ORIGINAL

LPSCO

06

LITCHFIELD PARK SERVICE COMPANY
12725 W. Indian School Rd., Suite D-101, Avondale, Arizona 85323

June 12, 2007

Arizona Corporation Commission
1200 West Washington
Phoenix, Arizona 85007-2996

Attention: Commissioner Mayes

RE: LPSCO Palm Valley Water Reclamation Facility
Docket No. SW-01428A-06-0444
Our File No. 8600-06-20-01

Dear Commissioner Mayes

Further to your letter of May 29, 2007, regarding odor issues at the Litchfield Park Service Co. (LPSCO) Palm Valley Water Reclamation Facility (PVWRF), responses are provided to the questions posed in your letter.

Although PVWRF operates within regulatory compliance for odors, which standards are based on hydrogen sulfide levels, LPSCO is aware that occasional, unpleasant odors are still noticeable to the occupants of commercial spaces in close vicinity of the PVWRF. Some of these odors are caused by hydrogen sulfide gas levels that are below regulatory limits but still detectable and some are due to various non regulated gaseous compounds. LPSCO is proceeding as expeditiously as possible to further reduce these odors to more acceptable levels to the surrounding community.

Root Cause of Odors in April

The root cause of the odor problems in April 2007 was a mechanical problem at PVWRF which was exacerbated by occasional septic conditions in lift stations and the need to increase the air delivery into the digesters. More details are given in the letter report of June 11, 2007 from one of LPSCO's prime consultants, McBride Engineering Solutions Inc. (MES), which is included as Attachment A to this letter.

Steps Taken by LPSCO to Rectify the Situation

The steps LPSCO has taken to rectify the situation are also described in the attached letter report of June 11, 2007 from MES. These include the addition of a granulated active carbon (GAC) unit, odor control of influent, addition of an aeration system at a lift station, addition of chemical (BioCope) at two lift stations, centrifuge repairs, use of additional chemical scrubbing, full scale ion exchange system (pilot), aeration blower capacity enhancement, HVAC modifications in the

solids handling building and removal of the sludge digestion process.

Current Schedule for Completion of Phase 2

The current schedule for completion of various odor reduction initiatives in Phase 2 is given in the attached letter report of June 11, 2007 from MES. It is scheduled to have the work completed by the end of 2007.

It should be noted that if the pilot installation of the ion-exchange system performs as predicted by the supplier, the amount of upsizing of the chemical scrubbers in Phase 2 may be reduced with significant cost savings to the ratepayers. The total budget for Phase 1 and Phase 2 odor reduction work is **$2.0 million** which could be reduced to **$1.3 million** with effective performance of the ion-exchange system.

Air Quality Monitoring

LPSCO retains an independent consultant (Lambtech) to conduct fence line monitoring at the PVWRF at intervals of several months. A copy of the report for the monitoring conducted on March 7, 2007 is included as Attachment B to this letter. The report shows that fence line levels of hydrogen sulfide ranged between 7 and 11 parts per billion (ppb), well below the regulatory limit of 30 ppb over ½ hour. The normal accepted level of detection of hydrogen sulfide by the human nose is 8 ppb. The latest fence line monitoring was conducted on May 25, 2007 and it has been verbally reported by Lambtech that the results are similar, ranging between 6 and 11 ppb of hydrogen sulfide.

LPSCO distributed on March 6, 2007 Odor Survey forms to 23 commercial establishments that are in the vicinity of the PVWRF. A report on the process and results for the months of March, April and May are included as Attachment C to this letter. There has been a steady decline in the number of responses, despite the excursion in April caused by problems with the centrifuge.

LPSCO has installed a pilot hydrogen sulfide odor logger (Diacom) which is capable of continuous monitoring. After completion of testing of this pilot odor logger, units will be installed on the four sides of the PVWRF.

Next Community Liaison Committee Meeting

LPSCO has scheduled the next Community Liaison Committee (CLC) Meeting to be held at the PVWRF at 5:30 PM on Thursday, June 28, 2007.

Yours very truly,
LITCHFIELD PARK SERVICES CO.

Robert Dodds

Robert B. Dodds, Ph.D., P. Eng.
President

cc. Chairman Mike Gleason
Commissioner William A. Mundell
Commissioner Jeff Hatch-Miller
Commissioner Gary Pierce
Shawn Bradford, City of Goodyear
Marlin Scott Jr., Engineering Division Arizona Corporation Commission
Jay Shapiro, Esq.

ATTACHMENT A

Report from McBride Engineering Solutions

MCBRIDE ENGINEERING SOLUTIONS, INC.
7305 W. Boston Street
Chandler, AZ 85226

Principal
Brian P. McBride, P.E.

June 11, 2007

Robert B. Dodds
President
Algonquin Water Resources of America
12725 West Indian School Road
Avondale, Arizona 85232

Re: LPSCO Palm Valley WRF
Question from the ACC Regarding Odor Control Measures
(ACC Docket No. SW-01428A-05-0022; SW-01428A-06-0444)

Dear Mr. Dodds:

We have reviewed the letter from ACC Commissioner Kris Mayes regarding a follow-up to the odor issues at the Palm Valley Water Reclamation Facility. As Algonquin's engineering consultant currently contracted to evaluate additional odor control abatement measures and to assist in immediate implementation of all viable measures, we would like to help summarize the current and planned activities in response to the first three of Commissioner Mayes' questions. The following summary is intended to provide answers to those questions, in the order they were presented.

1) "First, after a more detailed review, has the Company determined the root cause of the odor problems in April?"

Based on the investigations by MES and other consultants retained by Algonquin, it is evident that there were a number of factors that contributed to the acute odor issues experienced at the facility in April. The factors that have been identified are summarized as follows:

- Flows into the influent manhole at the plant from the Casitas and Sarival Lift Stations appear to have had unusually high levels of hydrogen sulfide and other odorous compounds that have periodically overwhelmed the existing scrubber system.
- Mechanical problems with the existing centrifuge prevented the removal of enough digested sludge to keep the biomass concentrations at proper levels. With elevated biomass levels the digester process has been difficult to control and apparently experienced a brief upset condition in April 2007 that generated odors that would not be present under normal conditions.
- At some point in the past the air blowers for the digesters were mechanically modified to reduce the amount of air they could produce, presumably to accommodate lower flow conditions when the facility was well below its design capacity. The reduced air flow contributed to the upset conditions in the digester by restricting the amount of air that could be introduced.

2) "Second, what steps has the company taken to rectify the situation?"

Based on the review and recommendations of the LPSCO operations staff, MES, and other consultants retained by Algonquin, the following measures have been or are in the process of being implemented:

A. Granular Activated Carbon Scrubber Addition (Phase 1)

To prevent future odor releases due to high odor levels overwhelming the existing scrubber system, a 16,000-scfm granular activated carbon (GAC) scrubber was added to the exhaust of the existing scrubber system. The GAC scrubber was designed to capture all odors that pass through the existing system during high-odor periods. The installation of this unit (formerly referred to as Phase 1) is intended to enable successful performance of the existing odor control scrubber system until additional chemical scrubber units (formerly referred to as Phase 2 – see paragraph D below) can be designed and installed.

B. Influent Odor Control Measures

To reduce the amount of odors coming into the facility from the collection system, a temporary system to add an odor control compound was installed at the Casitas Lift Station and at the Palm Valley WRF influent manhole. The odor control additive compound being utilized is BioCope, a chemical that has already been successfully used to mitigate odors in the collection system of Agonquin's Black Mountain Sewer Company in Cave Creek.

It is expected that the installation of this system in May 2007, along with an aeration mixing system installed at the Sarival Lift station, will significantly reduce the odors carried to the WRF with the raw wastewater influent. In addition, BioCope is designed to break down the fats, oils, and grease (FOGs) that are significant contributors to odor generation in the plant processes. Figure B-1 is a schematic showing how these measures have been implemented.

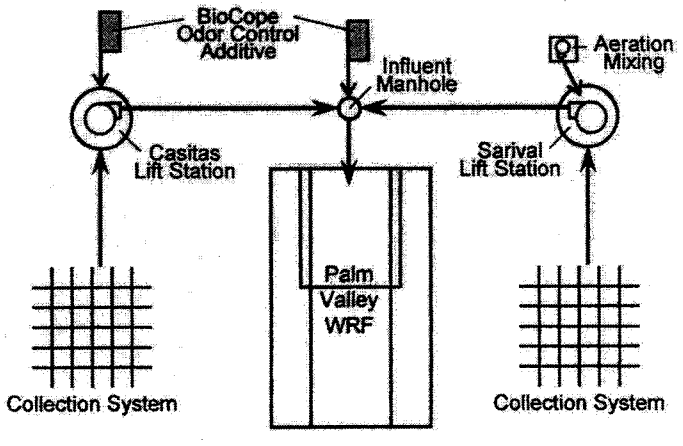


Figure B-1. Influent Odor Control Measures Schematic

C. Temporary and Permanent Centrifuge Additions

As stated above, mechanical issues with the existing centrifuge at the plant have made it difficult to remove enough sludge to keep the digester biomass concentrations at ideal levels. To rectify this situation, Algonquin is in the process of procuring a new sludge dewatering centrifuge with nearly three times the capacity of the existing unit. However, the procurement and installation of a new unit of this size will take approximately 5-6 months. Therefore, to enable sufficient dewatering capability until the new unit is installed Algonquin plans to install a temporary skid-mounted centrifuge. It is expected that this unit will be installed by August 2007.

D. Construction of Additional Chemical Scrubbing Capacity (Phase 2)

Because the existing chemical scrubbers have not been able to sufficiently exhaust and remove odors from the existing facilities, Algonquin has retained Carollo Engineers to plan and design additional chemical-based scrubbers and ductwork (Phase 2) to supplement the existing system. It is expected that the new scrubbers will be constructed and brought online by the fourth quarter of 2007.

E. Full-Scale Ion Exchange System Pilot

In the near-term, Algonquin has authorized a full-scale pilot test by IonStein, Inc. to install and test an ion-exchange odor-control system at the facility. The plan is to significantly reduce the load on the existing scrubbers by dedicating them exclusively to the below-grade process tanks (influent wet well, anoxic basin, SBR basins, ATAD basins, and digester basins), and then using the ion exchange facility to treat the air in the above-grade buildings (headworks and blower building, office and maintenance building, solids handling building, and UV disinfection building). It is anticipated that this system will be functional by July 2007. Figure E-1 is a schematic depicting how the system would be configured during the full-scale pilot.

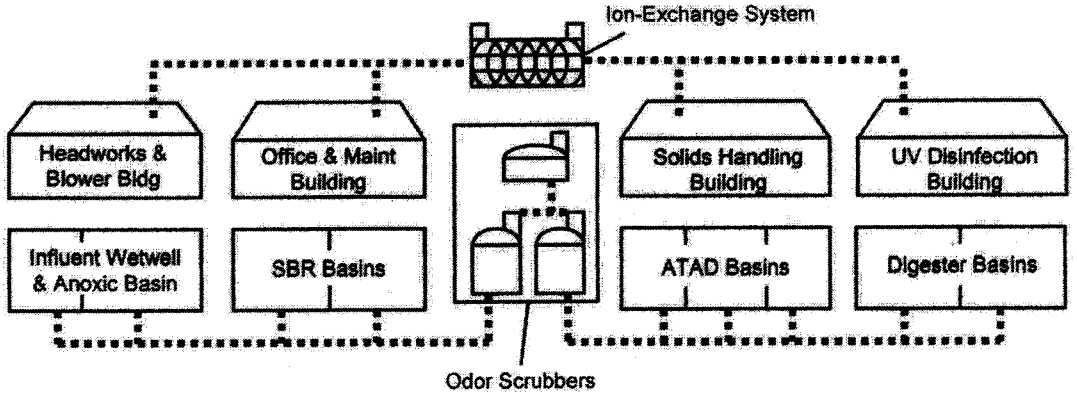


Figure E-1. Odor Control Schematic for Ion-Exchange System Pilot

F. Aeration Blower Capacity Enhancement

It appears that, to accommodate low-flow conditions, the air capacity of the blower system for the digesters was reduced by mechanically modifying the equipment. This

reduction has made it difficult to supply sufficient air to the system to offset the increase in biomass due to the mechanical problems with the dewatering centrifuge. Once this situation was identified, Algonquin took immediate steps to have the blower equipment modified to restore the original design capacity. The modifications were implemented in May 2007.

G. Solids Handling Building HVAC Modifications

Under current conditions, during periods when odor generation is elevated in the digesters, the air within the solids handling building becomes highly odorous. This air is then able to escape the room into the surrounding environment when the evaporative coolers on the roof are used to cool the room. The large amount of air that is introduced into the room by the evaporative coolers lessens the ability of the existing odor control unit to create a negative pressure within the room to hold the air in when doors are opened. Therefore, Algonquin has retained an engineer to redesign the HVAC system for the room to replace the evaporative coolers with air conditioning (a/c) units. While more expensive to operate, the a/c units would keep the air significantly cooler while introducing much less air into the room.

It is anticipated that the new HVAC system with the a/c units will be designed and constructed by August 2007. In the meantime, the LPSCO operations staff is in the process of leasing temporary a/c units that are scheduled to be installed as early as June 2007.

H. Removal of Sludge Digestion Process

In January 2007 Algonquin retained MES to design and implement a series of modifications to the WRF to enhance the overall operability and performance of the plant. In May of 2007 Algonquin awarded the construction project under a Construction Manager at Risk format to DL Norton General Contracting. As part of the project, Algonquin made the decision to remove the entire sludge digestion process from the facility. Following the improvement, the waste sludge will be directly dewatered and then sent to a landfill rather than being digested to Class B standards. Removing the digestion process will eliminate one of the largest sources of potential odors at the plant. It is anticipated that the improvements will be completed by December 2007.

3) **"Third, what is the current schedule for the completion of Phase 2? Additionally, what is the status of the feasibility studies for the additional odor control abatement and control measures that you cited in you April 30, 2007 email to Staff?"**

The anticipated schedule can be summarized as follows:

Granular Activated Carbon Scrubber Addition (Phase 1)	Implemented
Influent Odor Control Measures	Implemented
Temporary Centrifuge Installation	August 2007
Permanent Centrifuge Installation	December 2007
Additional Chemical Scrubbing Capacity (Phase 2)	December 2007
Aeration Blower Capacity Enhancement	Implemented
Solids Building Temporary A/C Units	June 2007
Full-Scale Ion Exchange System Pilot	July 2007
Solids Building Permanent A/C Units	August 2007
Removal of Sludge Digestion Process	December 2007

We hope that the detailed summary provided above will be helpful in responding to the questions posed by Commissioner Mayes. If you have any questions regarding this summary, please feel free to contact me.

Sincerely,

Brian P. McBride, P.E.
Principal
McBride Engineering Solutions, Inc.

cc: Tom Nichols, Algonquin Water Services; Matt Andros, MES

ATTACHMENT B

Air Monitoring Report From Lambtech

Test Information

Test Location:	LPSCO/Palm Valley WRF 14222 W. McDowell Rd. Goodyear, AZ 85338
Report Mailed To:	Litchfield Park Service Co. (LPSCO) 14222 W. McDowell Rd. Goodyear, AZ 85338
Process Type:	Wastewater treatment with solids processing
Process Control Equipment:	
Solids Building	U.S. Filter/R.J. Environmental Multi-Stage Scrubber Capacity 6,000 CFM
Headworks Building	U.S. Filter/R.J. Environmental Multi-Stage Scrubber Capacity 10,000 CFM
Regulations:	No more than 0.030 PPM hydrogen sulfide at the fenceline over a 30-minute period
Test Date:	March 7, 2007
Project Participants:	Edward A. Lamb, President LambTech — Independent Test Firm Matthew Garlick Litchfield Park Service Co. — Wastewater Regional Manager

Summary of Results

Fenceline testing was completed to test specifications over a one-day period. Fifty (50) samples were taken: 15 samples on the north and south side of the facility, and 10 samples at the east and west side of the facility. Concentrations ranged from 0.006 PPM to 0.011 PPM. No concentrations approached the 0.030 PPM average over 30-minute fenceline hydrogen sulfide regulation. Background hydrogen sulfide concentrations were somewhat elevated averaging 0.007 PPM-0.008 PPM due to poor ambient air quality.

Fenceline concentrations were collected and analyzed directly using a Jerome 631X Hydrogen Sulfide Analyzer (range 0.001 PPM – 50 PPM) approximately once every minute. The Jerome analyzer was calibrated by the factory within 150 days of the performance test, and was verified before and after the test to correlate with a certified 5-PPM hydrogen sulfide source. No errors or anomalies were recorded during the test period. Please refer to the following graphs and spreadsheets for details of the fenceline test data.

Process Control Equipment Information

N/A

System Capacity

N/A

Test Methods - Fenceline

Fenceline concentrations were measured directly once per minute, with 15 samples on the north and south side of the facility, and 10 samples at the east and west side of the facility A Jerome 631X Hydrogen Sulfide Analyzer, manufactured by Arizona Instrument, Inc., was used for this testing. The Jerome 631X's maximum accuracy is +/- 0.003 PPM under 0.10 PPM; above 0.10 PPM the accuracy is 5%.

Wind direction and approximate wind speed were recorded during the test.

No variation of the initial procedures was needed. The test was completed as specified.

Palm Valley WRF
Fenceline Survey March 7, 2007
Wind Direction: Northeast to Southwest @ 3-5 mph

South Fence H_2S Concentrations		West Fence H_2S Concentrations		North Fence H_2S Concentrations		East Fence H_2S Concentrations	
1	0.007	1	0.008	1	0.007	1	0.007
2	0.007	2	0.007	2	0.007	2	0.007
3	0.008	3	0.008	3	0.006	3	0.007
4	0.008	4	0.008	4	0.007	4	0.007
5	0.008	5	0.008	5	0.007	5	0.007
6	0.007	6	0.011	6	0.007	6	0.007
7	0.007	7	0.010	7	0.007	7	0.007
8	0.007	8	0.008	8	0.008	8	0.008
9	0.007	9	0.009	9	0.007	9	0.008
10	0.007	10	0.008	10	0.008	10	0.007
11	0.007			11	0.008		
12	0.007			12	0.007		
13	0.007			13	0.007		
14	0.007			14	0.008		
15	0.007			15	0.007		
Avg.	**0.0072**	**Avg.**	**0.0075**	**Avg.**	**0.0072**	**Avg.**	**0.0072**
High	0.008	High	0.011	High	0.008	High	0.008
Low	0.007	Low	0.008	Low	0.006	Low	0.007

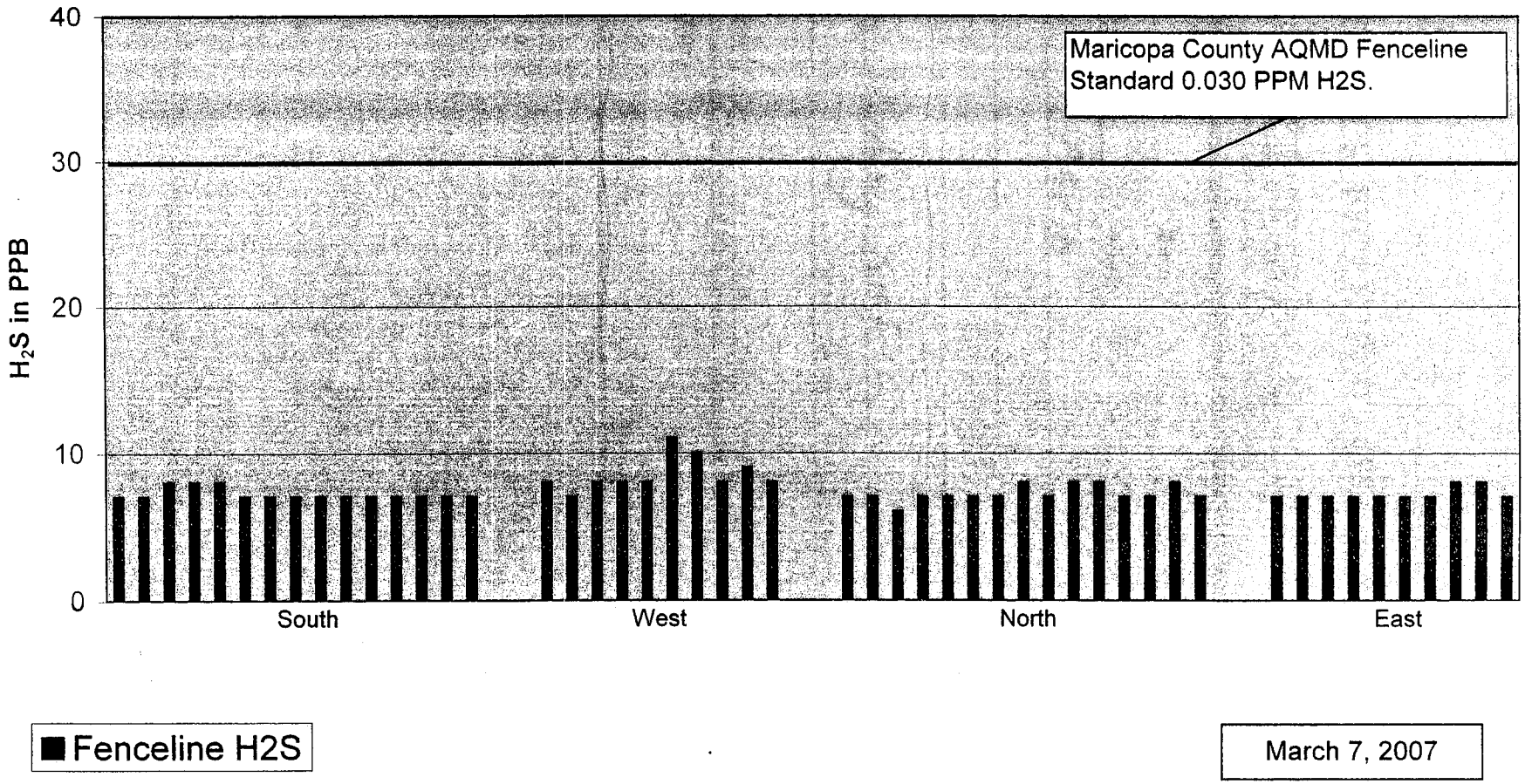
All Readings in Parts Per Million

#

Palm Valley WRF

(14222 W. McDowell Rd.) Fenceline Survey

PPB H_2S Versus Fenceline



ATTACHMENT C

Odor Survey Program

ALGONQUIN
WATER RESOURCES
OF AMERICA, INC.

Litchfield Park Service Company
Palm Valley Water Reclamation Facility

It is Palm Valley Water Reclamation Facility's goal to remain a high quality, well respected member of the business community and the areas served. As you are aware, the Palm Valley Water Reclamation Facility endeavors to minimize odors associated with the treatment of wastewater. The goal of this form is to help ensure that the facility staff is made aware of unforeseen odors as quickly and with as much information as possible. This form is to be used by area residents and business owners to solicit feedback about the facility.

Odor Survey

Today's Date: _____

Current Time: _____

Your Contact Name and Phone Number (Optional)

_____

Nearest Intersection to the observed odor:

_____

_____

_____

_____

1.) When did you smell the odor? (Please circle one)

Algonquin Water Services, LLC
12725 W. Indian School Rd, Suite D101
Avondale, AZ 85323

Ph: 623-935-9367
Fax: 623-935-1020

- Between midnight and 4:00 a.m.
- Between 4:00 a.m. and 8:00 a.m.
- Between 8:00 a.m. and noon.
- Between noon and 4:00 p.m.
- Between 4:00 p.m. and 8:00 p.m.
- Between 8:00 p.m. and midnight.

2.) Describe the odor?

_____

(Rotten Eggs, Chemical, Earthy, Offensive, Fishy, cabbage, manure, Old Garbage, Sunk like odor, other)

3.) Please rate the intensity of the odor on a scale from 1 to 5.

- Level 1- No Odor
- Level 2- Faint odor
- Level 3- medium odor
- Level 4- Strong odor
- Level 5- Very strong odor

4.) For how long did you notice the odor?

_____

(1 minute or less, 5-10 minutes, one hour, several hours, other)

5.) Was the odor continuous during the time you noticed it or did it come and go?

_____

6.) Did you note the wind direction at the time? (YES or NO) If YES, what was the direction?_____

7.) Was it obvious where the odor was coming from? (Please describe – i.e. sewer manhole cover, the plant, etc]

_____

8.) Is the odor emanating from inside your residence or business or outside your residence or business interior or exterior odor?

_____

9.) Was the odor detected while driving, if so where?

_____

10.) Did you notice anything unusual that might have caused the odor? (Please describe if possible)

_____

_____

_____

_____

Algonquin Water Services, LLC
12725 W. Indian School Rd, Suite D101
Avondale, AZ 85323

Ph: 623-935-9367
Fax: 623-935-1020

11.) Over the last month, how would you rate the effectiveness of odor control measures at the Palm Valley Water Reclamation Facility:

- Level 1- Excellent – No noticeable odors.
- Level 2- Good – Very faint odors
- Level 3- Fair - Occasional faint odors.
- Level 4- Poor - Strong odors
- Level 5- Very Poor - Very strong odors

Algonquin Water Services, LLC
12725 W. Indian School Rd, Suite D101
Avondale, AZ 85323

Ph: 623-935-9367
Fax: 623-935-1020

INTER – OFFICE CORRESPONDENCE

ALGONQUIN
WATER RESOURCES
OF AMERICA, INC.

To: Bob Dodds

From: Clint Arndt

CC: Matthew Garlick

Date: 6/12/2007

Re: Odor Surveys

On March 6, 2007 LPSCO started hand distributing odor surveys to 23 local businesses that are in the vicinity of the Palm Valley Water Reclamation Facility.

For the month of March we received seven surveys. The first survey received was on 3-7-07 from the Cutting Room and noted a Very Strong Odor. The second survey received was on 3-9-07 from Suncor that noted No Odor. The third survey received was on 3-12-07 from Lifetime Fitness and noted Faint Odor. The fourth survey received was on 3-20-07 from Suncor and noted No Odor. The fifth, sixth and seventh surveys received were on the 3-21-07 to 3-22-07 from Kirshbaum Tax, The Flower Store and Suncor and one noted Very Strong Odor and two noted Strong Odor. The cause of the odor on 3-21-07 to 3-22-07 was due to the Centrifuge failing and increased Digester levels. The Centrifuge was repaired and Digester levels were lowered.

The following is a breakdown of the surveys for the month of March.
Odor Intensity
2 = Level 1 – No Odor
1 = Level 2 – Faint Odor
0 = Level 3 – Medium Odor
2 = Level 4 – Strong Odor
2 = Level 5 – Very Strong Odor

Odor Control Effectiveness
2 = Level 1 – Excellent
1 = Level 2 – Good
1 = Level 3 – Fair
3 = Level 4 – Poor
0 = Level 5 – Very Poor

For the Month of April we received five surveys. The first survey received was on 4-13-07 from Suncor that noted Medium Odor. The Second survey received was on 4-19-07 from Suncor that noted Faint Odor. The third and fourth surveys were received on 4-20-07 one from Suncor and one from the Fairways both noted Strong odor. The fifth survey received was on 4-26-07 from Suncor and noted Medium Odor. The cause of many of these odor complaints again was due to mechanical failures with the Centrifuge and elevated tank levels and temperatures.

The following is a breakdown of the surveys for the month of April.

Odor Intensity
0 = Level 1 – No Odor
0 = Level 2 – Faint Odor
2 = Level 3 – Medium Odor
3 = Level 4 – Strong Odor
0 = Level 5 – Very Strong Odor

Odor Control Effectiveness
0 = Level 1 – Excellent
1 = Level 2 – Good
2 = Level 3 – Fair
2 = Level 4 – Poor
0 = Level 5 – Very Poor

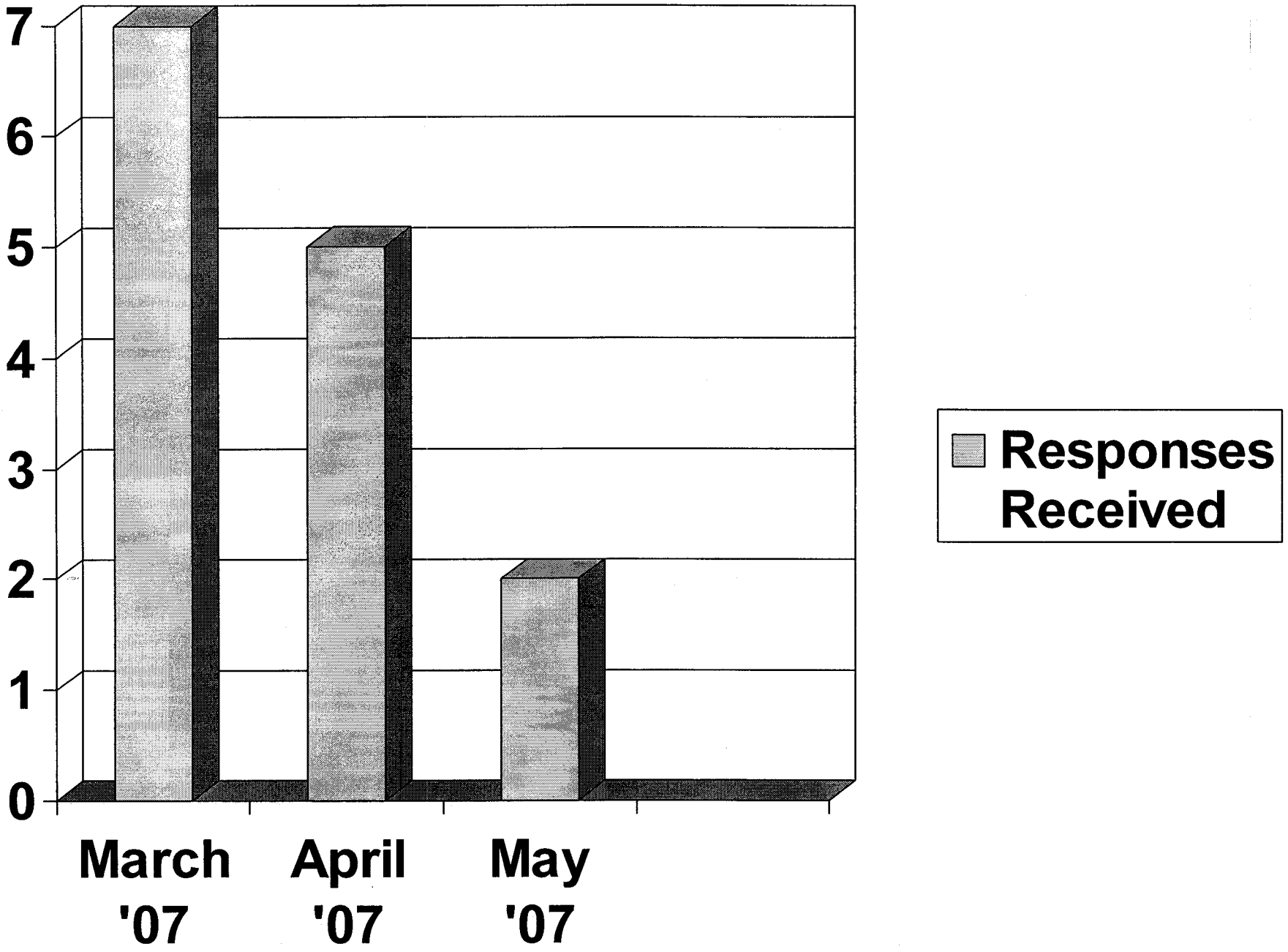
For the Month of May we received two surveys. Both were received on 5-2-07 one was from The Fairways and noted Strong Odor and the second was from Suncor and noted Medium Odor. These odors were again due to high Digester levels and increased tank temperatures.

The following is a breakdown of the surveys for the month of May.
Odor Intensity
0 = Level 1 – No Odor
0 = Level 2 – Faint Odor
1 = Level 3 – Medium Odor
1 = Level 4 – Strong Odor
0 = Level 5 – Very Strong Odor

Odor Control Effectiveness
0 = Level 1 – Excellent
0 = Level 2 – Good
0 = Level 3 – Fair
0 = Level 4 – Poor
0 = Level 5 – Very Poor

We have not received any surveys in the last several weeks. We are currently in the process of installing odor logging equipment on all four sides of the Palm Valley Water Reclamation Facility; this should be on line in the next 10 days. I have also attached one of the latest Odor monitoring reports from LambTech. Let me know if there is any additional information you may need.

SENT VIA: **Hand Delivered**
COPY TO: **File**


7
6
5
4
3
2
1
0
March '07
April '07
May '07
Responses Received

Responses By Intensity