater Reclamation Department's "sludge cake". The University of Arizona intends to contract with Magnaflow Residual Recycling Environmental Inc. to construct, design, build and operate the biosolids treatment system, the "MagnaGro Process", consistent with the Contractor's June 9, 2014 Proposal, listed as Exhibit A in the IGA. This process will produce class A Biosolids, which can be used to re-vegetate mine tailing, and reduce RWRD operating costs.

CONTRACT NUMBER (If applicable): CT 14*503

STAFF RECOMMENDATION(S):

Regional Wastewater Reclamation staff recommends to award this IGA with the University of Arizona Board of Regents.

CORPORATE HEADQUARTERS: _____

Ver. 1
Vendor 1
Pgs 19

To: COB. 6-18-14
Agenda 7-1-14
(3)

CLERK OF BOARD USE ONLY: BOS MTG. _____

ITEM NO. _____

PIMA COUNTY COST: \$220,552___ and/or REVENUE TO PIMA COUNTY: \$

FUNDING SOURCE(S): RWRD Enterprise Fund
(i.e. General Fund, State Grant Fund, Federal Fund, Stadium D. Fund, etc.)

Advertised Public Hearing:

		YES	X	NO
--	--	-----	---	----

Board of Supervisors District:

1		2		3		4		5		All	X
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IMPACT:

IF APPROVED: This IGA will reduce RWRD's cost to dump Biosolids in landfills, reduce landfill loading and provide local mines a substrate to assist in the revegetation of the Mine Tailing, and reduce dust pollution.

IF DENIED: RWRD will continue incur the cost to dump Biosolids in landfills, and the local mines will not receive the benefit of this substrate to assist in the revegetation of the mine tailings.

DEPARTMENT NAME: Regional Wastewater Reclamation Department

CONTACT PERSON: William Keith TELEPHONE NO.: 724-6057

CONTRACT
NO. <u>C.T. WW-14 0000 0000 0000 503</u>
AMENDMENT NO. _____
This number must appear on all invoices, correspondence and documents pertaining to this contract.

**Intergovernmental Agreement
between
Pima County and the Arizona Board of Regents
for Construction and Operation of a
Biosolids Processing, Transport, and Management
Demonstration Project at the Green Valley
Wastewater Reclamation Facility**

This Intergovernmental Agreement (IGA) is entered into by and between Pima County, a body politic and corporate of the State of Arizona ("County") on behalf of its Regional Wastewater Reclamation Department ("RWRD") and Arizona Board of Regents ("ABOR") on behalf of the University of Arizona ("University") pursuant to A.R.S. § 11-952.

Recitals

- A. County and ABOR may contract for services and enter into intergovernmental agreements (IGAs) with one another for joint or cooperative action pursuant to A.R.S. § 11-951, et seq.
- B. ABOR is authorized by A.R.S. § 15-1625(B) to enter into contracts.
- C. ABOR delegated contracting authority to University pursuant ABOR §§ 3-103 and 3-808.
- D. County is authorized by A.R.S. § 11-264 to construct and operate wastewater conveyance and treatment facilities and by ARS § 11-201 to enter into contracts necessary to the exercise of the County's powers.
- E. County and University desire to cooperate in a project demonstrating the viability of a treatment process capable of producing Class A biosolids (the "Project") from County's sludge cake.
- F. County and University have determined that the best location for the Project is the County's Green Valley Wastewater Reclamation Facility (the "Facility").

NOW, THEREFORE, County and ABOR, pursuant to the above, and in consideration of the matters and things hereinafter set forth, do mutually agree as follows:

Agreement

1. **Purpose.** The purpose of this IGA is to define the relationship between County and University with regard to the Project.
2. **Scope.** University intends to contract with Magnaflow Residual Recycling Environmental, Inc. (Contractor) to design build and operate the biosolids treatment system (the "MagnaGro Process") consistent with Contractor's June 9, 2014 proposal, a copy which is attached hereto as Exhibit A.

- a. University Responsibilities

- i. Negotiate, execute, and manage a contract with Contractor consistent with Exhibit A.
- ii. Implement appropriate safety measures at and around the Project including proper management of Metam Sodium and methyl isothiocyanate (MITC).
- iii. Ensure that there are no Metam Sodium releases to County property and that MITC is not released to the aquifer beneath the Facility.
- iv. Ensure that the Project is operated in such a manner that odors related to the project are minimal.
- v. Ensure and certify that all Green Valley WRF-generated cake sludge delivered by County is processed into biosolids meeting the Class A pathogen reduction requirements of A.A.C. § R18-9-1006(D) and the 40 CFR Part 503 Vector Attraction Reduction requirements.
- vi. Ensure that all processed biosolids are properly transported to the ASARCO Mission Complex for use in mine tailing reclamation which provides vegetative growth and fugitive dust control within that facility.
- vii. With the exception of the County-provided equipment and material identified in subparagraph 2(b), below, provide, operate and maintain, either directly or through Contractor, all equipment and materials necessary for Project completion using the MagnaGro Process.
- viii. Provide all necessary Project oversight.
- ix. Provide all necessary technical expertise to support the Project including laboratory support and testing.
- x. Ensure that no more than 128 cubic yards of sludge cake is stored at the Facility at any one time.
- xi. Ensure that no more than 192 cubic yards of processed biosolids are stored at the Facility at any one time.

b. County Responsibilities

- i. Provide sludge cake to the Project. Sludge cake moisture percentage shall range from 12 to 16 percent.
 - ii. Provide electrical power for Project use. Electrical power demand shall not exceed 24 kW and total electrical power usage shall not exceed 564 kWh per day.
 - iii. Provide Facility process water for Project use.
 - iv. Provide diesel fuel for Project use. Total diesel fuel usage shall not exceed 93 gallons per month.
 - v. Allow use of existing kitchen, restroom, and shower facilities by Contractor and University personnel.
 - vi. Provide adequate space on the Facility site for the Project.
3. **Financing.** The Project description contemplates University producing three hundred sixty two (362) dry tons of Class A biosolids over the Term of the Project. In compensation for that effort, County will reimburse University at a rate of eighty-three dollars and fifty-four cents (\$83.54) per wet ton of sludge successfully processed. University will invoice County on a monthly basis for the prior month's biosolids production.
4. **Term.** This IGA shall be effective on the date it is fully executed by both parties and shall continue for a period of one year unless it is, prior to the expiration of such period, extended or terminated by agreement of the parties.
5. **Disposal of Property.** Upon the termination of this IGA, all property involved shall revert back to the owner. Termination shall not relieve any party from liabilities or costs already incurred under this IGA, nor affect any ownership of property pursuant to this IGA.
6. **Indemnification.** Each party (as Indemnitor) agrees to indemnify, defend and hold harmless the other party (as Indemnitee) from and against any and all claims, losses, liability, costs or expenses (including reasonable attorney's fees) (hereinafter collectively referred to as "claims") arising out of bodily injury of any person (including death) or property damage, but only to the extent that such claims which result in vicarious/derivative liability to the Indemnitee, are caused by the act, omission, negligence, misconduct, or other fault of the Indemnitor, its officers, officials, agents, employees, contractors, or volunteers.
7. **Insurance.** Each party and each party's contractors and subcontractors shall obtain and maintain at its own expense, during the entire term of this Contract the following type(s) and amounts of insurance:

- a) Commercial General Liability in the amount of \$1,000,000.00 combined single limit Bodily Injury and Property Damage.
- b) Commercial or Business automobile liability coverage for owned, non-owned and hired vehicles used in the performance of this Contract with limits in the amount of \$1,000,000.00 combined single limit or \$1,000,000.00 Bodily Injury, \$1,000,000.00 Property Damage.
- c) If this Contract involves professional services, professional liability insurance in the amount of \$1,000,000.00.
- d) If required by law, workers' compensation coverage including employees' liability coverage.

Parties to this agreement shall provide thirty (30) days written notice to all parties to this IGA of cancellation, non-renewal or material change of coverage. It is University's duty to ensure that its contractor and subcontractors obtain and maintain the proper insurance coverage.

University (but not its contractor and subcontractors) may alternatively meet the above requirement through self insurance pursuant to A.R.S. §§ 11-261 and 11-981 (or if a school district, § 15-382) or participation in an insurance risk pool under A.R.S. § 11.952.01 (if a school district, § 15-382), at no less than the minimal coverage levels set forth in this article. Parties to this agreement shall provide thirty (30) days written notice to all other parties of cancellation, non-renewal or material change of coverage.

- 8. Compliance with Laws.** The parties shall comply with all federal, state and local laws, rules, regulations, standards and Executive Orders, without limitation to those designated within this IGA. The laws and regulations of the State of Arizona shall govern the rights of the parties, the performance of this IGA and any disputes hereunder. Any action relating to this IGA shall be brought in an Arizona court in Pima County.
- 9. Non-Discrimination.** The parties shall not discriminate against any County employee, client or any other individual in any way because of that person's age, race, creed, color, religion, sex, disability or national origin in the course of carrying out their duties pursuant to this IGA. The parties shall comply with the provisions of Executive Order 75-5, as amended by Executive Order 2009-09, which is incorporated into this IGA by reference, as if set forth in full herein.
- 10. ADA.** The parties shall comply with all applicable provisions of the Americans with Disabilities Act (Public Law 101-336, 42 U.S.C. 12101-12213) and all applicable federal regulations under the Act, including 28 CFR Parts 35 and 36.

11. **Severability.** If any provision of this IGA, or any application thereof to the parties or any person or circumstances, is held invalid, such invalidity shall not affect other provisions or applications of this IGA which can be given effect, without the invalid provision or application and to this end the provisions of this IGA are declared to be severable.
12. **Conflict of Interest.** This contract is subject to cancellation for conflict of interest pursuant to A.R.S. § 38-511, the pertinent provisions of which are incorporated herein by reference.
13. **Non-Appropriation.** Notwithstanding any other provision in this IGA, this IGA may be terminated if for any reason the Pima County Board of Supervisors does not appropriate sufficient monies for the purpose of maintaining this IGA. In the event of such cancellation, Pima County shall have no further obligation to ABOR, University, and their subcontractors and vendors other than for payment for services rendered prior to cancellation.
14. **Legal Authority.** Neither party warrants to the other its legal authority to enter into this IGA. If a court, at the request of a third person, should declare that either party lacks authority to enter into this IGA, or any part of it, then the IGA, or parts of it affected by such order, shall be null and void, and no recovery may be had by either party against the other for lack of performance or otherwise.
15. **Worker's Compensation.** Each party shall comply with the notice of A.R.S. § 23-1022 (E). For purposes of A.R.S. § 23-1022, irrespective of the operations protocol in place, each party is solely responsible for the payment of Worker's Compensation benefits for its employees.
16. **No Joint Venture.** It is not intended by this IGA to, and nothing contained in this IGA shall be construed to, create any partnership, joint venture or employment relationship between the parties or create any employer-employee relationship between County and any University or Contractor employees, or between University or Contractor and any County employees. Neither party shall be liable for any debts, accounts, obligations or other liabilities whatsoever of the other, including (without limitation) the other party's obligation to withhold Social Security and income taxes for itself or any of its employees.
17. **No Third Party Beneficiaries.** Nothing in the provisions of this IGA is intended to create duties or obligations to or rights in third parties not parties to this IGA or affect the legal liability of either party to the IGA by imposing any standard of care with respect to the maintenance of public facilities different from the standard of care imposed by law.
18. **Notice.** Any notice required or permitted to be given under this IGA shall be in writing and shall be served by delivery or by certified mail upon the other party as follows (or at such other address as may be identified by a party in writing to the other party) :

County:

Director, RWRD
201 N. Stone, 8th Floor
Tucson AZ 85701

With copies to:

County Administrator
130 West Congress Street, 10th Floor
Tucson, Arizona 85701

Clerk of the Board
130 West Congress, 5th Floor
Tucson, Arizona 85701

University:

For U.S. Mail delivery:

Sponsored Projects Services
P.O. Box 210158
Tucson, AZ 85721-0158

For FedEx, UPS, or messenger delivery:

Sponsored Projects Services
888 N. Euclid Ave., Room 510
Tucson, AZ 85719-4824

- 19. Entire Agreement.** This document constitutes the entire Agreement between the parties pertaining to the subject matter hereof, and all prior or contemporaneous agreements and understandings, oral or written, are hereby superseded and merged herein. This IGA shall not be modified, amended, altered or extended except through a written amendment signed by the parties and recorded with the Pima County Recorder, or Arizona Secretary of State, whichever is appropriate.

In Witness Whereof, County has caused this Intergovernmental Agreement to be executed by the Chairman of its Board of Supervisors, upon resolution of the Board and attested to by the Clerk of the Board, and pursuant to A.R.S. § 11-952(D), the attorney for the Arizona Board of Regents has determined that the foregoing Agreement is in proper form and is within the powers and authority granted to the Arizona Board of Regents for the University of Arizona under the laws of the State of Arizona:

PIMA COUNTY:

Chairman
Board of Supervisors

ATTEST:

Clerk of the Board

Date: _____

**ARIZONA BOARD OF REGENTS
UNIVERSITY OF ARIZONA:**



Lewis Barbieri, Director
Office of Research & Contract Analysis

ATTEST:

Date: 6/9/14

Approval

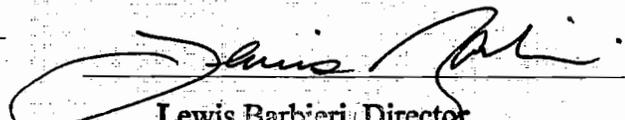
The foregoing Intergovernmental Agreement between Pima County and the Arizona Board of Regents has been reviewed by the undersigned, and is hereby approved as to content.

PIMA COUNTY:



Director - RWRD

**ARIZONA BOARD OF REGENTS
UNIVERSITY OF ARIZONA:**

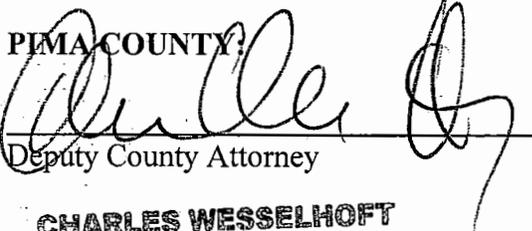


Lewis Barbieri, Director
Office of Research and Contract Analysis

Intergovernmental Agreement Determination

The foregoing Intergovernmental Agreement between Pima County and the Arizona Board of Regents has been reviewed pursuant to A.R.S. § 11-952 by the undersigned, who have determined that it is in proper form and is within the powers and authority granted under the laws of the State of Arizona to those parties to the Intergovernmental Agreement represented by the undersigned.

PIMA COUNTY:


Deputy County Attorney

CHARLES WESSELHOFT

ARIZONA BOARD OF REGENTS
UNIVERSITY OF ARIZONA:

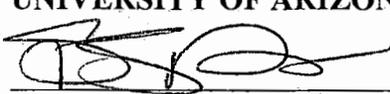

STEPHANIE S. ROSENFELD
UNIVERSITY ATTORNEY

Exhibit A

Pilot Testing the MagnaGro Process™ At the Green Valley Wastewater Reclamation Facility

Treating Sludge Generated at Green Valley Wastewater Reclamation
Facility to Class "A" Level Biosolids for Beneficial Reuse

Proposal

Prepared

For

Pima County Regional Wastewater Reclamation Department

By

Akrum H. Tamimi, Ph.D. and Charles P. Gerba, Ph.D.

Department of Soil, Water and Environmental Science
The University of Arizona

Subcontracting with

Magna Flow Environmental Inc.
14915 Highway 59 N, Humble, TX 77396

June 9, 2014

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I. Executive Summary

The MagnaGro Process™ is a patented waste treatment process that uses a sealed closed system reactor to treat wastewater sludge to Class A classification as per the U.S. Environmental Protection Agency 503 rule including the satisfaction of the vector attraction reduction requirement for land application. The EPA Pathogen Equivalency Committee (PEC) granted a Green Valley WRF site specific certification to treat the sludge to Class A level meeting the vector attraction reduction requirement.

Magna flow Residual Recycling Environmental, Inc. (Magna) has been dewatering, treating and hauling wastewater sludge in the Houston, Texas metropolitan area for more than 24 years.

In this proposal, the University of Arizona is contracting with Magna so Magna runs a pilot project to treat the sludge cake generated at Green Valley Wastewater Reclamation Facility (WRF) to Class A using the MagnaGro Process™. The Magna contract includes the treatment and the hauling of the treated product to ASARCO Mission Complex. The proposal total cost is \$220,552 based on 2,640 wet tons production of Biosolids per year; equivalently, per wet ton value is \$83.542 per wet ton.

This project has a duration of 1 calendar year and is proposed to start July 1, 2014 and ends July 1, 2015.

II. Introduction

The MagnaGro Process™ is a patented wastewater sludge treatment process to treat wastewater sludge to Class A classification as per the U.S. Environmental Protection Agency (U.S. EPA) 503 rule including the satisfaction of the vector attraction reduction requirement for land application.

Multiple pilot scale tests were conducted using the MagnaGro Process™ at Pima County Wastewater Treatment Facilities during which different types of biosolids were spiked with enteric virus and viable *Ascaris suum* ovum. Multiple loading rates of Metam sodium were tested on fresh liquid waste activated sludge (WAS), dewatered cake originating from partially aerobically digested sludge, and class B anaerobically digested sludge. Treatment duration of the MagnaGro Process™ is 24 hours.

All results showed that the MagnaGro Process™ meets the process efficiency parameters set by the Pathogen Equivalency Committee (PEC) by providing greater than 3 log₁₀ reduction of total enteric viruses, greater than 2 log₁₀ reduction of viable Helminth (*Ascaris*) ova, and greater than 3 log reduction of fecal coliform bacteria.

The results also showed that the MagnaGro Process™ meets the process compliance parameters set by the PEC by eliminating total enteric viruses to less than one Plaque Forming Unit (PFU) per 4 grams of total solids, eliminating viable Helminth (*Ascaris*) ova to less than one viable ova per 4 grams of total solids, and reducing fecal coliform bacteria to less than 1,000 Most Probable Number (MPN) per one gram of total solids.

Results from a test conducted at Green Valley Wastewater Reclamation Facility (WRF) using the MagnaGro Process™ were compiled and an application was submitted to the U.S. EPA Pathogen Equivalency Committee (PEC) to obtain a Green Valley WTF site specific equivalency to using the MagnaGro Process™ to produce Class A biosolids satisfying the Vector Attraction Reduction for land application. An approval by the PEC was received on September 10, 2013.

III. Objective

This proposal is presented to Pima County Regional Wastewater Reclamation Department (RWRD) for the purpose of conducting a pilot test of the MagnaGro Process™ at the Green Valley WRF to treat the sludge cake generated at the Green Valley WR to Class A level with the fulfillment of the Vector Attraction Reduction for land application as per the U.S. EPA rule 503.

The treated product will be hauled to and reused at ASARCO Mission Complex non-active and active sites and specifically to rock waste, rock dumps and mine tailings sites to provide vegetative growth and serve as fugitive dust control.

IV. Technical and Logistics Proposal

The pilot study will be conducted by the University of Arizona and in partnership with the Magnaflow Residual Recycling Environmental, Inc. (Magna). Environmental and Microbiological Laboratory (Dr. Gerba's Lab) at the University of Arizona will conduct all laboratory testing as per the lab's protocols.

Supervisory committee was formed to provide supervision to the project consisting of the following members:

1. Pima County RWRD Representatives to be designated
2. Dr. Akrum Tamimi (University of Arizona)
3. Dr. Charles Gerba (University of Arizona)
4. Dr. Ian Pepper (University of Arizona)
5. Dr. George Cain (Consultant to Magna: Parasitologist)
6. Mr. Ronald Richardson (Magnaflow Residual Recycling Environmental, Inc.)
7. Mr. Jerry McCurtain (Magnaflow Residual Recycling Environmental, Inc.)
8. Mr. Harry Buckholtz (Consultant to Magna: Chemical Engineer)

A. *Green Valley Sludge*

Based on the data obtained from Green Valley WRF totalizer spreadsheets for calendar years 2010 and 2013, an average weight of 255 tons of wet cake per month at an average percent total solids of 13.83% was calculated. Figure 1 shows the variation of wet cake and percent total solids measured at Green Valley WRF for the 4 year period.

The 13.83% average percent total solids indicated above is based on the burn method used at the Green Valley WRF. The U.S. EPA method used by the Environmental and Microbiology Laboratory at the University of Arizona has consistently showed percent total solids on cake obtained from the Green Valley WRF that is 1% less than what was measured at the treatment plant. So it is expected that the actual total solids is less than 13.83% and that will increase the weight of wet cake generated. It is assumed here that the average percent total solids is 13% and during the 2014-2015 the amount of wet cake generated at the Green Valley WTF is expected to be about 320 wet tons per month totaling 3,840 wet tons per year.

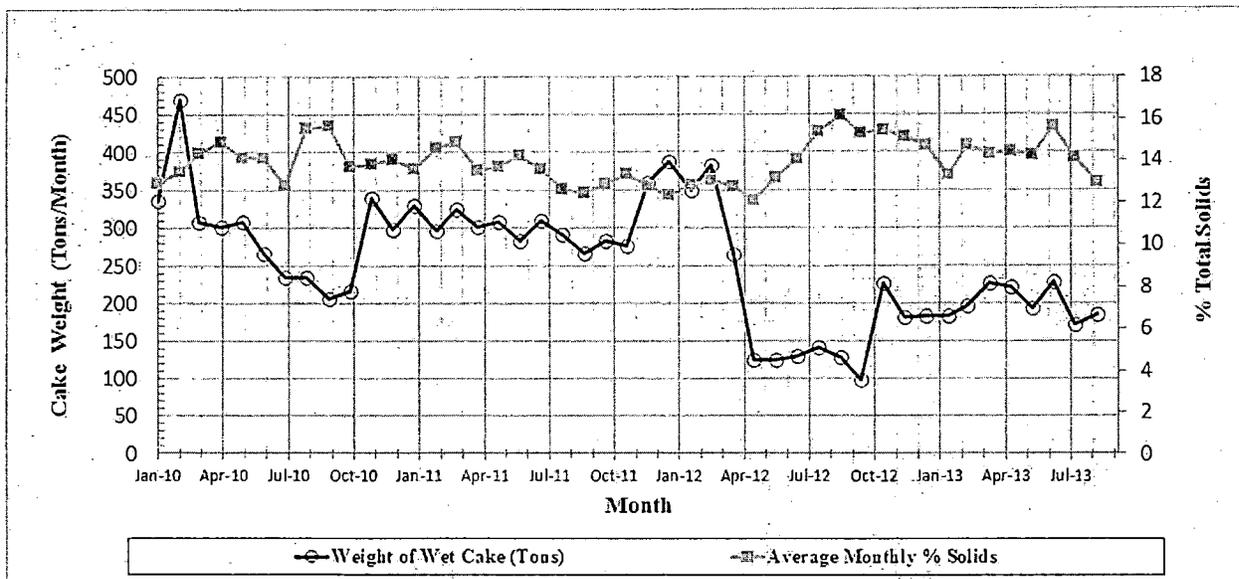


Figure 1: Generated Wet Cake and % Total Solids at Green Valley WRF

B. The MagnaGro Process™

The MagnaGro Process™ will be utilized at the Green Valley WRF using equipment shown in Figures 2 and 3.

Figure 2 shows the rotomixer, a completely sealed closed system that will be used as a reactor to treat the biosolids. This is a mobile reactor and Magna has an additional unit that can serve as a replacement for any emergencies.

Figure 3 shows the combination of rotomixer, conveyer and Roll-off box. The rotomixer will be used as a sealed closed system treatment reactor while the conveyer will be used to move the treated biosolids from the rotomixer to the roll-off box. The filled up roll-off box will be hauled to ASARCO Mission Complex for beneficial reuse.

Not shown in figure 3 is the frontend loader that the University in partnership with Magna will provide to move and load sludge and grit into the rotomixer.

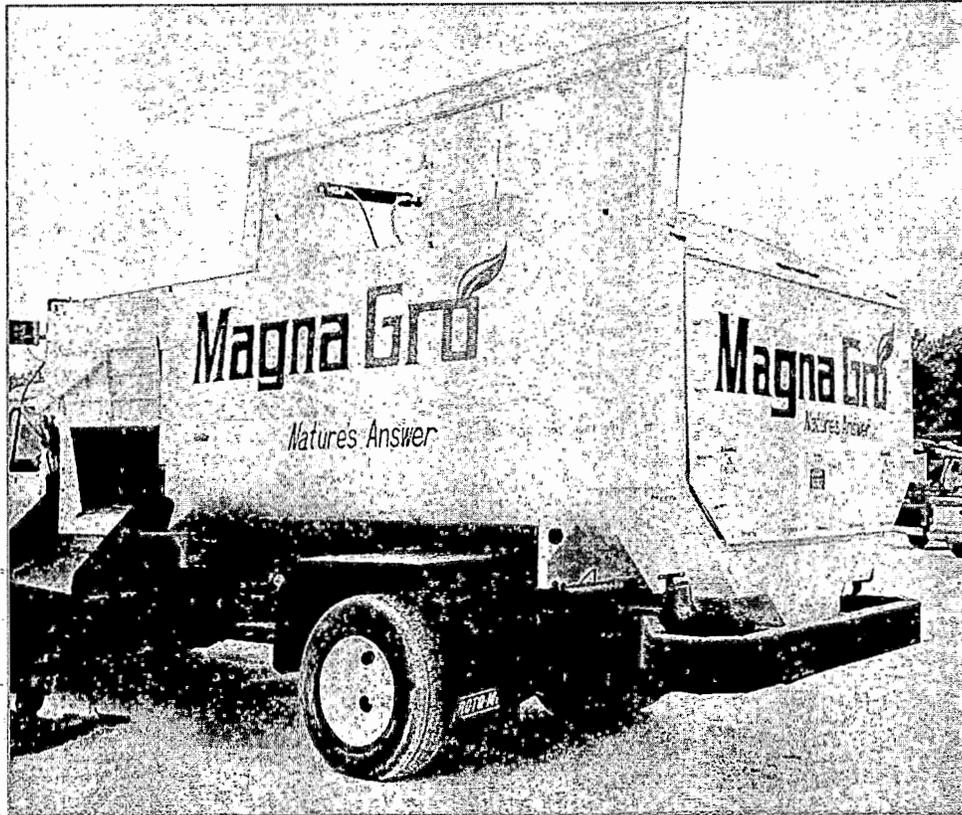


Figure 2: The Rotomixer, a Closed System Sealed Reactor

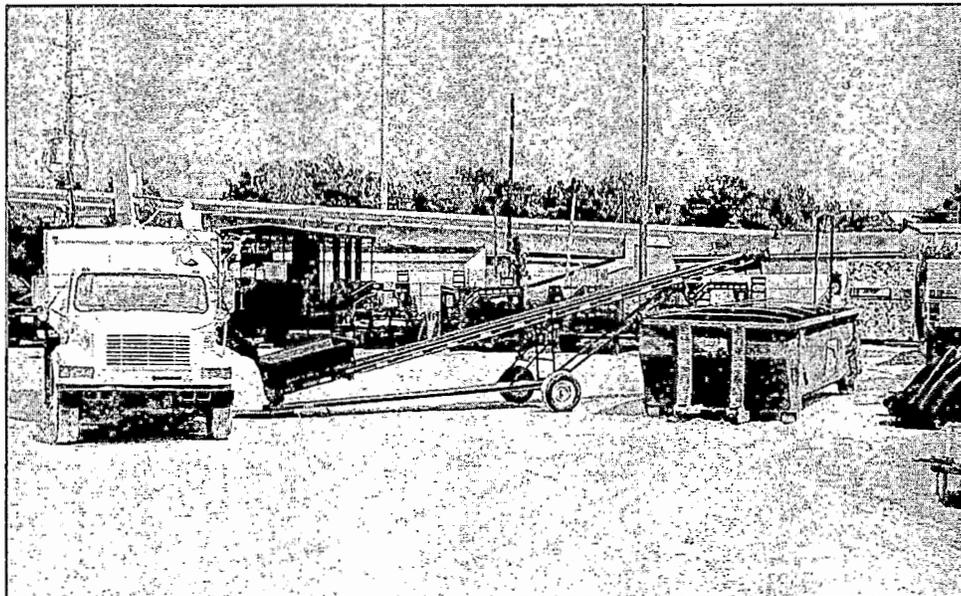


Figure 3: The Rotomixer, Conveyor and Roll-off Box

C. Responsibilities and Conditions for The University of Arizona and in partnership with Magna

The University of Arizona and in partnership with Magna will be responsible for the following activities and conditions:

1. Magna will provide the technology of the MagnaGro Process™ to treat sludge and grit and will provide the equipment shown in the previous subsection.
2. Magna will provide all materials necessary for the use in the MagnaGro Process™.
3. Magna will provide a frontend loader to move sludge and grit and to load grit into the rotomixer.
4. Magna will be responsible for all maintenance of the equipment used in the MagnaGro Process™.
5. Usage and operation of the MagnaGro Process™ will comply with the EPA Metam Sodium Regulations and will comply with the U.S. EPA rule 503.
6. Usage and operation of the MagnaGro Process™ will occur under the supervision of the Environmental and Microbiology Lab (Dr. Gerba's Lab) at the University of Arizona. Dr. Akrum Tamimi will provide oversight on the use and operation of the MagnaGro Process™ and preparation of progress reports and operational data on performance of the processes.
7. MagnaGro Process™ operators will be employees of Magnaflow Residual Recycling Environmental, Inc.
8. Magna will haul all treated materials to ASARCO Mission complex or to any other reuse site for beneficial reuse.
9. Magna will work closely with Pima County RWRD to eliminate all odors generated from sludge and grit.

D. Pima County RWRD's Responsibilities and Conditions

Pima County RWRD will be responsible for the following:

1. Pima County RWRD will be responsible to pay periodically (frequency to be negotiated) the cost of treatment and hauling cost of treated materials as shown in the financial proposal shown in the next section.
2. Pima County RWRD will provide odor scrubbing roof or tent with enough area to cover working area for the treatment of sludge.
3. Pima County RWRD will supply fuel for the rotomixer and the frontend loader.
4. Pima County RWRD will allow University of Arizona staff and Magna operator(s) to use the existing Green Valley WRF kitchen, bathroom and shower facilities.

V. Financial Proposal

Table 1 shows the cost that will be incurred for the treatment of sludge and that which will be charged to Pima County RWRD.

Table 1: Summary of Magna's and Pima County Cost

Materials Source	Wet Weight (Tons/Year)	Magna's Actual Cost		Pima County Charged Cost	
		Unit Cost (\$/Wet Ton)	Total Cost (\$/Year)	Unit Cost (\$/Wet Ton)	Total Cost (\$/Year)
Wet Cake Generated at Green Valley WRF	2,640	\$139.29	\$367,724	\$83.542	\$220,552

The cost shown above includes the treatment of materials to Class A level using the MagnaGro Process™, the moving of materials around using frontend loader, conveying the treated materials into a roll-off box and hauling the materials in the roll-off box to ASARCO Mission Complex and dumping the materials at ASARCO Mission Complex for beneficial reuse by ASARCO.

The quantities and prices shown in Table 1 are based on average values of operations data provided by Pima County RWRD for calendar years 2011 thru 2013; actual production levels may vary.

VI. References

U.S. EPA. 1993. Federal Register: February 19, 1993. 40 CFR Part 503; as amended at 64 FR 42571, Aug. 4, 1999.