



COMMUNITY MONITOR COMMITTEE

Altamont Landfill Settlement Agreement

*** The Public is Welcome to Attend***

VOTING MEMBERS

Laureen Turner
City of Livermore

Cindy McGovern
City of Pleasanton

Donna Cabanne
Sierra Club

David Tam
Northern California
Recycling Association

NON-VOTING MEMBERS

Marcus Netz II
Waste Management
Altamont Landfill and
Resource Recovery
Facility

Wing Suen
Alameda County

Robert Cooper
Altamont Landowners
Against Rural
Mismanagement (ALARM)

STAFF

Judy Erlandson
City of Livermore
Public Works Manager

AGENDA

DATE: **Wednesday, April 18, 2012**
TIME: **4:00 p.m.**
PLACE: City of Livermore
Maintenance Services Division
3500 Robertson Park Road

1. Call to Order
2. Introductions
3. Roll Call
4. Approval of Minutes (Minutes from January 11, 2012)
5. Open Forum This is an opportunity for members of the audience to comment on a subject not listed on the agenda. No action may be taken on these items.
6. Matters for Consideration
 - 6.1 **Responses to CMC Member Questions (ESA)**
 - 6.2 **2008-2011 Budget and Expenditures for Community Monitor (City of Livermore Staff)**
 - 6.3 **Review of Reports from Community Monitor (ESA)**
 - 6.4 **Review of Reports Provided by ALRRF: MMRP Annual Progress Report, Title V (Air Quality) Semi-Annual and Partial Annual Report, Groundwater Monitoring Report (ESA)**
7. Agenda Building

This is an opportunity for the Community Monitor Committee Members to place items on future agendas.
8. Adjournment

The next regular Community Monitoring Committee meeting will take place at 4:00 p.m. on **June 13, 2012** at 3500 Robertson Park Road, Livermore.

Informational Materials:

- Community Monitor Roles and Responsibilities
- List of Acronyms
- Draft Minutes of January 11, 2012
- Reports from ESA, City Staff, and Treadwell & Rollo

City of Livermore
TDD (Telecommunications for the Deaf)
(925) 960-4104

PURSUANT TO TITLE II OF THE AMERICANS WITH DISABILITIES ACT (CODIFIED AT 42 UNITED STATES CODE SECTION 12101 AND 28 CODE OF FEDERAL REGULATIONS PART 35), AND SECTION 504 OF THE REHABILITATION ACT OF 1973, THE CITY OF LIVERMORE DOES NOT DISCRIMINATE ON THE BASIS OF RACE, COLOR, RELIGION, NATIONAL ORIGIN, ANCESTRY, SEX, DISABILITY, AGE OR SEXUAL ORIENTATION IN THE PROVISION OF ANY SERVICES, PROGRAMS, OR ACTIVITIES. TO ARRANGE AN ACCOMMODATION IN ORDER TO PARTICIPATE IN THIS PUBLIC MEETING, PLEASE CALL (925) 960-4586/4582 (VOICE) OR (925) 960-4104 (TDD) AT LEAST 72 HOURS IN ADVANCE OF THE MEETING.

The Community Monitor Committee Agenda and Agenda Reports are prepared by City staff and are available for public review on the Thursday prior to the Community Monitor Committee meeting at the Maintenance Service Center, located at 3500 Robertson Park Road, Livermore. The Community Monitor Committee Agenda is available for public review at the Civic Center Library, located at 1188 S. Livermore Avenue, Livermore, and on the bulletin boards located outside City Hall, located at 1052 S. Livermore Avenue, Livermore, and the Maintenance Service Center.

Under Government Code §54957.5, any supplemental material distributed to the members of the Community Monitor Committee after the posting of this Agenda will be available for public review upon request at 3500 Robertson Park Road., Livermore or by contacting us at 925-960-8000.

If supplemental materials are made available to the members of the Community Monitor Committee at the meeting, a copy will be available for public review at the Maintenance Service Center, at 3500 Robertson Park Road, Livermore

Community Monitor Committee Roles and Responsibilities

Below is a summary of the duties and responsibilities of the Community Monitor Committee and related parties as defined by the Settlement Agreement between the County of Alameda, the City of Livermore, the City of Pleasanton, Sierra Club, Northern California Recycling Association, Altamont Landowners Against Rural Mismanagement, and Waste Management of Alameda County, Inc. The purpose of this document is to aid in determining if discussion items are within the scope of the Community Monitor Committee.

Community Monitor Committee's Responsibilities

Under Settlement Agreement section 5.1.2, the CMC is responsible for supervising and evaluating the performance of the Community Monitor as follows:

- A. Interviewing, retaining, supervising, overseeing the payment of, and terminating the contract with the Community Monitor;
- B. Reviewing all reports and written information prepared by the Community Monitor; and
- C. Conferring with the Community Monitor and participating in the Five Year Compliance Reviews (next due 8/22/2010) and the Mid-Capacity Compliance Review (due when the new cell is constructed and capacity is close to 50%, unlikely to occur before 2028) (Condition number 6 of Exhibit A of the Agreement).

Community Monitor's Responsibilities

The Community Monitor supplements and confirms the enforcement efforts of the County Local Enforcement Agency. The Community Monitor is primarily responsible for:

- A. Reviewing any relevant reports and environmental compliance documents submitted to any regulatory agency (sections 5.7.1, 5.7.2, and 5.7.3);
- B. Advising the public and the Cities of Livermore and Pleasanton about environmental and technical issues relating to the operation of the Altamont Landfill via the CMC (section 5.7.4);
- C. Presenting an annual written report summarizing the Altamont Landfill's compliance record for the year to the CMC and submitting the report to Alameda County and the Cities of Livermore and Pleasanton (section 5.7.5);
- D. Notifying the County Local Enforcement Agency and Waste Management of Alameda County of any substantial noncompliance findings or environmental risk (section 5.7.6);
- E. Monitoring and accessing the Altamont Landfill site and conducting inspections (section 5.7.7);
- F. Counting trucks arriving at the Altamont Landfill (section 5.7.8); and
- G. Reviewing waste testing data and source information (section 5.7.9).

Waste Management of Alameda County's Responsibilities

Per the settlement agreement, Waste Management is responsible for:

- A. Paying for the services of the Community Monitor, based on an annual cost estimate (section 5.3.3).
- B. Paying an additional 20% over the annual cost estimate if warranted based on "credible evidence" (section 5.3.3).

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List of Acronyms

Below is a list of acronyms that may be used in discussion of waste disposal facilities. These have been posted on the CMC web site, together with a link to the CIWMB acronyms page:

<http://www.ciwmb.ca.gov/LEACentral/Acronyms/default.htm>.

Updates will be provided as needed. This list was last revised on **December 21, 2011; the most recent revisions are highlighted.**

Agencies

ACWMA – Alameda County Waste Management Authority
ANSI – American National Standards Institute
ARB or CARB – California Air Resources Board
ASTM – American Society for Testing and Materials
BAAQMD – Bay Area Air Quality Management District
CDFG or DFG – California Department of Fish and Game
CDRRR – California Department of Resources Recycling and Recovery, or CalRecycle
CIWMB – California Integrated Waste Management Board (predecessor to CDRRR – see above)
CMC – Community Monitor Committee
DWR – Department of Water Resources
LEA – Local Enforcement Agency (i.e., County Environmental Health)
RWQCB – Regional Water Quality Control Board
SWRCB – State Water Resources Control Board

Waste Categories

C&D – construction and demolition
CDI – Construction, demolition and inert debris
FIT – Fine materials delivered to the ALRRF, measured by the ton.
GSET – Green waste and other fine materials originating at the Davis Street Transfer Station, for solidification, externally processed.
GWRGCT – Green waste that is ground on site and used for solidification or cover (discontinued January 2010)
GWSA – Green waste slope amendment (used on outside slopes of the facility)
MSW – Municipal solid waste
RDW – Redirected wastes (received at ALRRF, then sent to another facility)
RGC – Revenue generating cover

Substances or Pollutants

ACM – asbestos-containing material
ACW – asbestos-containing waste
ADC – Alternative Daily Cover. For more information: <http://www.ciwmb.ca.gov/lqcentral/basics/adcbasic.htm>
BTEX – benzene, toluene, ethylbenzene, and xylene (used in reference to testing for contamination)
CH₄ – methane
CO₂ – carbon dioxide
DO – dissolved oxygen
HHW – household hazardous waste
LFG – landfill gas
LNG – liquefied natural gas
MTBE – methyl tertiary butyl ether, a gasoline additive
NMOC – Non-methane organic compounds
NTU – nephelometric turbidity units, a measure of the cloudiness of water
RL – reporting limit: in groundwater analysis, for a given substance and laboratory, the concentration above which there is a less than 1% likelihood of a false-negative measurement.
TCE - Trichloroethylene
TDS – total dissolved solids
TKN – total Kjeldahl nitrogen
VOC – volatile organic compounds

Documents

CCR – California Code of Regulations (includes Title 14 and Title 27)

CoIWMP – County Integrated Waste Management Plan

CUP – Conditional Use Permit

JTD – Joint Technical Document (contains detailed descriptions of permitted landfill operations)

MMRP – Mitigation Monitoring and Reporting Program

RDSI – Report of Disposal Site Information

RWD – Report of Waste Discharge

SRRE – Source Reduction and Recycling Element (part of CoIWMP)

SWPPP – Stormwater Pollution Prevention Plan

WDR – Waste Discharge Requirements (Water Board permit)

General Terms

ALRRF – Altamont Landfill and Resource Recovery Facility

ASP – Aerated Static Pile composting involves forming a pile of compostable materials and causing air to move through the pile so that the materials decompose aerobically.

BGS – below ground surface

CEQA – California Environmental Quality Act

CQA – Construction Quality Assurance (relates to initial construction, and closure, of landfill Units)

CY – cubic yards

GCL – geosynthetic clay liner

GPS – Global Positioning System

IC engine – Internal combustion engine

LCRS – leachate collection and removal system

LEL – lower explosive limit

mg/L – milligrams per liter, or (approximately) parts per million

µg/L – micrograms per liter, or parts per billion

PPE – personal protective equipment

ppm, ppb, ppt – parts per million, parts per billion, parts per trillion

RAC – Reclaimable Anaerobic Composter – a method developed by Waste Management, Inc., to place organic materials in an impervious containment, allow them to decompose anaerobically, and extract methane during this decomposition.

SCF – Standard cubic foot, a quantity of gas that would occupy one cubic foot if at a temperature of 60°F and a pressure of one atmosphere

SCFM – standard cubic feet per minute, the rate at which gas flows past a designated point or surface

STLC – Soluble Threshold Limit Concentration, a regulatory limit for the concentrations of certain pollutants in groundwater

TTLC – Total Threshold Limit Concentration, similar to STLC but determined using a different method of analysis

TPD, TPM, TPY – Tons per day, month, year

WMAC – Waste Management of Alameda County



COMMUNITY MONITOR COMMITTEE

Altamont Landfill Settlement Agreement

Minutes of January 11, 2012

DRAFT

1. Call to Order
The meeting came to order at 4:04 p.m.

2. Roll Call

Members Present:	Laureen Turner; Cindy McGovern; Donna Cabanne; David Tam; Wing Suen, Alameda County Local Enforcement Agent ; and Tianna Nourot, Waste Management Altamont Landfill and Resource Recovery Facility.
Absent:	Robert Cooper, Altamont Landowners Against Rural Mismanagement
Staff:	Judy Erlandson, City of Livermore Public Works Department; Kelly Runyon, ESA, Community Monitor
Others:	none

3. Introductions
Brief self-introductions were made.

At the suggestion of Ms. Erlandson, the Agenda was reordered.

6. Matters for Consideration
 - 6.1 Election of Chair (City of Livermore staff)
Ms. Erlandson explained that the Settlement Agreement of November 30, 1999 does not require the selection of a Committee Chairperson, but a Chairperson can be helpful in managing the meeting and in providing structure for discussion. She further explained that the nominated Chairperson would need to receive three votes to be selected. Ms. McGovern suggested that the City of Livermore representative is best suited for the Chairperson position because of the proximity of that City to the ALRRF. This was moved by Ms. McGovern and seconded by Ms. Cabanne. The motion was adopted unanimously.

4. Approval of Minutes
On the motion of Mr. Tam, seconded by Ms. McGovern, and carried by a vote of 3-0, with Ms. Turner abstaining, the minutes of the meeting of October 12 were approved. In discussion, Ms. McGovern asked if the emission test results cited as pending, in those minutes, had been received. Mr. Runyon explained that they would be received this month (January); and Ms. Nourot added that the equipment scheduled for testing had passed the tests.

5. Open Forum

There was no Open Forum discussion.

6. Matters for Consideration

6.2 Responses to CMC Members' Questions (City of Livermore staff; ESA)

Ms. Erlandson presented a staff memo in response to Members' interest in groundwater quality at the ALRRF site prior to development of the landfill. Specifically, this was in response to former Chair Williams' question about whether this issue is within the purview of the Committee and the Community Monitor. Staff's opinion is that this question is within the CMC's purview if it is relevant to a current regulatory or permitting issue at the landfill; however there is no such issue at this time. Ms. McGovern asked if the Community Monitor has, or would want, this information to help in evaluating current test results. Mr. Runyon responded by stating that the historic data available in monitoring reports, while not dating back to pre-development, provides enough information for the Community Monitor's groundwater specialists (Treadwell and Rollo) to determine if a groundwater contamination problem is occurring. Ms. McGovern and Ms. Cabanne reiterated their concern about groundwater quality. Ms. McGovern suggested that placing the subject on a future agenda could be discussed further during the Agenda Building portion of the meeting.

Mr. Runyon then addressed other Committee members' questions from the previous meeting. He also provided information that had been forwarded by Marcus Netz II, ALRRF Manager, responding to certain questions regarding operations.

6.3 Review of Reports from Community Monitor (ESA)

Mr. Runyon discussed several issues that had arisen at the ALRRF in recent months. Regarding the apparent presence of municipal solid waste (MSW) in certain cover material (MRF fines) received at the landfill, Ms. Cabanne asked if the LEA was satisfied with the 10% tolerance level proposed in the response submitted by the ALRRF. Ms. Suen said that she would check on the LEA's position on this; she also said that in more recent inspections, this problem has not been evident. In response to further discussion, Mr. Runyon stated that he would follow up on the acceptability of the 10% tolerance level.

In November, several vehicular accidents occurred at the landfill, generally involving trucks from outside companies; and in December, very high north winds occurred at the beginning of the month, causing windblown litter to be spread southward.

Mr. Runyon mentioned that tonnage data for the past three months had no discrepancies. He also pointed out that the problem of a leaky water valve in a water truck had been rectified.

Ms. McGovern asked how contaminants are being kept out of MRF fines, and Ms. Nourot described measures taken at the Davis Street transfer station, where MRF fines are produced.

Mr. Runyon mentioned that at his last (December) inspection, the windblown litter from early December was in the process of being picked up. Ms. Nourot also mentioned that ALRRF staff pick up litter along Altamont Pass Road on a regular basis.

Referring to the ALRRF recently working to lower one portion of the landfill, Ms. McGovern asked how the landfill controls the height of refuse placement. Ms. Nourot described the process, which involves surveyors and an engineer who monitor heights using surveying equipment. Ms. Cabanne asked if the excessive height was greater than the permitted final height of the landfill. Mr. Runyon replied that he did not believe so. Ms. Cabanne asked that the Committee be advised when the problem has been completely rectified.

In further discussion of windblown litter, Ms. Nourot mentioned that the ALRRF is preparing to add more moveable fence for the area immediately adjacent to the tipping area / working face.

Ms. McGovern asked about the mention of green vegetation on one area of the landfill. Mr. Runyon replied that he would look into it further to try to determine the reason for it.

Mr. Runyon also described the tonnage graphs; there were no questions.

6.4 Review of Reports Provided by ALRRF: Winterization Plan

Mr. Runyon briefly described the winterization plan that the ALRRF prepared in late 2011. Ms. Cabanne asked if, due to dry weather, dust control was part of the winterization plan. Mr. Runyon replied that dust control is addressed by air permits and the winterization plan focuses on stormwater controls.

6.5 2011 Annual Report (ESA)

Committee members questioned and discussed several sections of the report:

Mr. Tam remarked, in connection with section 1.3.1 (page 37), that there is plentiful landfill capacity in the Bay Area. He also mentioned the potential effect of AB341.

Ms. Cabanne, referring to page 32, asked for notice when Fill Area 2 is about to be developed; Mr. Runyon agreed to let the Committee know if development activities have been calendared. Referring to page 37, Ms. Cabanne asked for a delineation of the Conservation Plan area. Mr. Runyon replied that the cover of the 2010 Annual Report had a map, which remains accurate, showing that area. He agreed to place that map in the next Annual Report for future reference.

Ms. McGovern remarked that she is pleased with the final acreage of the Conservation Plan area (991.6 Acres). She asked that the open question about the Notice of Violation be resolved and stated in this Annual report if possible.

She also noted that section 2.3.1, re groundwater, heightens her interest in groundwater protection at the site. She further noted that on page 43 of 48, two inspections were performed with the LEA, although the Scope of Work states that 4 to 6 such joint inspections should occur each year. Mr. Runyon responded that this was an oversight which he would correct in 2012.

Ms. McGovern asked if there will be a need to adjust the budget if work increases due to startup of Fill Area 2. Mr. Runyon replied that in recent years, the amounts billed have been well below the allocated budget; and the Settlement Agreement does not appear to contain a mechanism for increasing the CM's budget, beyond a built-in CPI adjustment. After further discussion, Ms. McGovern asked that City staff provide a recap of annual budget amounts and expenditures in recent years.

Ms. Cabanne asked about the proposed MRF and composting operations: would it replace the Davis Street operation, and would it entail further work for the Community Monitor? Ms. Nourot replied that Davis Street would continue to operate. Mr. Runyon stated that when permits are issued for the MRF and composting operations, the ALRRF's compliance reports will be reviewed by the Community Monitor, and that this is unlikely to cause a budget problem.

Regarding the proposed CUP changes, in response to a question from Ms. Suen, Ms. Nourot mentioned that issues are still being resolved with the Fire Department.

Mr. Tam asked that Mr. Netz's previous remark that the capacity of Fill Area 2 is about 30 years, be considered for inclusion in the Annual Report.

Ms. Cabanne asked about the shutdown of a gas well for high temperature, as described on page 2-4: was the well restarted, or replaced? Mr. Runyon replied that he will check if other nearby wells can perform the function of that well.

Ms. Cabanne also asked that the significance of the RWQCB's concern regarding dead vegetation on the landfill be addressed.

Committee members stated that they would have no further comments.

7. Agenda Building

Regarding information on historical groundwater quality, Ms. Erlandson asked if the Committee wished to place this topic on the agenda for the next meeting. Mr. Tam moved, and Ms. Cabanne seconded, the motion to that effect. Ms. Nourot stated that she agreed with the staff finding that this issue is not within the Community Monitor's scope at this time.

Ms. Turner asked about the amount of time that would be needed for ESA to look into this question. Mr. Runyon stated that this is difficult to estimate because the landfill was first developed prior to Waste Management's ownership and was likely under less stringent permit requirements than at present. He expressed some doubt that pre-development groundwater data could be found at all. He stated that in total, such an effort might require one to two full days of work.

Ms. Turner asked if it would be easy to look back at water quality when Waste Management took over the landfill. After further discussion, Ms. McGovern stated that from her perspective the question is whether the Community Monitor can state that they are comfortable with the available information, providing assurance that groundwater quality is not being degraded. Mr. Runyon replied that he and Treadwell are comfortable making that statement, based on the available data and the reviews and scrutiny that they have conducted to date.

Ms. Cabanne expressed concern that parts of the landfill are unlined, and there are Dyer Road residents using well water. She urged a rigorous look at groundwater quality data: can those residents' water quality be guaranteed with the data that are being reviewed?

Ms. McGovern asked that these questions be reviewed with Treadwell and Rollo staff to confirm that they concur about the lack of evidence regarding degradation of groundwater.

Ms. Cabanne stated that she does not need baseline data but wants as much scrutiny as possible of groundwater information.

No vote was taken on the motion stated above.

8. Adjournment

The meeting was adjourned at 5:38 p.m. The next meeting will be held on **Wednesday, April 18 at 4:00 p.m.** at the Livermore Maintenance Services Division at 3500 Robertson Park Road.

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225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.5900 phone
415.896.0332 fax

memorandum

date April 10, 2012
to ALRRF Community Monitor Committee
from Kelly Runyon
subject CMC Meeting of 4/18/12 - Agenda Item 6.1 - Responses to Committee Members' Questions

In the Committee meeting of January 11, Committee members raised a number of questions; responses are provided below.

1. Acceptability of 10% contamination in MRF fines used as Alternative Daily Cover

The ALRRF's October 24 response to the LEA's September 23 Notice of Violation proposed a plan to reduce the amount of solid waste in MRF fines as much as possible, not to exceed 10% by weight of the MRF fines delivered. In the January 11, 2012 Community Monitor Committee meeting, the question was raised as to whether this 10% level is acceptable.

The LEA has since informed the ALRRF, with a letter dated March 2, 2012, that the proposed correction plan is not acceptable as presented and needs to be refined by "providing a benchmark for identifying a standard for MRF contamination", as well as approval from the Regional Water Board for this use, and a "method to exclude the unacceptable quantities of MSW in MRF fines," among other things. So, at this time, this issue is unresolved.

2. Status of correction of refuse height

Committee members asked to be kept apprised of the ALRRF's efforts to lower the height of refuse in one portion of the north side of Fill Area 1. During the March site inspection, ALRRF staff thoroughly explained how this work is proceeding. Care is being taken to conserve landfill space by stripping off cover soil, relocating the refuse, and covering that refuse each day. This takes time, and as a result the work is likely to continue for several more weeks. A verbal update will be provided at the April 18 CMC meeting.

3. Patch of green vegetation

In an inspection last fall, one portion of a landfill side slope had a patch of green vegetation that contrasted with its surroundings, which were largely dead grasses. A Committee member asked that we determine why this area was greener than its surroundings. A closer look has revealed that the green vegetation is directly below a low portion of a drainage bench, which collects runoff that then spills over the side, in essence irrigating the ground immediately below. A variety of plants have germinated and are growing in that area, while the surroundings remain covered with dead grasses. When last observed, there was no erosion problem at this location; nor did it appear that an erosion problem is likely to occur there in the future.

4. Conservation Plan Area map

During discussion of the 2011 Community Monitor Annual Report, Committee Member Cabanne expressed interest in seeing a map of the 991.6-acre Conservation Plan Area that has been delineated by ALRRF. That map has been added as page 1-4 of the final version of the Annual Report, which is being made available on the Community Monitor web site.

5. Gas well shutdown; proximity of other wells

During discussion of the shutdown of a landfill gas (LFG) well that was showing high temperatures, Committee Member Cabanne asked if other nearby LFG wells were close enough to control the gas that the shutdown well had been capturing. The answer appears to be yes. LFG well spacing at the ALRRF varies considerably, but the gap left by the decommissioning of Well 487 is no larger than gaps in other portions of the system. Two other wells, 451 and 485, are within 200 feet of 487 and are likely to be collecting much of the gas formerly collected by 487. Also, the quarterly surface emissions monitoring has found no escaping gas in the immediate vicinity of 487.

6. Importance of groundwater quality monitoring

During the January Committee meeting, Committee members repeatedly emphasized the need for assurance that groundwater near the ALRRF is not being impacted by the landfill. This issue is addressed in our review of the latest groundwater monitoring report, in item 6.4 of the April Committee meeting agenda.



COMMUNITY MONITOR COMMITTEE STAFF REPORT

TO: Honorable Chairperson and Community Monitor Committee Members
FROM: Judy Erlandson, Public Works Manager
SUBJECT: 2008-2011 Budget and Expenditures for Community Monitor

RECOMMENDED ACTION

Staff recommends the Community Monitor Committee consider the budget and actual expenditures for the services of a Community Monitor during the past four years, beginning in 2008.

DISCUSSION

The Settlement Agreement, dated November 30, 1999, between the County of Alameda, the City of Livermore, the City of Pleasanton, Sierra Club, Northern California Recycling Association, Altamont Landowners Against Rural Mismanagement, and Waste Management of Alameda County, Inc. (Settlement Agreement), created the Community Monitor Committee to hire and oversee the work of a Community Monitor.

The Community Monitor is a technical expert retained to monitor the Altamont Landfill and Resource Recovery Facility's (ALRRF) compliance with environmental laws and regulations, and to advise the public and the Cities of Livermore and Pleasanton about technical issues relating to the ALRRF.

On January 9, 2008, the Community Monitor Committee (Committee) and Environmental Science Associates (ESA) entered into an Agreement for Consulting Services for ESA (Agreement) to perform the duties of the Community Monitor as defined by the Settlement Agreement.

On May 12, 2010, the Committee voted unanimously to extend the existing Agreement with ESA for the services of a Community Monitor for one three-year extension pursuant to the existing Agreement.

In the first year of the Agreement (2008), the maximum amount available for services of the Community Monitor was \$85,000. Per the contract, this amount has increased annually as indicated by the Consumer Price Index.

MEETING DATE:

4-18-2012

AGENDA ITEM: 6.2

A summary of actual expenditures and annual maximum for the previous four years are listed below.

Year	Actual Expenditures	Annual Maximum	Percent used
2008	\$58,975.19	\$85,000.00	69%
2009	\$72,760.52	\$87,805.00	83%
2010	\$70,737.49	\$88,331.83	80%
2011	\$60,170.37	\$89,833.47	67%

ATTACHMENTS

None

Approved by:



Judy Erlandson
Public Works Manager



225 Bush Street
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San Francisco, CA 94104
415.896.5900 phone
415.896.0332 fax

memorandum

date April 10, 2012
to ALRRF Community Monitor Committee
from Kelly Runyon
subject CMC Meeting of 4/18/12 - Agenda Item 6.3- Review of Reports from Community Monitor

Attached are our inspection reports for January through March of 2012.

The January inspection was announced and took place on January 31.

The February inspection was announced and took place on February 27.

The March inspection was unannounced and took place on March 14, with the LEA.

During these inspections, all landfill operating areas were observed. Recent LEA inspection reports were reviewed on-line, and the Special Occurrences Log was discussed with staff.

In preparing these reports, issues that cause concern are marked with yellow rectangles in the left-hand margins of the monthly inspection reports. Two items were flagged in this quarter: a significant odor problem, apparently confined to the on-site office area and vicinity, and attributed to the leachate handling system; and the finding that the Dyer Reservoir is being heavily used by seagulls. It appears quite likely that the same gulls which occupy the landfill also make use of the reservoir, as a safe place to rest and possibly as a drinking-water source.

Also attached are graphs showing monthly tonnages by type of material for the most recent 12-month period, as in prior reports. Figure 6.3-1 shows the breakdown of materials that make up Revenue-Generating Cover. Figure 6.3-2 shows these same quantities, plus the municipal solid waste tonnage on the lowest (and largest) part of each bar.

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Figure 6.3-1 Monthly Volumes of Revenue-Generating Cover

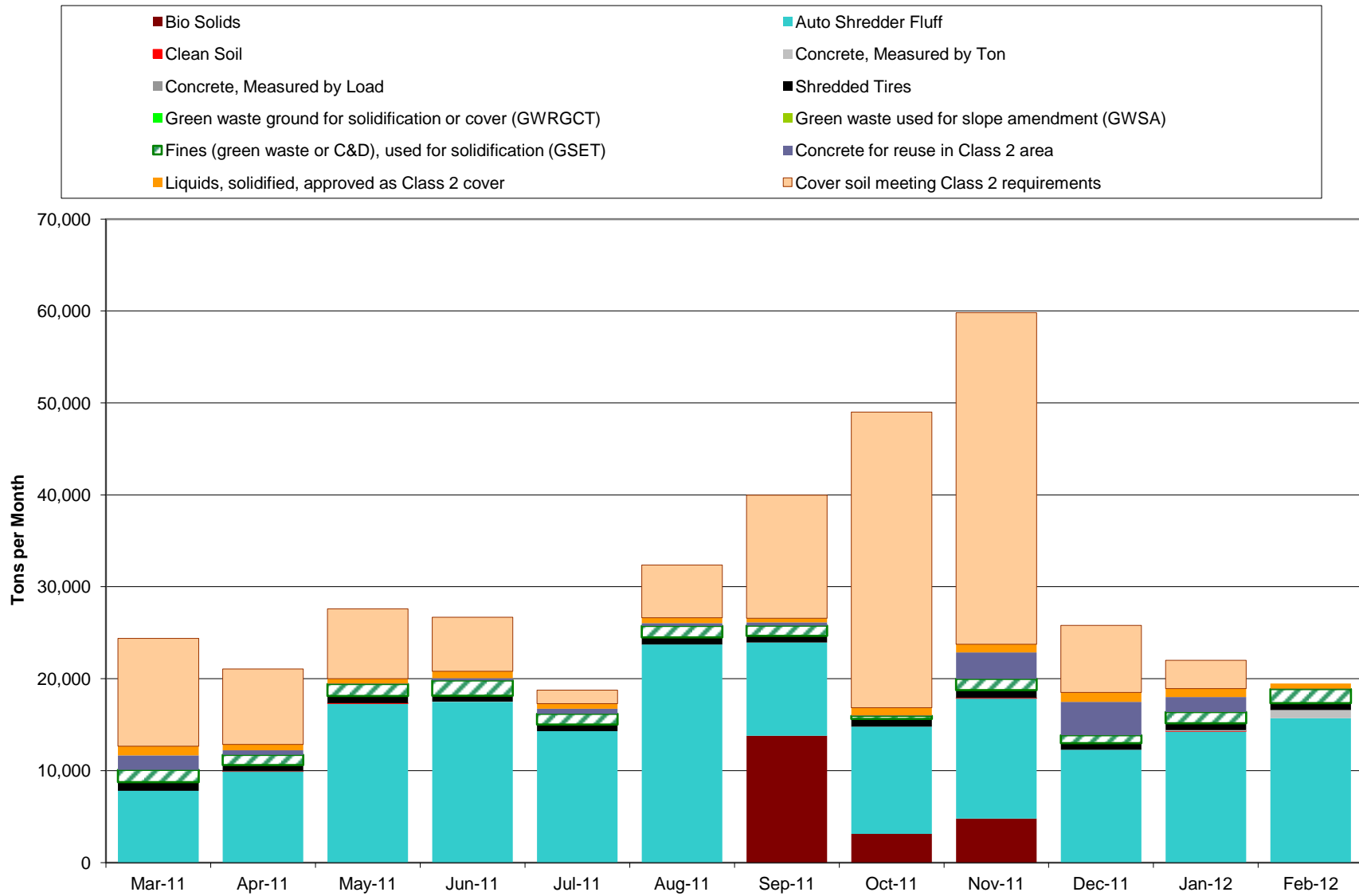
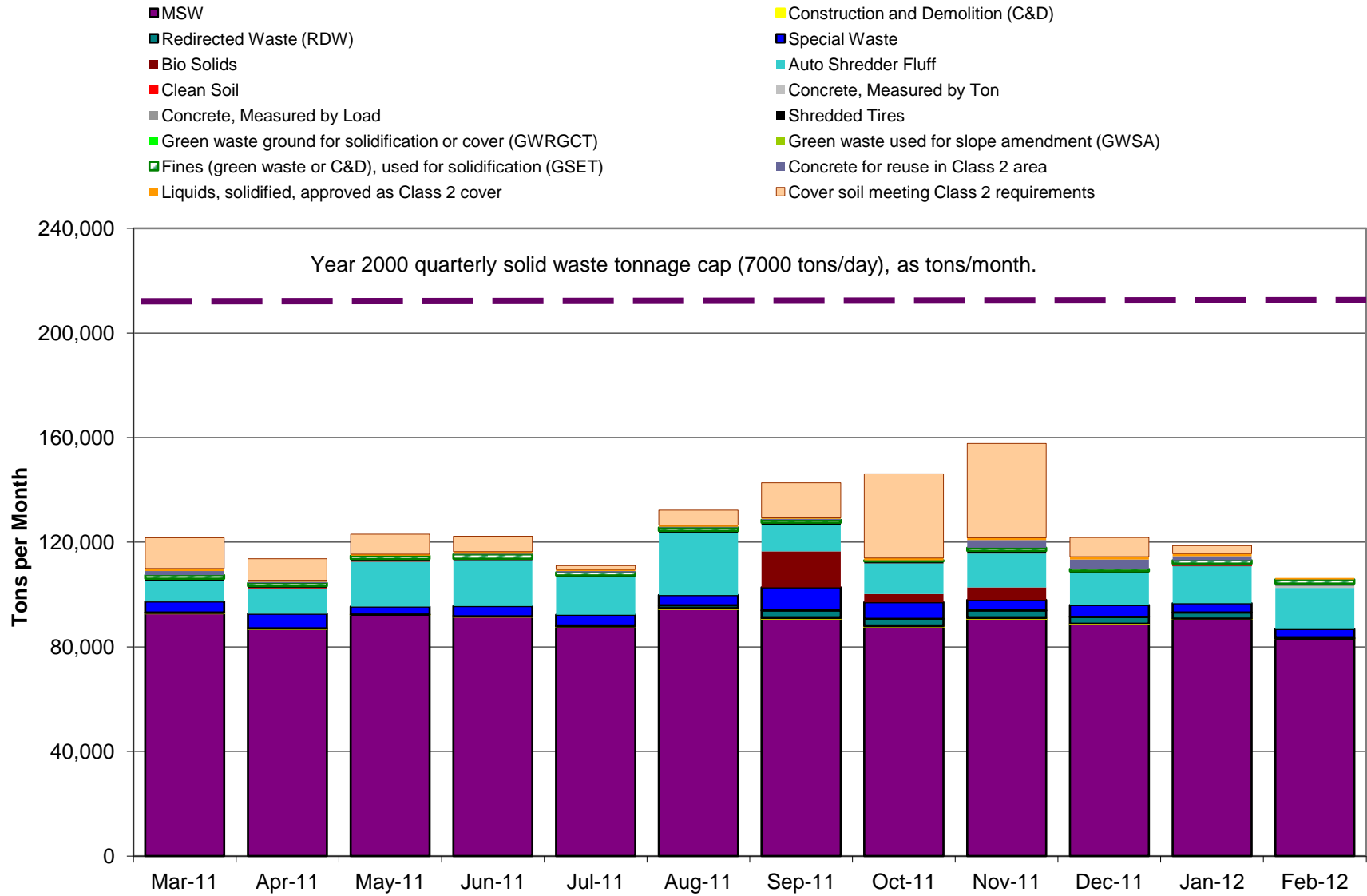


Figure 6.3-2 Monthly Volumes of All Materials



ALRRF Community Monitor Monthly Report**January 2012****Reports Received**Monthly Tonnage Report for Dec 2011, received January 13, 2012

Tonnage Summary:		<u>tons</u>		
Disposed, By Source Location				
1.1	Tons Disposed from Within Alameda County	60,325.76		
1.2	Tons Disposed from City of San Francisco TS	31,625.73		
1.3	Other Out of County Disposal Tons	<u>1,530.61</u>		
	subtotal Disposed	93,482.10		
Disposed, By Source Type				
2.1	C&D	238.99		
2.2	MSW	88,655.86		
2.3	Special Wastes	<u>4,592.12</u>		
	subtotal Disposed	93,486.97		
	Difference	<table border="1" style="display: inline-table;"><tr><td style="text-align: center;">4.87</td><td style="text-align: center;">0.01%</td></tr></table>	4.87	0.01%
4.87	0.01%			
Other Major Categories				
2.4	Re-Directed Wastes (Shipped Off Site or Beneficially Used)	2,478.87		
2.5	Revenue Generating Cover	28,439.65		
	Total, 2.1 - 2.5	124,405.49		
Materials of Interest				
2.3.1	Friable Asbestos	534.69		
2.3.2	Class 2 Cover Soils	7,301.29		
2.5.1	Auto Shredder Fluff	12,265.27		
2.5.2	Processed Green Waste/MRF fines, Beneficial Use (GSET)	874.26		

MMRP (Mitigation Monitoring and Reporting Program) Annual Report for 2011

ALRRF Community Monitor Monthly Report**January 2012****Site Visit**Site Inspection Jan. 31, 2011, 3:30 PM to 4:30 PM

- Attended by Kelly Runyon. Escorted by Marcus Netz. Announced.
- Scalehouse area, mulch bunkers, drop & hook area all appear to be in good condition.
- Checked portion of southwest face of landfill with unusually green vegetation. The green patch lies below a bench road that has a shallow "sag", where a thin layer of runoff can accumulate and flow downslope, effectively irrigating the slope below, when it rains. Some very minor erosion is visible wher this flow occurs but this does not appear to present a serious erosion problem. See photo next page.
- Two dozers and two compactors are continuing to build the landfill southward on the west side of the site. The wet-weather area remains available, with two spare tippers, on the east side of the top deck. GPS system has been installed on one dozer.
- Correction of refuse height in the overfilled area continues.
- New LNG truck fueling facility not yet open; inspections pending.
- Solidification not operating.
- C&D pile was small and had no prohibited materials visible.
- Water storage pond still holds water, 1 to 2 feet deep.

Stormwater Controls and Best Management Practices

- Basin A: water level approximately 18 inches below bottom of mushroom head. Basin B: water partway up mushroom head. Basin C: Not directly observed.

Observation of Environmental Controls

- Cleanup of windblown litter from December 1-2 event continues, as remaining litter is dispersed in various directions by the wind. The litter cleanup crew has been increased to deal with this problem. Additional fencing has also been installed and temporary fencing is being used close to the unloading area. Frequent changes in wind direction complicate litter control efforts; temporary fences need to be moved with heavy equipment.
- Very pungent, unpleasant odor noted in immediate vicinity of offices and visitor parking. Not widespread; not noticed when entering site. Source believed to be the leachate handling system.
- Moderate number of gulls on site. Bird cannon is in use.
- All landfill gas equipment appeared to be running except flare A-15 near turbine house.
- The small secondary pond for truck wash water is in good repair and contains a small amount of water, probably from rainfall, at the bottom.

ALRRF Community Monitor Monthly Report

January 2012

Photo of green vegetation on portion of landfill cover, west side.



ALRRF Community Monitor Monthly Report**February 2012****Reports Received**Monthly Tonnage Report for January 2012, received February 15, 2012

Tonnage Summary:		<u>tons</u>
Disposed, By Source Location		
1.1	Tons Disposed from Within Alameda County	60,451.87
1.2	Tons Disposed from City of San Francisco TS	31,213.86
1.3	Other Out of County Disposal Tons	<u>2,728.73</u>
	subtotal Disposed	94,394.46
Disposed, By Source Type		
2.1	C&D	192.68
2.2	MSW	90,672.88
2.3	Special Wastes	<u>3,528.90</u>
	subtotal Disposed	94,394.46
	Difference	0.00 0.00%
Other Major Categories		
2.4	Re-Directed Wastes (Shipped Off Site or Beneficially Used)	2,927.88
2.5	Revenue Generating Cover	22,004.94
	Total, 2.1 - 2.5	119,327.28
Materials of Interest		
2.3.1	Friable Asbestos	474.13
2.3.2	Class 2 Cover Soils	2,798.79
2.5.1	Auto Shredder Fluff	13,086.13
2.5.2	Processed Green Waste/MRF fines, Beneficial Use (GSET)	1,209.99

Title V (Air Emissions) Semi-Annual and Partial Annual Report, for May - November 2011Groundwater Monitoring Report for July - December 2011

ALRRF Community Monitor Monthly Report**February 2012****Site Visit**Site Inspection Feb. 27, 2012, 2:20 to 3:30 PM

- Attended by Kelly Runyon. Escorted by M. Netz and E. Perez. Announced.
- Significant odor apparent in visitor parking lot, but not at entrance to site. WM has learned that the LNG plant was using the leachate control system to handle some byproduct liquids, and this may have been the source of the odor problem first noted last month. The practice has been discontinued.
- Speed control signs ("Your Speed Is _____") are being installed on outbound roadway. Completion expected soon.
- Road between scale house and working face has been patched where needed.
- In dry weather, refuse is being placed along north side of Fill Area 1, working back and forth (NE to SW) to bring area up to near-final height to accommodate RAC operation when practical to do so. In wet weather, the east side of Fill Area 1 is being used; the area has been paved with broken concrete so transfer trucks will not bog down.
- At working face, equipment includes 3 D9 dozers, two compactors, D6 to spread cover, and two tippers. No incoming traffic at this time.
- Asbestos area is in the process of being covered. A few bags are exposed but they will be buried as cover continues to be placed.
- The plant debris separation area, near the C&D pile, held about 10 cubic yards of plant material, which will be hauled off for recycling.
- New landfill gas truck fueling facility is essentially done, being inspected. Threads on hydrant nearby need to be changed.
- C&D pile was normal size (about 20 cy) and had no prohibited materials visible.
- Water storage pond still holds water, 1 to 2 feet deep.

Stormwater Controls and Best Management Practices

- Basin A: water level approximately 18 inches below bottom of mushroom head. Basin B: water level about 3 inches below bottom of mushroom head; some litter on side slopes near basin. Basin C: not observed; no sign of discharge from outlet.
- Erosion above Basin B unchanged from previous month, appears stable.

Observation of Environmental Controls

- Bird population (gulls) heavy, as usual for this time of year.
- Bird cannon was observed on site but did not appear to be operating. Bird guns (noisemakers) are in use.
- Litter around edges of Fill Area 1, from wind event December 1 and 2, is largely cleaned up; areas with heavy litter are being addressed. Most flat ground near the working face has minimal litter at this time. Litter on Altamont Pass Road is minimal.
- All landfill gas equipment appeared to be running, except flare A-15 near turbine house.
- The secondary pond for truck wash water is in good repair and is holding 3 to 4 feet of water.

ALRRF Community Monitor Monthly Report

March 2012

Reports Received

Monthly Tonnage Report for February 2012, received March 15, 2012

Tonnage Summary:		<u>tons</u>	
Disposed, By Source Location			
1.1	Tons Disposed from Within Alameda County	56,041.62	
1.2	Tons Disposed from City of San Francisco TS	28,145.30	
1.3	Other Out of County Disposal Tons	<u>2,415.50</u>	
	subtotal Disposed	86,602.42	
Disposed, By Source Type			
2.1	C&D	125.30	
2.2	MSW	83,004.20	
2.3	Special Wastes	<u>3,472.92</u>	
	subtotal Disposed	86,602.42	
	Difference	0.00	0.00%
Other Major Categories			
2.4	Re-Directed Wastes (Shipped Off Site or Beneficially Used)	257.14	
2.5	Revenue Generating Cover	28,317.50	
	Total, 2.1 - 2.5	115,177.06	
Materials of Interest			
2.3.1	Friable Asbestos	690.52	
2.3.2	Class 2 Cover Soils	8,834.12	
2.5.1	Auto Shredder Fluff	15,699.02	
2.5.2	Processed Green Waste/MRF fines, Beneficial Use (GSET)	1,550.29	

ALRRF Community Monitor Monthly Report**March 2012****Site Visit**Site Inspection Mar. 14, 2012, 9:30 AM to 11:15 AM

- Attended by Kelly Runyon, with Wing Suen. Escorted by James Carter. Unannounced.
Weather: light but steady rain, which stopped during the inspection.
- A minor amount of odor was noticeable in the visitors' parking lot, and none at the site entrance.
This is a significant improvement over the previous two visits.
- Two digital speed control signs have been added to outbound side of access road. One is connected and ready, the other is waiting to being programmed.
- A fire hydrant has been added near the mulch storage bays and LNG plant. Water lines are being "bled" to provide flow to that area.
- One dozer (with GPS) and one compactor currently operating at the working face (other pair on break). Two tippers operating. No queuing of transfer trucks; site is keeping up with traffic flow. Two spare tippers are on hand near wet weather area.
- J. Carter gave a detailed explanation of operations to reduce the height of refuse on the north side of Fill Area 1. Where material is being removed, a tracked excavator places cover or refuse into large dump trucks. First, cover soil is stripped off and moved to a stockpile in a lower area. Then, refuse is excavated and trucked to its new location. Then, the stripped cover is brought to that location by the dump trucks (which are loaded using a wheeled loader) and a dozer covers the refuse in its new location. Using two dump trucks to haul alternating loads of refuse and cover has proven to be more efficient than previous methods.
- Recently, one of the producers of treated auto shredder fluff has had one processing machine break down, so there is less TASF stockpiled on site than usual.
- The plant debris separation area, near the C&D pile, held about 20 cubic yards of plant material, which will be hauled off for recycling.
- New landfill gas truck-fueling facility was being checked by Fire Department but appears to be fully equipped for operation.
- C&D pile was normal size (about 20 cy) and had no prohibited materials visible.
- Raw water storage pond still holds water, 1 to 2 feet deep.

ALRRF Community Monitor Monthly Report**March 2012**Stormwater Controls and Best Management Practices

- Basin A: water level approximately 18 inches below bottom of mushroom head. Basin B: water level approx 1 foot below bottom of mushroom head, exposing soil at base of riser (not a problem). Basin C: Not observed, but no discharge from outlet.
- No sign of erosion gullies or rilling near active face or on perimeter benches.
- Some fabric-lined drainage ditches have weeds growing in them, but ditches and drains are otherwise clear. Weeds don't appear to be large enough to cause a blockage and may be helpful in reducing water velocity. Orange plastic construction fence has been placed over the tops of the fencing that surrounds drop inlets, forming a "roof" to keep windblown litter out.

Observation of Environmental Controls

- Some litter, primarily film plastic, was seen on Altamont Pass Road, from Cooper Road to the site. Not an extreme amount, but enough to notice. Wing mentioned to J. Carter.
- Litter collection on site: two pickers seen working on east side of front (south) face of landfill.
- Additional litter fence has been added on east site of site (referred to as "defender fence.")
- Seagulls extremely numerous. Bird cannon and bird guns in use. After landfill inspection, observation of Dyer Reservoir revealed a large number of seagulls on the water and the surrounding shore.
- All landfill gas equipment was running except the "old" flare (A-15) near the turbine house.
- The secondary pond for truck wash water is in good repair and has about 3 to 4 feet of freeboard.



memorandum

date April 10, 2012
to ALRRF Community Monitor Committee
from Kelly Runyon
subject CMC Meeting of 4/18/12 - Agenda Item 6.4 - Review of Reports Provided by ALRRF

MMRP Annual Progress Report

This report consists of a very extensive table (over 40 pages) listing:

- each of the CUP conditions for the ALRRF
- the Phase that each Condition applies to (e.g., “Prior to Construction of Fill Area 2”)
- the Implementation Activity required by the Condition (e.g., “An application for a Section 7 permit...”)
- the status of Implementation (e.g., “Biological Opinion 1-1-04-F-0488 issued...”)
- a means of verifying the status (e.g., “Copy of Section 7 Permit when issued.”)

Most of the entries in this report remain unchanged from year to year. Noteworthy changes for 2011 included the following:

Condition 3 lists many of the permit requirements related to development of Fill Area 2. Item 3(e) names the Army Corps of Engineers Section 404 Permit, related to encroachment on wetlands. This was issued on August 11, 2011. This is a major milestone in the lengthy process of obtaining biological permits related to development of Fill Area 2. The next step in this process, still pending at the end of 2011, is the recording of the Conservation Easement.

Condition 93 and its subsections require the five-year permit compliance review. The most recent such review was largely done in 2010 and is shown as completed in 2011.

Title V (Air Quality) Report, June 1 – November 30, 2011

This extensive semiannual report tracks all permit-compliance aspects of landfill gas control, emission sources such as engines, and other emissions such as the handling of contaminated soils. Key topics in this report are:

- Emissions testing of major sources
- Changes to the landfill gas extraction well system
- Surface Emissions Monitoring for methane escaping from the landfill

- Performance of landfill gas control devices (turbines, engines, etc.)

Emissions Testing

Between March and September of 2011, the required emissions tests were performed on the two flares, the two turbines that produce electricity from landfill gas, and the two internal combustion engines that primarily provide electricity for the LNG plant. All devices passed and were well within permit limits.

Changes to Landfill Gas (LFG) Extraction Wells

Twenty vertical landfill gas wells were decommissioned during this reporting period. Fifteen newly installed vertical wells were started up in June. Although this represents a net loss of five wells, several of the decommissioned wells were in some of the oldest portions of the landfill and apparently were not producing much gas. Also, during the surface emissions monitoring, the locations where wells were decommissioned were not disproportionate sources of surface emissions.

According to this report the ALRRF also decommissioned four horizontal gas collectors and installed five other horizontal collectors, during this reporting period.

During this period, there were several deviations from normal operating limits each month, at various wells, for high temperature, high pressure, or high oxygen. All but one of these was corrected in a matter of days, and the one persistent deviation resolved in a few weeks. Throughout this reporting period, no wells were being operated at high temperatures requiring monitoring for carbon monoxide.

Surface Emissions Monitoring

For several reasons, the dry summer months are the most likely time for the landfill cap to allow the escape of landfill gas, and that seems to have been the case during this reporting period. Results for two quarterly surface emissions monitoring activities are summarized in the following table.

Dates	May 10 and June 15	July 25, 26; August 1, 3, 4, 8, 9, 10, 11, 18, 19, 20
Initial Exceedances	25	77
Exceedances in first 10-day remonitoring	0	15
Exceedances in second 10-day remonitoring	Not req'd	0
Exceedances in thirty day follow-up remonitoring	0	0

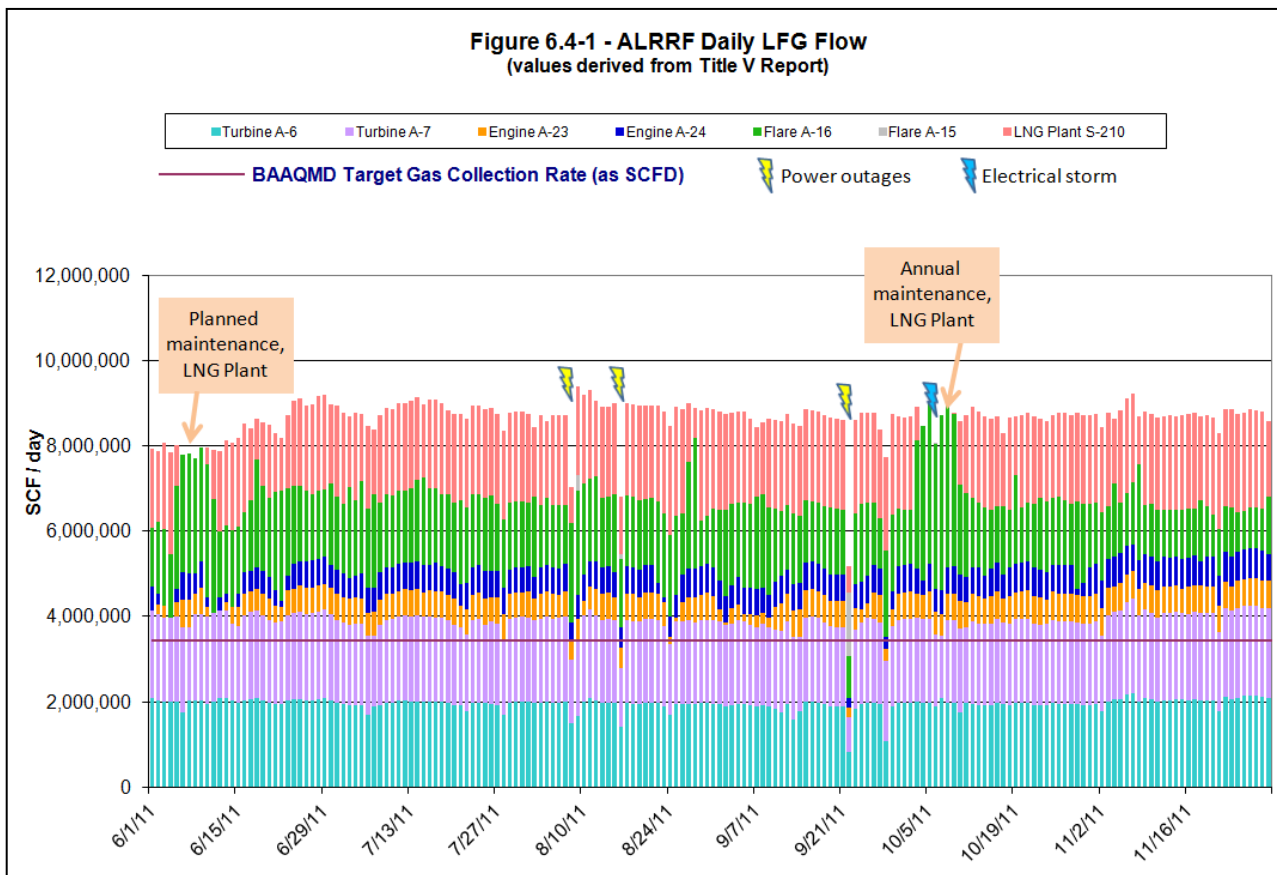
Corrected item

Based on the maps provided with the report, it appears that many of the exceedances occurred near operating wells, perhaps due to gaps between cover soil and the well casing.

Performance of Control Devices

The report provides day-by-day volumes of gas consumed by each of the control devices; these are shown in the graph below. It does not appear that downtime at Flare A-16 caused shutdowns of the LNG plant. The two multiday shutdowns of that plant were for planned maintenance and upgrades. One other shutdown for about 23 hours occurred because the LNG storage tanks were full.

Outages of the PG&E power supply, for maintenance of wind-power systems and to repair a fallen wire, caused shutdowns of all gas control equipment on several occasions in August, September and October, but these were relatively brief.



Apart from these issues, it appears that the control devices ran relatively steadily throughout the 6-month period.

Second Semiannual – Annual 2011 Groundwater Monitoring Report, 2011

At the January Community Monitor Committee meeting, CMC members expressed concern regarding the potential for the ALRRF to impact groundwater quality, and the effect that this could have on nearby residents. In response to this concern, the Community Monitor team (ESA, and Treadwell & Rollo) reviewed the most recent Semiannual-

Annual Groundwater Monitoring Report in considerable detail, and also reviewed data from prior groundwater and surface water monitoring reports, to find and report on any trends or anomalies that might concern Committee members.

The primary product of this effort is the attached 11-page Memorandum from Treadwell & Rollo, dated 22 March 2012. The discussion below provides an overview and a list of acronyms that appear in the memorandum. The memorandum focuses on several aspects of the Groundwater Monitoring Report, indicated with the following topic headings and very brief summary statements:

November 2011 ... Sampling Results

In general, concentrations of contaminants appear to be stable or declining.

Sampling of Stormwater Retention Basins

Sampling did not occur during this time period because there was no stormwater discharge, due to a lack of precipitation.

Review of Sampling and Sample Handling Quality

The analytical lab noted several sampling discrepancies (e.g., bottles filled incorrectly, broken in transit, etc.). These were corrected by re-collecting samples as needed. This issue is new; we will track it in future reports.

Treadwell and Rollo's memo then addresses the concern raised by Committee members at the January 2012 meeting:

Evaluation of Potential Unidentified Impacts to Groundwater

Treadwell and Rollo have made a major effort to identify trends or findings that could indicate the possible degradation of groundwater quality by landfill activities. They focused on monitoring wells that are directly downgradient of the landfill and paid special attention to the findings from those wells, which are MW-5A, MW-7 and MW-11. They examined the geology near each of those wells and recognized that MW-5A is in, or very near, an old, inactive earthquake fault zone, and the other two wells are not. They note that this could explain why samples from MW-5A have shown higher values for **antimony and arsenic** than the other wells, both recently and in earlier samples from 2006 and 2007. They also point out that leachate samples from Unit 1 of Fill Area 1, which is directly upgradient of MW-5A and does not have a membrane liner, are not high in arsenic or antimony.

In general, the three wells have not shown detections of **organic compounds** above the reporting limits of the prescribed analytical methods, and most of the trace-level detections of organics have been due to laboratory cross contamination. Regarding **inorganic substances**, Treadwell & Rollo note that in a 2009 report from ALRRF to the Regional Water Board¹, it is stated that "previous studies (have indicated that) groundwater within the area surrounding ALRRF has high concentrations of TDS, nitrate, magnesium, sodium, chloride, and bicarbonate, due to mineralogy of the soil and agricultural activities." They also find that MW-11 has high concentrations of sulfate that are gradually increasing, but "sulfate alone may not be a reliable indicator of leachate impact because sulfate can occur naturally" in rock and soil.

¹ Monitoring and Reporting Program, submitted to the Central Valley Regional Water Quality Control Board by ALRRF in 2009.

After discussing other aspects of groundwater quality at these three wells, Treadwell and Rollo conclude that currently, it is difficult to make a definitive determination of landfill impacts at MW-5A; and it does not appear that the landfill has impacted groundwater quality at MW-7 or MW-11 at this time. I concur with this finding and would like to also point out that commonly, when groundwater contamination issues are caused by a landfill, the first indication is often from elevated levels of light organic compounds that diffuse through the soil and groundwater more quickly than groundwater moves. We have not seen these types of indications in the groundwater reports that we have reviewed.

To facilitate review of the Treadwell & Rollo memo; definitions of several acronyms are provided below.

VZM-A	Vadose Zone sampling point
VD, VD2	Valley Drains: collection points for the drainage system beneath the landfill and its liner.
LS, LS2	Leachate sumps: convenient collection points for taking leachate samples.
VOA bottles	Volatile Organics Analysis bottles: sample bottles that are filled to the brim (0 head space)
VOC	Volatile Organic Compounds
MCL	Maximum Contaminant Level: the USEPA standard for the maximum amount of a compound that is allowed in drinking water.
WDR	Waste Discharge Requirements, the permit from the Regional Water Board.
mg/l	Milligrams per liter, parts per million
µg/l	Micrograms per liter, parts per billion



MEMORANDUM

TO: Kelly Runyon, ESA

FROM: Jeremy Gekov, PG, Project Geologist
Dorinda Shipman, PG, CHG Senior Associate

DATE: 22 March 2012

PROJECT: Altamont Landfill (ALRRF)
Livermore, California
Project: 750477404

SUBJECT: Groundwater Analysis for Community Monitor Progress Report #9

Number of Pages: 11

Treadwell & Rollo, Inc. (T&R) has reviewed hydrogeologic data for the Altamont Landfill and Resource Recovery Facility in Livermore, California (ALRRF) November and December 2011 sampling events by performing the following tasks:

- Reviewed *Second Semiannual-Annual 2011 Groundwater Monitoring Report, Altamont Landfill and Resource Recovery Facility (WDR Order R5-2009-0055)*, prepared by SCS Engineers, Long Beach, California for Waste Management (WM), dated January 2012.
- Evaluated metals concentrations and supplemental water quality parameters at wells MW-7, MW-5A, and MW-11 to address concerns regarding potential landfill impact to groundwater.

This memorandum describes the results of the above tasks and provides our opinions and recommendations for the Community Monitor Committee (CMC). The documents above were reviewed for issues described in previous CMC meeting minutes and for potential trends in groundwater analytical data over recent years. Groundwater monitoring activities and findings, as required by the Waste Discharge Requirements (WDR), were generally found to be in compliance during the November-December 2011 sampling event and are discussed below.

November 2011 Semiannual Groundwater and Annual Unsaturated Zone Sampling Results

Detection and Corrective Action Well Inorganic and Volatile Organic Compound Concentrations

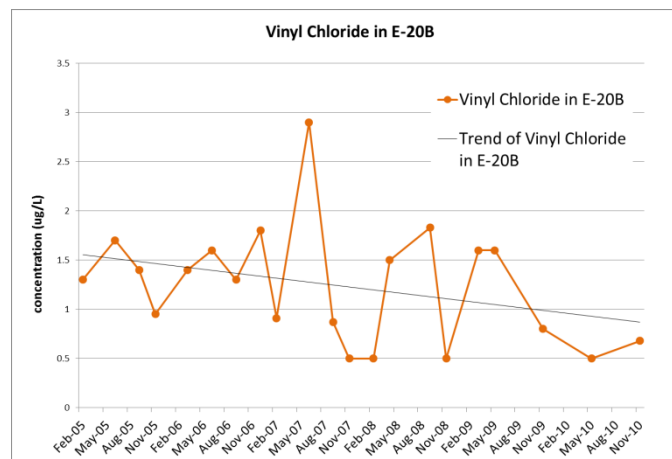
The inorganic monitoring parameters used for statistical analysis include chloride, sulfate, bicarbonate alkalinity, total dissolved solids, chemical oxygen demand, and total Kjeldahl nitrogen. There were no statistical exceedances for these inorganic parameters during November 2011. Concentrations of these inorganic compounds remained stable in detection and corrective action wells during November 2011. Organic compounds were detected in three wells, E-05, E-07, and E-20B as indicated in the table below. Concentrations were similar to historical values.



Kelly Runyon
 ESA
 22 March 2011
 Page 2

	diethyl ether	1,4-dichlorobenzene	cis-1,2-dichloroethene	1,1,1-dichloroethane	dichlorodi-fluoromethane	dichloro-fluoromethane	Note
E-03A							No VOCs detected
E-05	X						
E-07				X	X	X	
E-17							No VOCs detected
E-20B		X	X	X		X	
E-23							No VOCs detected
MW-2A							No VOCs detected
MW-5A							No VOCs detected
MW-6							No VOCs detected
MW-7							No VOCs detected
MW-11							No VOCs detected
PC-1C							No VOCs detected

Well E-20B did not have a detectable vinyl chloride concentration during the November 2011 event. Vinyl chloride has been historically detected in well E-20B since 1999 and the source of vinyl chloride has been attributed to landfill gas. The area surrounding E-20B is undergoing corrective action including landfill gas control and E-20B is monitored for natural attenuation. As indicated by this graph, well E-20B shows a decreasing trend for vinyl chloride indicating that corrective action is improving groundwater quality at E-20B. The trend line is a linear-regression or "least squares" line, the straight line that best fits the data.



Detection wells PC-1B and PC-1C are currently used to monitor for potential migration of VOCs down-gradient of E-20B. Wells PC-1B and PC-1C have not had any VOC detections since the start of monitoring in 2006, with the exception of those attributable to laboratory cross contamination.



Kelly Runyon
ESA
22 March 2011
Page 3

Unsaturated Zone Inorganic and VOC Concentrations

During December 2011, inorganics and VOCs at VZM-A, VD, and VD2 were similar to historical concentrations and appear to be stable. The VOC detections at VZM-A, VD, and VD2, have been attributed to landfill gas. Concentrations of VOCs and inorganics in unsaturated zone monitoring points will be evaluated in subsequent monitoring reports for potential increasing trends.

Leachate Inorganic and VOC Concentrations

Inorganic concentrations at leachate monitoring point LS and LS2 during December 2011 were similar to historical values. Concentrations of VOCs detected at LS and LS2 were similar to historical values.

Sampling of Storm Water Retention Basins

There were no qualifying surface water discharge events between July and December 2011, and consequently no samples were collected at storm water Basins A, B or C through that period.

Review of Sampling and Sample Handling Quality

During review of the 2nd Semiannual 2011 Groundwater Monitoring Report, T&R observed some login sheets that indicated sampling or sample handling quality issues. This observation prompted T&R to review login sheets from previous groundwater reports for indications of sampling and handling quality control issues. Noted issues included broken sample containers, mislabeled sample containers, incorrect preservatives used, and headspace in 40-milliliter VOA bottles for VOC analysis. Some of these issues warranted resampling and resubmittal of samples to the laboratory, in which case samples were recollected by SCS Engineers for WM. Because samples were recollected as needed, the issues noted above do not reduce the acceptability of the groundwater sampling procedures and analytical results, and it is reasonable to expect some sampling discrepancies or sample handling issues with complex sampling programs such as the program at ALRRF. T&R will continue to track the frequency of these discrepancies.

Evaluation of Potential Unidentified Impacts to Groundwater

During their 11 January 2012 meeting, the CMC proposed a question to Kelly Runyon of ESA regarding how confident ESA and T&R are that ALRRF has not impacted groundwater. To help answer this question, T&R evaluated available data to assess the potential impact to groundwater from ALRRF. T&R conducted a screening of groundwater data for all site wells and, based on that review, narrowed the focus to one area south of Fill Area 1 Unit 1, the unlined portion of the landfill. The detection wells in this area are MW-5A, MW-7, and MW-11 and historically have had elevated levels of dissolved metals or total dissolved solids relative to other wells at ALRRF. T&R evaluated data at MW-5A, MW-7, and MW-11 for dissolved metals and other potential leachate indicators including organic compounds, chemical oxygen demand, total dissolved solids, chloride, sulfate, and total Kjeldahl nitrogen. T&R also reviewed the geology and existing hydrogeologic conceptual model relevant to potential groundwater flow pathways.



Kelly Runyon
ESA
22 March 2011
Page 4

Geology and Hydrogeology at ALRRF

MW-5A is located on the eastern limb of the Altamont Anticline, an anticline that plunges southeastward from 2 to 5 degrees. Bedding on the eastern limb strikes N40W, and dips between 10 to 36 degrees northeastward (Figure B.10, Attachment). The bedrock is characterized by highly fractured and sheared thinly bedded mudstone, with discontinuous medium grained sandstone units.

The 2009 Monitoring and Reporting Program by Geosyntec summarizes the hydrogeologic conceptual model for ALRRF. The model states that:

- Vertical flow is limited by very low vertical hydraulic conductivity of the bedrock, and that water that infiltrates the surface is expected to flow roughly parallel to surface topography and discharge to local ravines and valleys;
- Lithologic heterogeneities within bedrock may affect local flow paths for groundwater (i.e. groundwater may flow preferentially along sandstone bedding planes rather than across mudstone beds); and
- Inactive faults present at the site do not have an observable impact on the overall pattern and direction of groundwater flow beneath the site, and groundwater likely flows through fractured fault zones in a manner similar to that of porous media i.e., more uniform rather than that of fractured rock flow which is more variable.

Faults near MW-5A

MW-5A is also located close to or within the Dibblee fault zone (Figure B.10, Attachment A), a 60-foot wide nearly vertical fault zone that trends northward into Fill Area 1 Unit 1. A 1993 study of this fault zone indicated there has not been recent activity (within ~12,000 years) along this fault. This fault lacks distinct, well-defined fault planes, which supports the groundwater conceptual model's assertion that groundwater in the Dibblee fault zone would flow as within a porous media rather than fracture flow.

Dissolved Metals at MW-5A, MW-7, and MW-11

MW-5A is located approximately 560 feet southeast of the southern extent of Fill Area 1 Unit 1, the unlined portion of the landfill (Figure 2, Attachment A). The screened interval for MW-5A is from 125 to 145 feet below ground surface (bgs).

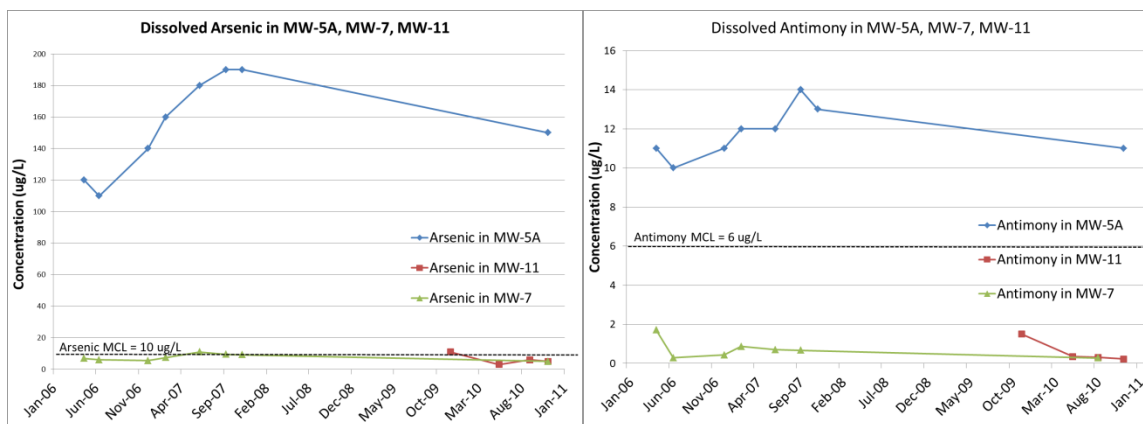
Since 2006, the concentrations of antimony and arsenic at MW-5A have ranged from 10 micrograms per liter ($\mu\text{g/L}$) to 14 $\mu\text{g/L}$ and 110 $\mu\text{g/L}$ to 190 $\mu\text{g/L}$, respectively. The MCLs for antimony and arsenic are 6 $\mu\text{g/L}$ and 10 $\mu\text{g/L}$, respectively. Well MW-7, screened at 97 to 117 feet bgs, located west of MW-5A and 240 feet south of the unlined portion of the landfill, had arsenic detections during seven consecutive quarters at concentrations ranging from 5.5 $\mu\text{g/L}$ to 11 $\mu\text{g/L}$. Well MW-11, located east of MW-5A and 1,000 feet southwest of the unlined portion of the landfill and screened from 100 to 120 feet bgs, had



Kelly Runyon
 ESA
 22 March 2011
 Page 5

two detections of arsenic between 2009 and 2010 at concentrations of 6 µg/L and 11 µg/L. Antimony has not been detected at MW-7 or MW-11.

The arsenic and antimony concentrations in MW-5A showed an increasing trend during the first seven quarters of monitoring through the end of 2007. Only one sample from MW-5A was collected and analyzed for metals since 2007; this sample collected in November 2010 is lower than the maximum concentration in 2007, but additional data would be needed to verify a concentration trend for arsenic and antimony at MW-5A. The frequency of metals testing at MW-5A and other detection wells is every five years, according to the WDR, so the next round of metals data will not be available until the end of 2015. See the charts below for arsenic and antimony trends in wells MW-5A, MW-7 and MW-11:



Besides MW-5A the only other monitoring points with MCL exceedances for arsenic were from leachate sump LS2 (25 µg/L and 54 µg/L in 2005 and 2010, respectively), unsaturated zone monitoring point VD2 (95 µg/L and 21 µg/L in 2005 and 2010, respectively), and VZM-A (31 µg/L in 2010). These monitoring points are located near the western boundary of Fill Area 1 Unit 2, approximately 4,000 feet northwest of MW-5A. Antimony was detected in VD2 at 7.3 µg/L during 2010. LS2, VD2 and VZM-A are located at Fill Area 1 Unit 2. Leachate at Fill Area 1 Unit 1 has had low concentrations of arsenic at monitoring points LS and VD at concentrations ranging between 2 µg/L and 5.1 µg/L. Antimony has not been detected in leachate at Fill Area 1 Unit 1. With the exception of antimony and arsenic, other dissolved metals have not exceeded MCLs in MW-5A, MW-7, or MW-11.

The 2nd Semiannual-Annual 2010 Groundwater Report states that antimony and arsenic are natural components of soil and rock and that these metals have historically been detected in several site wells. The report also states that trace metal concentrations are generally consistent in monitoring points across the site and this supports the conclusion that metals are naturally occurring. While there are numerous detections of metals in monitoring wells across the site, the concentrations of arsenic and antimony at MW-5A are between one and two orders of magnitude greater than arsenic and antimony concentrations at other groundwater monitoring wells at the site, indicating a localized source of these metals at MW-5A.



Kelly Runyon
 ESA
 22 March 2011
 Page 6

The low arsenic and antimony concentrations (2 µg/L to 5.1 µg/L arsenic, and non-detect for antimony) in leachate from Fill Area 1 Unit 1, located upgradient from MW-5A (Figure 2, Attachment), help support the possibility that the source of dissolved arsenic and antimony at MW-5A may not be Fill Area 1 Unit 1, but rather naturally occurring metals in bedrock at MW-5A.

Background Concentrations of Arsenic and Antimony

A 1988 study¹ of groundwater in the western U.S. compiled data showing that arsenic can be concentrated in marine mudstones (one rock type of the Great Valley Sequence observed at ALRRF) at up to 490 milligrams per kilogram (mg/kg). This study also identified several locations in California with dissolved arsenic in groundwater at concentrations ranging between 50 µg/L and 1,800 µg/L. These arsenic concentrations in groundwater are from aquifers with sedimentary basin-fill deposits, similar to that at ALRRF. Antimony also occurs naturally in bedrock and groundwater, and was detected in one study² at Lawrence Berkeley National Laboratory (LBNL) at concentrations between 0.7 mg/kg and 22 mg/kg. Bedrock (Great Valley Sequence sedimentary rocks) at LBNL is similar to bedrock observed at ALRRF. A study of background metals at Lawrence Livermore National Laboratory³ indicated antimony was detected in a background groundwater well at a concentration of 7 µg/L. The antimony concentration (10 µg/L to 14 µg/L) detected in MW-5A at ALRRF is within the same magnitude as this background well, indicating a possibility that antimony may be naturally occurring along with arsenic.

Organics at MW-5A, MW-7 and MW-11

Wells MW-5A, MW-7, and MW-11 have not had recent or historical detections of VOCs, semi-volatile organic compounds (SVOCs), pesticides, or herbicides greater than reporting limits. MW-5A has shown isolated trace detections of carbon disulfide, benzene, acetone, and methylene chloride. With the exception of carbon disulfide, these VOCs were detected in field or trip blanks or were attributed to laboratory cross contamination. MW-7 has shown isolated trace detections of acetone, benzene, carbon disulfide, chlorobenzene, chloromethane, 1,1-dichloroethene, and methylene chloride. The acetone, benzene, and methylene chloride were detected in field or trip blanks or were attributed to laboratory cross contamination. The other VOCs at MW-7 were detected only once at trace levels. MW-11 has had only one trace detection of methylene chloride, due to lab contamination.

¹ Welch, A. H., M. S. Lico, and J. L. Hughes. 1988. Arsenic in Ground Water of the Western United States. *Ground Water Journal*, vol. 26, no. 3, pp. 333-347.

² Diamond, D., D. Baskin, D. Brown, L. Lund, J. Najita, I. Javandel. 2002. Revised 2009. *Analysis of Background Distributions of Metals in the Soil at Lawrence Berkeley National Laboratory*.

³ Ferry, L., R. Ferry, W. Isherwood, R. Woodward, T. Carlsen, Z. Demir, R. Qadir, M. Dresen. 1999. *Final Site-Wide Feasibility Study for Lawrence Livermore National Laboratory Site 300*.



Kelly Runyon
 ESA
 22 March 2011
 Page 7

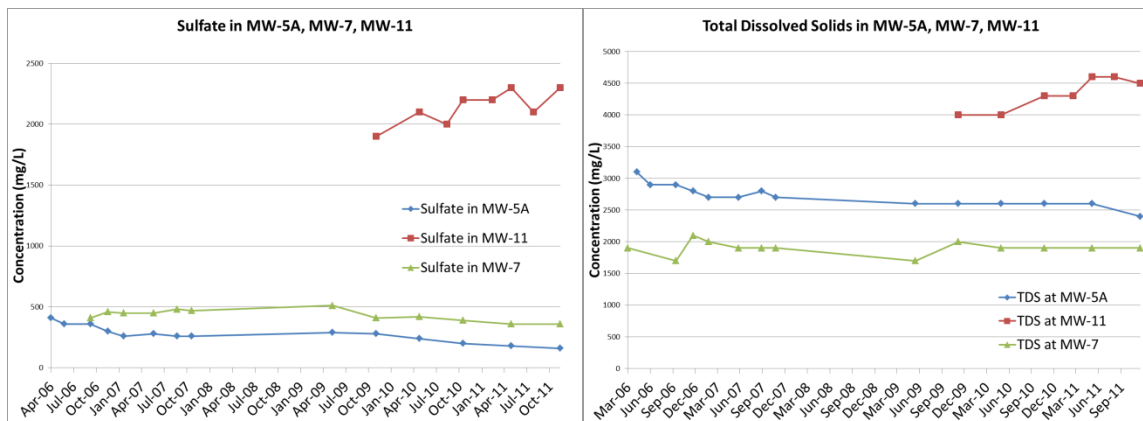
Inorganics at MW-5A, MW-7 and MW-11

MW-11 has had high total dissolved solids (TDS), up to 4,600 milligrams per liter (mg/L), relatively higher compared to other wells, and shows an increasing trend. The sulfate concentration in MW-11 (1,900 mg/L to 2,300 mg/L) shows an increasing trend, is more than one magnitude greater than other wells at ALRRF, and is closer to the range of sulfate concentrations from leachate and unsaturated zone samples (detected up to approximately 5,000 mg/L) from Fill Area 1 Unit 1. However, sulfate alone may not be a reliable indicator of leachate impact because sulfate can occur naturally due to sulfate minerals in the soil. MW-11 also has shown elevated concentrations of sodium (1,300 mg/L to 1,700 mg/L) relative to other wells. The 2009 Monitoring and Reporting Program cites previous studies that have indicated groundwater within area surrounding ALRRF has high concentrations of TDS, nitrate, magnesium, sodium, chloride, and bicarbonate, due to mineralogy of the soil and agricultural activities.

MW-5A also has relatively high TDS (2,400 mg/L to 3,100 mg/L), but shows a decreasing trend over a period of 5 1/2 years. Sulfate, nitrate, calcium, magnesium, and potassium also show decreasing trends at MW-5. Total organic carbon (TOC) was detected during 2010 at several site wells including MW-5A and MW-11. TOC is a food source for microbes and its presence may explain the decreasing trends for nitrate and sulfate in MW-5A. Microbes can use nitrate and sulfate as electron acceptors (reducing nitrate and sulfate) to continue metabolizing TOC in the absence of oxygen.

Inorganic parameters at MW-7 appear stable and are generally consistent with other monitoring wells at the site, with the exception of slightly higher TDS than other site wells besides MW-5A and MW-11.

Inorganic parameters at MW-5 are generally consistent with other groundwater monitoring wells at the site, with the exception of slightly greater TDS. See the charts below for TDS and sulfate trends in wells MW-5A, MW-7 and MW-11:



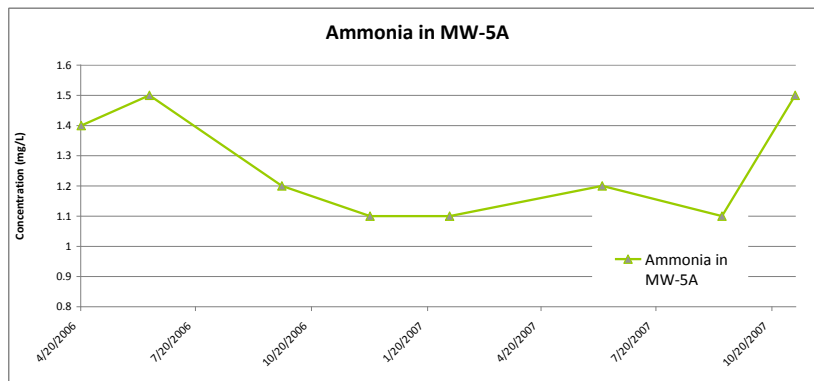


Kelly Runyon
 ESA
 22 March 2011
 Page 8

Chemical oxygen demand (COD) concentration at wells MW-5, MW-7, and MW-11 appears to be stable and within similar range as other detection wells at ALRRF. Chemical oxygen demand represents the total amount of carbon based compounds (organics), and can be a reliable indicator of impacts to groundwater from anthropogenic sources including landfills.

Ammonia has been detected historically at wells at ALRRF during eight quarters of background monitoring during 2006 to 2007. Average concentration of ammonia at MW-5A was higher than all other detection or corrective action wells. Ammonia concentration at MW-5A during background monitoring appears stable. Ammonia has not been tested for at MW-11 because it was installed after the WDR was revised in 2009, and ammonia is no longer required to be tested according to the WDR. Ammonia is a common component of leachate, but can also come from livestock manure. Ammonia is stable under reducing conditions and changes to nitrate in oxidizing conditions.

Average Ammonia Concentration at Select Wells (concentrations in mg/L)						
Screen Depth (feet bgs):	(60-70)	(125-145)	(97-117)	(45-65)	(77-97)	(23-43)
	PC-1B	MW-5A	MW-7	MW-10	MW-2A	E-23
	0.86	1.26	0.66	0.65	0.91	0.56



Oxygen reduction potential (ORP) field measurements have been positive (between 20 to 120 milivolts), and field measurement of dissolved oxygen (DO) has averaged approximately 6 mg/L since 2007 at MW-5A. However, field measurements for ORP and DO are generally not as accurate as laboratory measurement of these parameters. The pH at MW-5A has ranged between approximately 7 and 8. Dissolved iron was not detected at MW-5A; iron is normally expected to occur along with dissolved



Kelly Runyon
ESA
22 March 2011
Page 9

arsenic. These factors may indicate oxic conditions⁴ at MW-5A. However, ammonia has been detected for eight quarters between 2006 and 2007 at an average concentration of 1.26 mg/L, which is usually an indicator of reducing conditions. The presence of TOC and decreasing trends for nitrate and sulfate are also potential indicators of reducing conditions, although sulfide was not detected in MW-5A. Presence of sulfide would provide further indication of reducing conditions. Based on the parameters discussed above it appears that groundwater conditions are near the boundary of oxic and reducing.

Data Evaluation Conclusions

The relatively high concentrations of arsenic, antimony, and ammonia compared to other site wells indicate potential impact to groundwater at MW-5A. However, given the following, it is difficult to make a definitive determination regarding landfill impacts at MW-5A:

- Leachate samples from upgradient Fill Area 1 Unit 1 do not contain elevated antimony and arsenic,
- TDS shows a decreasing trend at MW-5A,
- Arsenic and antimony groundwater concentrations are within background ranges for similar lithologies, and
- No VOCs have been detected above reporting limits at MW-5A.

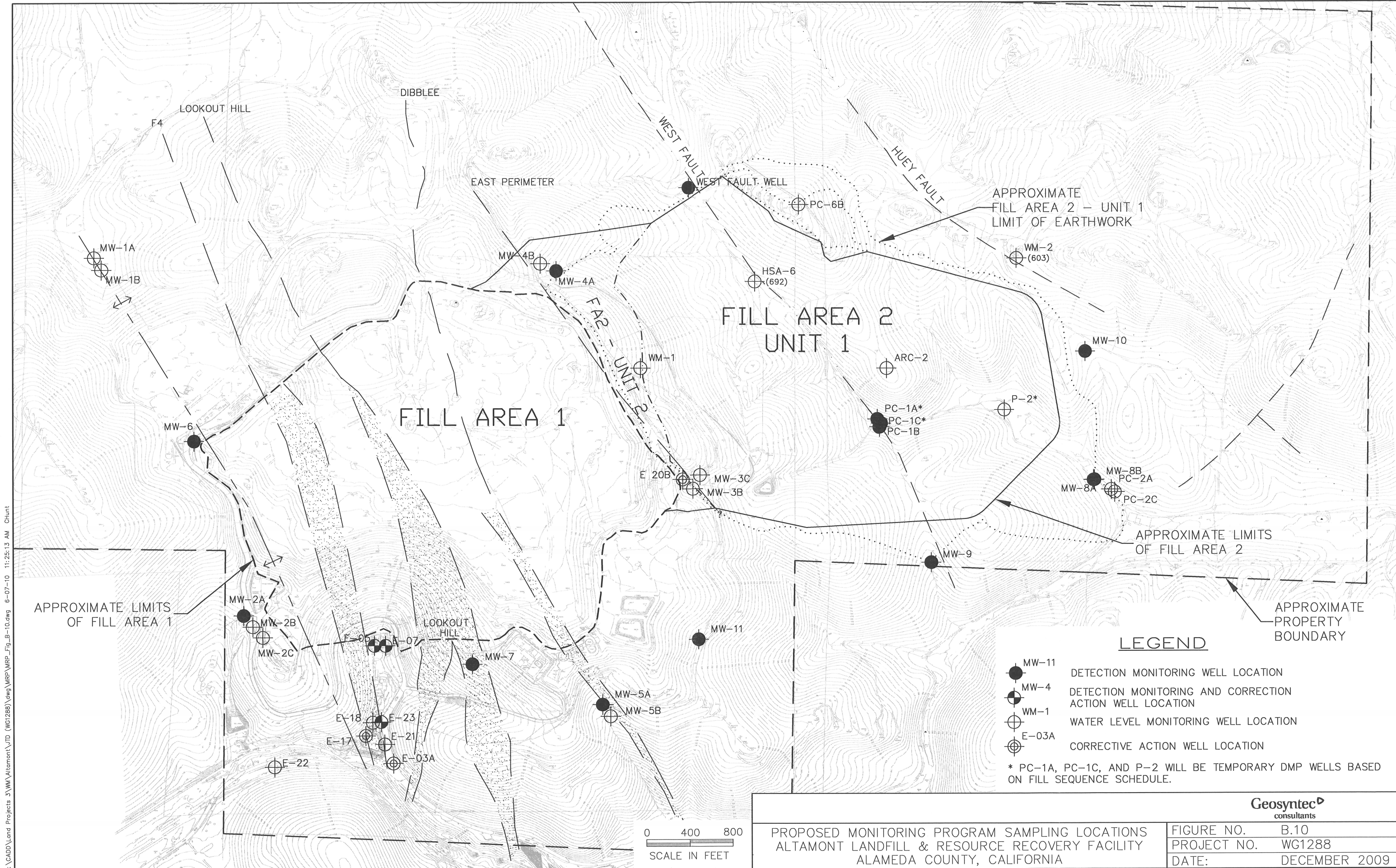
MW-11 has the highest level of TDS relative to other wells, but given that studies have indicated elevated background concentrations of TDS in groundwater, and a lack of other leachate indicators such as VOCs, it doesn't appear that the landfill has impacted groundwater at MW-11 at this time.

MW-7 has slightly elevated TDS compared to other site wells, except MW-5A and MW-11, and has had only isolated trace VOC detections. It doesn't appear that the landfill has impacted MW-7 at this time.

It is important to note this evaluation has been conducted with limited data from three monitoring wells downgradient of Fill Area 1 Unit 1. Ideally, there would be more frequent testing for metals and other water quality parameters to enable a more thorough evaluation of trends and monitor if concentrations increase above background levels.

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⁴ Oxic groundwater contains dissolved oxygen concentration greater than or equal to 0.5 mg/L.



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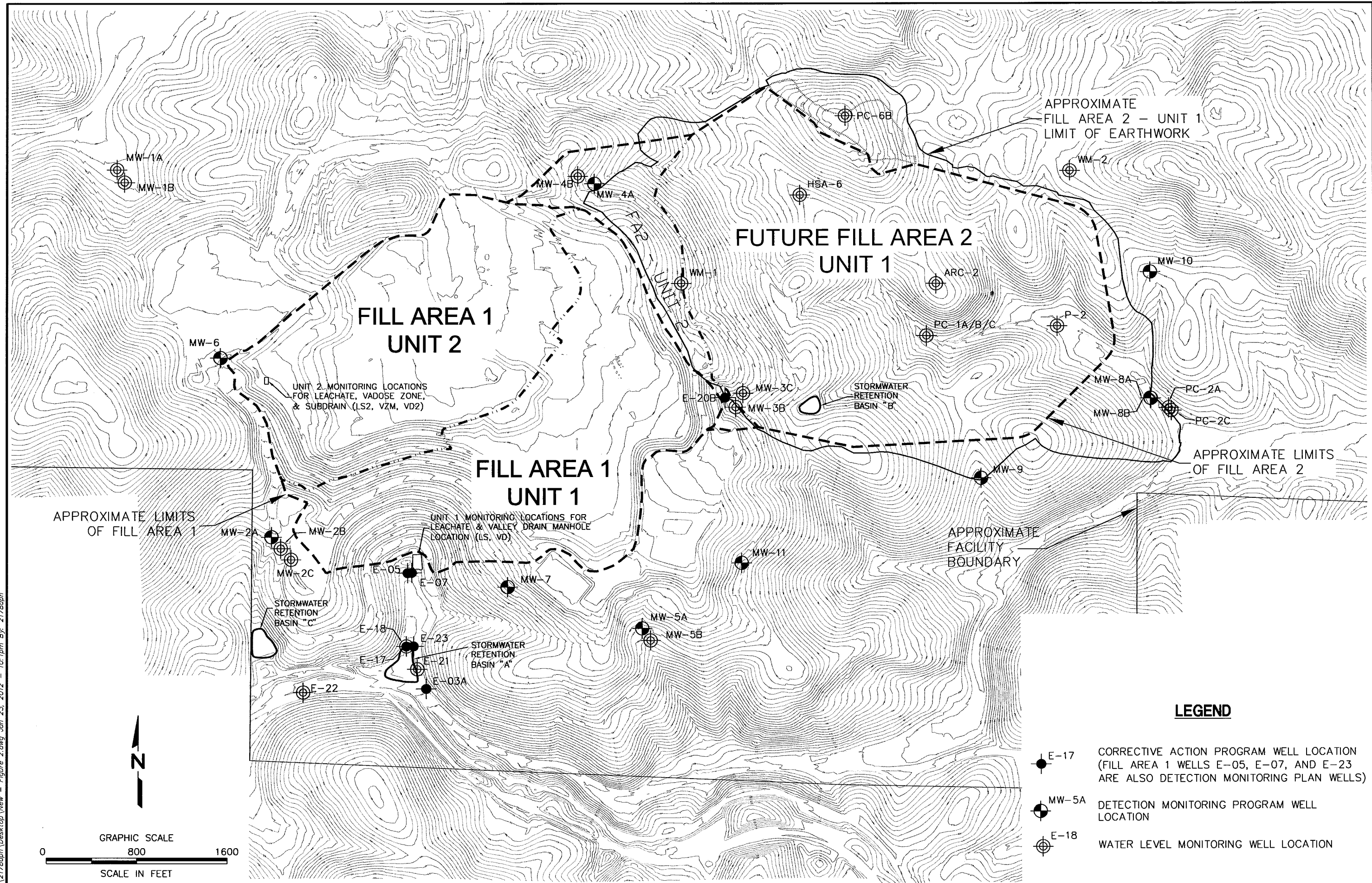
LEGEND

- MW-11 DETECTION MONITORING WELL LOCATION
 - MW-4 DETECTION MONITORING AND CORRECTION ACTION WELL LOCATION
 - WM-1 WATER LEVEL MONITORING WELL LOCATION
 - E-03A CORRECTIVE ACTION WELL LOCATION
- * PC-1A, PC-1C, AND P-2 WILL BE TEMPORARY DMP WELLS BASED ON FILL SEQUENCE SCHEDULE.




Geosyntec
consultants

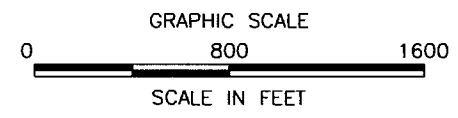
PROPOSED MONITORING PROGRAM SAMPLING LOCATIONS
ALTAMONT LANDFILL & RESOURCE RECOVERY FACILITY
ALAMEDA COUNTY, CALIFORNIA

FIGURE NO. B.10
PROJECT NO. WG1288
DATE: DECEMBER 2009



LEGEND

-  E-17 CORRECTIVE ACTION PROGRAM WELL LOCATION (FILL AREA 1 WELLS E-05, E-07, AND E-23 ARE ALSO DETECTION MONITORING PLAN WELLS)
-  MW-5A DETECTION MONITORING PROGRAM WELL LOCATION
-  E-18 WATER LEVEL MONITORING WELL LOCATION



SOURCE: JUNE 30, 2011 TOPO PROVIDED BY WASTE MANAGEMENT

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PROJECT TITLE:	ALTAMONT LANDFILL AND RESOURCE RECOVERY FACILITY LIVERMORE, CALIFORNIA				
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FIGURE NO.	2				
DRAWN BY:	A. HUTCHENS				
CHECK BY:	T. SCHMESING				
APP. BY:	K. LISTER				
PROJ. NO.	01022208.05				
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