

**WASTE EVALUATION & ENFORCEMENT BRANCH CHIEF
ACTION REQUEST**

To: Georgianne Turner, Branch Chief
Waste Evaluation and Enforcement Branch



From: Paulina Lawrence, Section Manager
Solid Waste Enforcement Section

Prepared By: Troy Weber, Solid Waste Enforcement Section

Request Date: July 7, 2016

Action By: August 8, 2016

Decision Subject: Consideration of an extension request of one year beyond two years of a Compliance Schedule for California Street Landfill, San Bernardino County (36-AA-0017), a facility included on the Inventory of solid waste facilities which violate State Minimum Standards (Inventory)

SUMMARY

The California Street Landfill site is owned and operated by the City of Redlands Municipal Utilities Department (City). The landfill site encompasses approximately 115 acres and is located at 2151 Nevada Street in the city of Redlands. Adjacent land use is zoned commercial, industrial and agricultural. To the north of the site there is the Santa Ana River bed, to the east is the City of Redlands Waste Water Treatment Facility, to the south is a commercial distribution warehouse, to the southwest is a 12 acre orange grove owned by the City and to the west is commercial office building and another distribution warehouse. There are no homes within 1 mile (5,280 feet) of the facility boundary.

The California Street Landfill was listed on the Inventory on May 19, 2014 with the LEA issuing a Compliance Schedule on June 6, 2014 for ongoing violations of 27 CCR 20921- Gas Monitoring and Control. Title 14, California Code of Regulations (CCR), Section 18365 (b) allows the LEA to issue a compliance schedule for more than one year but not to exceed two years, after informing the executive director in writing.

The LEA, on April 28, 2015 granted the operator the first one year extension to achieve compliance with the outstanding violation by May 19, 2016. Although progress towards compliance is reported, the LEA has determined that a another one year extension is necessary to allow the operator achieve full compliance with the requirements. Therefore, the LEA has submitted a request for approval by the executive director for a one year extension beyond two years, to the compliance schedule.

This is the first LEA extension request for approval submitted to CalRecycle. With this extension request, the LEA is proposing a compliance due date of May 19, 2017 to achieve full compliance with the requirements. The LEA has determined that the operator has demonstrated a good faith effort by taking

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numerous steps to minimize methane along the permitted boundary, specifically in and around the areas of perimeter landfill gas probes P-8 and P-11.

The operator has made improvements to the landfill gas collection system to include: improving the landfill gas extraction system, upgrades to the flare, adjustments to collection headers and lateral lines, replacement of sump pumps handling condensate and tuning of the entire collection system on a regular basis. The methane levels in probes P-8 and P-11 have been significantly reduced during the last two years but are still above 5% methane by volume in air. CalRecycle staff conducted gas monitoring in probes P-8 and P-11 during an 18 month inspection on May 17, 2016. No methane was detected in probe P-11 but probe P-8 had the following results: Shallow - 5.7%, Mid - 8.1%, Deep - 13%. These methane levels are substantially lower than the levels observed in 2015 which were approximately 30% in P-8 and as high as 34.5% in P-11 (Deep), and the levels that were reported in April 2016 which were as high as 13.5% in P-8 and 10.5% in P-11. The operator appears to be making progress towards compliance.

OPTIONS

1. Approve the extension for the proposed compliance due date to May 19, 2017.
2. Conditionally approve the extension request.
3. Deny the extension to the compliance due date, and direct the LEA to take specific further enforcement action.

BACKGROUND

In 2013, methane levels were measured above the 5% regulatory limit in perimeter landfill gas wells P-8 and P-11 located in the southeastern portion of the landfill. As a result, the facility was eventually added to the Inventory and the LEA issued a Compliance Schedule on June 6, 2014 with a compliance due date of May 19, 2015.

The initial (June 6, 2014) Compliance Schedule required the items below which were completed by the operator:

- A remediation plan notice of completion due June 13, 2014
- Monthly methane gas monitoring reports submitted to LEA - ongoing
- Updates to LEA and CalRecycle if additional LFG design changes are needed – as needed

Prior to the May 19, 2015 compliance date listed in the initial Compliance Schedule, the LEA documented that the operator conducted the following work:

- Installed 6 vertical extraction wells in Phase II and associated laterals to tie into the existing headers.
- Extended the existing 10" header along the south side of Phase III.
- Installed one additional condensate sump at the end of the new header (CS#5) and connected it to the system.
- Installed LCRS well head and a vacuum at the header clean out pipe that connects to the sump.
- Submitted monthly methane monitoring results for wells P-8 and P-11 to the LEA.

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Due to good faith effort, on April 28, 2015 the LEA extended the final compliance date until May 19, 2016. The revised Compliance Schedule included the following additional steps to remediate the elevated landfill gas:

- Request for additional assessment, consultation, and repair recommendation and construction observation to mediate the high methane levels.
- Complete the flare burner modification to help separate landfill gas and digester gas.
- Install two soil vapor extraction (SVE) wells between the lined waste in place at the southwest corner of Phase II and probes P-8 and P-11.
- Perform repairs to Sumps CS#3 and CS#4.
- Identify the low vacuum at wells VW-51 through VW-56.
- Evaluate the connection of the LCRS 2 to the header to help remove gas from Phase II.
- Repair and/or install new pumps in the leachate collection systems as needed.
- Continue to submit monthly methane monitoring results for wells P-8 and P-11 to the LEA.

Currently, the compliance schedule steps above have been completed with the exception of the installation of two soil vapor extraction wells (SVE). SCS Engineers recommended to the operator to wait in installing these additional extraction wells until evaluation of the methane gas collection system. Upon the report completion, SCS Engineers recommended that the operator install ten soil vapor extraction wells at the landfill.

ACTIONS THAT THE OPERATOR HAS TAKEN TO COMPLY

On June 3, 2016, CalRecycle received the LEA's **first extension request, dated June 3, 2016**, with a compliance date of May 19, 2017. Since *the LEA's one-year extension* was approved, below describes in further detail, the operator's effort to correct the ongoing violations:

1. In July 2015, the operator advertised a Request for Proposals (RFP) for Technical Evaluation and Design for LFG Collection System. The project was awarded to SCS Engineers who conducted an assessment of the gas collection system. SCS completed an assessment of the gas collection system and submitted a draft of their recommendations in February 2016.
2. The operator is in the process of preparing a Request for Bids and advertising the construction project, and will submit the documentation to CalRecycle and advertise the project after feedback is received.
3. SCS reviewed the proposed GCE flare modifications in August 2015 and devised an alternative that would allow an increase in vacuum to the landfill wellfield without the need for an extensive flare shutdown and SCAQMD permitting. The alternative solution involved piping modifications that routed the gas stream from the digester to the inlet side of the blowers from their current configuration at the outlet of the blowers. This modification was successful in separating the landfill gas and digester gas at the flare.
4. Upon award of contract, SCS evaluated the operator's plans to install the two soil vapor extraction wells and recommended that the operator not take immediate action to install the wells. Rather, SCS recommended that it be included in its evaluation of the methane gas collection system. Following the completion of their report, SCS recommended installation of four soil vapor extraction wells along the southern boundary of Phases 2 and 3. These SVE's would collect any trapped LFG south of the lined cells. SCS also strongly recommends installation of six SVE wells along the header to

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the south of the unlined portion of the west side landfill as interceptor wells. These SVE's would cut off the flow of LFG in the coarse sand layer and prevent migration south under the existing and future lined cells. This plan has been submitted to and reviewed by CalRecycle. The City will go out to bid once approval is received.

5. SCS performed a field investigation on July 2015 of the existing perimeter header adjacent to CS#3 and CS3#4. Using a pipe inspection camera, it was determined that the force main line in service for CS#3 and both Phase 1 and 2 LCRS locations was plugged. A bypass of the blockage was designed and constructed. The bypass has resulted in greater and more consistent vacuum to all LFG wells.
6. Vacuum levels have been increased to wells VW-51 through VW-56 as a result of the bypass noted above as well as re-configuring the digester piping at the flare station. The piping modifications allowed for adjustments to the wellfield variable frequency drive (VFD). These adjustments have resulted in an increase in blower vacuum from 8 to 28.5 inches of water column resulted in 16 to 20 inches of water column in Phases 1 and 2.
7. The operator submitted an update to their LFG Remediation Plan on June 14, 2016 to CalRecycle. The Plan will reduce methane along the permitted boundary of the landfill, focusing on probes P-8 and P-11. At the recommendation of SCS, the planned changes include the installation of ten soil vapor extraction wells and further evaluation and tuning of the landfill gas collection system. CalRecycle staff reviewed the Remediation Plan, and provided comments regarding the proposed changes to the LFG system to the operator and the LEA on July 6, 2016.

ANALYSIS

The LEA may grant a one-year extension beyond two years upon approval by CalRecycle's Executive Director or by his/her delegate. CalRecycle approval is based upon finding that the LEA is taking "appropriate enforcement action" using the criteria of Title 14 Section 18084(d) which takes into account timely progress by the operator in addition to demonstrations of "good faith effort" and documentation of "extenuating circumstances". The following findings support the staff recommendation for a one-year extension request:

- The operator has complied most milestones outlined in the issued Compliance Schedules. Although, the operator has significantly reduced methane levels at the perimeter, probes they have not corrected the violation by reducing methane below 5% along the permitted boundary (specifically in perimeter probes P-8 and P-11.)
- The operator continues to submit monthly LFG reports to the LEA.
- The operator has submitted a plan to install ten soil vapor extraction wells and additional LFG extraction wells in the waste mass/units.
- The operator has substantially lowered methane levels as observed for 2014 and 2015, and reported levels for April 2016.
- The operator requested CalRecycle's review of updated Remediation Plan/proposed changes to the LFG system. On July 6, 2016, CalRecycle forwarded comments to the operator and the LEA.
- The operator will also continue working with GCE and SCS to improve the LFG system.

FINDINGS

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The operator has made steady and measurable progress in reducing the amount of methane along the permitted boundary, including the installation of extraction wells, additional horizontal lines, improvements to the condensate collection system, upgrades to the flare and continuous tuning by GCE.

Based on the criteria set forth in 14 CCR 18084, the operator has made a good faith effort and the LEA is taking appropriate enforcement action. Furthermore, the operator has submitted an updated Remediation Plan, therefore, it is reasonable to grant the additional time to bring the facility into full compliance.

RECOMMENDATION

CalRecycle staff recommends that the operator be granted an extension for full compliance until May 19, 2017.

BRANCH CHIEF ACTION:

On the basis of the information in this Action Request, I hereby issue, pursuant to 14 CCR 18365(b), approval of the *Extension Request* to the owner and operator of the California Street Landfill Site (36-AA-0017) to May 19, 2017.

Dated: *Aug 8, 2016*



Georgianne Turner
Branch Chief
Waste Evaluation and Enforcement Branch

Attachments:

- LEA Extension Request Letter
- City of Redlands Extension Request Letter
- Methane Levels in Probes P-8 & P-11
- Map of LFG System
- ESB Remediation Plan Review Memo



**Public Health
Environmental Health
Services**

Trudy Raymundo
Director

Corwin Porter, MPH, REHS
Assistant Director

Maxwell Ohikhuare, M.D.
Health Officer

Josh Dugas, REHS
Division Chief

June 3, 2016

Georgianne Turner, Branch Chief
Department of Resources Recycling and Recovery (CalRecycle)
Waste Permitting, Compliance, and Mitigation Division
georgianne.turner@Calrecycle.ca.gov

SUBJECT: REQUEST FOR COMPLIANCE SCHEDULE EXTENSION, A ONE YEAR EXTENSION BEYOND TWO YEARS, PERSUANT TO TITLE 14, CCR, SECTION 18365(B) FOR CALIFORNIA STREET LANDFILL, SWIS# 36-AA-0017

Dear Ms. Turner,

The California Street Landfill has requested an additional one year extension to the current compliance schedule. Upon approval, this second request will extend the compliance schedule deadline from May 19, 2016 to May 19, 2017.

History

On May 19, 2014, the California Street Landfill was placed on the Inventory List for ongoing violations of Title 27 -20921 – Gas Monitoring and Control for methane exceedance in Probes P-8 and P-11 located at the southwest and southeast corners of the double-lined Phase 2. On June 6, 2014, San Bernardino County LEA issued a compliance schedule to the City of Redlands with a final compliance date of May 19, 2015. A request for extension was submitted and granted to May 19, 2016.

During the past year, the City of Redlands has made diligent efforts to reduce and control methane exceedance in Probes P-8 and P-11. The City's efforts include the following as outlined in the City's April 2015 compliance extension request:

- ✓ *Request for additional assessment, consultation, repair recommendation and construction observation to mediate the high methane levels*

In July 2015, City staff advertised a Request for Proposals (RFP) for Technical Evaluation and Design for LFG Collection System. The project was awarded to SCS Engineers who conducted an assessment of the gas collection system. SCS completed an assessment of the gas collection system and submitted a draft of their recommendations in February 2016. Their recommendations outlined a plan to increase landfill gas extraction and removal in order to bring methane levels into compliance. CalRecycle staff has requested to review the proposed project and provide feedback. The City is in the process of preparing a Request

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Chief Executive Officer

for Bids and advertising the construction project and will submit the documentation to CalRecycle and advertise the project after feedback is received.

- ✓ *Complete the flare burner modification to help separate landfill gas and digester gas*

In 2013 GC Environmental (GCE) prepared plans and specifications for a modification to the flare burner manifold that would allow better interaction between the landfill and wastewater treatment operations. SCS was contracted by the City to perform these modifications designed by GCE but due to complications with the South Coast Air Quality Management District (SCAQMD), a permit for a temporary thermal oxidizer needed to be obtained. A permit application to operate up to five (5) Portable Thermal Oxidizers and extraction blowers is was submitted to the SCAQMD in January 2015. The City received the approved permit in December 2015; however, the permitted oxidizers are not available due to their use at the Southern California Gas Porter Ranch Wellfield.

SCS reviewed the proposed GCE flare modifications in August 2015 and devised an alternative that would allow an increase in vacuum to the landfill wellfield without the need for an extensive flare shutdown and SCAQMD permitting. The alternative solution involved piping modifications that routed the gas stream from the digester to the inlet side of the blowers from their current configuration at the outlet of the blowers. This modification was successful in separating the landfill gas and digester gas at the flare.

- ✓ *Install two soil vapor extraction (SVE) wells between the lined waste in place at the southwest corner of Phase 2 and probes P-8 and P-11*

Upon award of contract, SCS evaluated the city's plans to install the two soil vapor extraction wells and recommended that the city not take immediate action to install the wells. Rather, SCS recommended that it be included in its evaluation of the methane gas collection system. Following the completion of their report, SCS recommended installation of four soil vapor extraction wells along the southern boundary of Phases 2 and 3. These SVE's would collect any trapped LFG south of the lined cells. SCS also strongly recommends installation of six SVE wells along the header to the south of the unlined portion of the west side landfill as interceptor wells. These SVE's would cut off the flow of LFG in the coarse sand layer and prevent migration south under the existing and future lined cells. This plan will be submitted to CalRecycle for review and will be let to bid once approval is received.

- ✓ *Perform repairs to Sumps CS#3 and CS#4*

SCS performed a field investigation of the existing perimeter header adjacent to CS#3 and CS#4. Using a pipe inspection camera, it was determined that the force main line in service for CS#3 and both Phase 1 and 2 LCRS locations was plugged. A bypass of the blockage was designed and constructed. The bypass has resulted in greater and more consistent vacuum to all LFG wells.

- ✓ *Identify the low vacuum at wells VW-51 through VW-56*

Vacuum levels have been increased to wells VW-51 through VW-56 as a result of the bypass noted above as well as re-configuring the digester piping at the flare station. The piping modifications allowed for adjustments to the wellfield VFD. These adjustments have resulted in an increase in blower vacuum from 8 to 28.5 inches of water column resulted in 16 to 20 inches of water column in Phases 1 and 2.

- ✓ Evaluate the connection of the LCRS 2 to the header to help remove gas from Phase II

Using a pipe inspection camera, it was determined that the force main line in service for CS#3 and both Phase 1 and 2 LCRS locations was plugged. A bypass of the blockage was designed and installed.

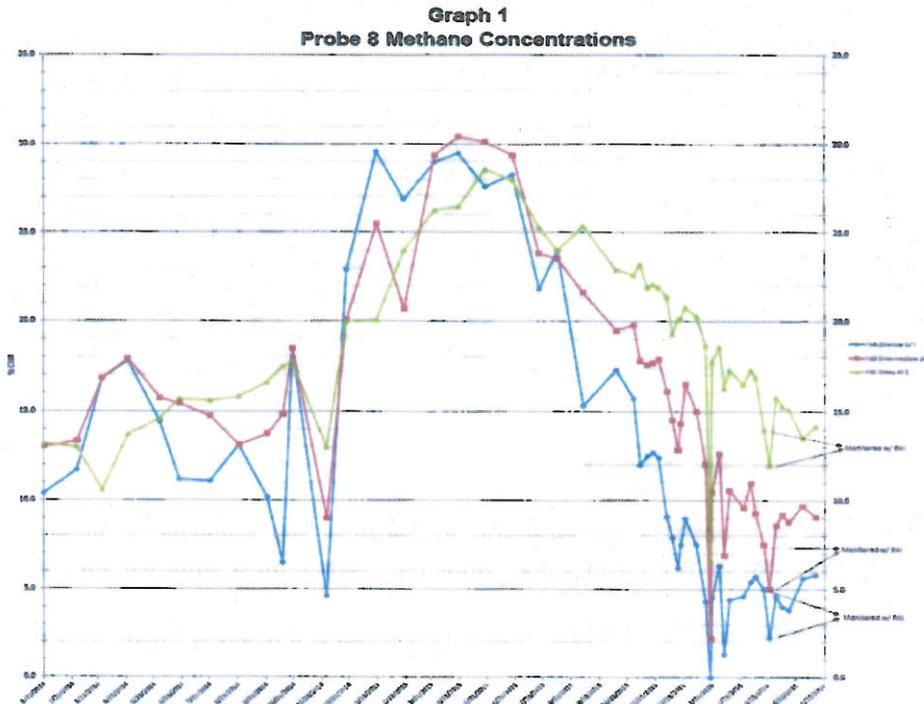
- ✓ Repair and/or install new pumps in the leachate collection systems as needed

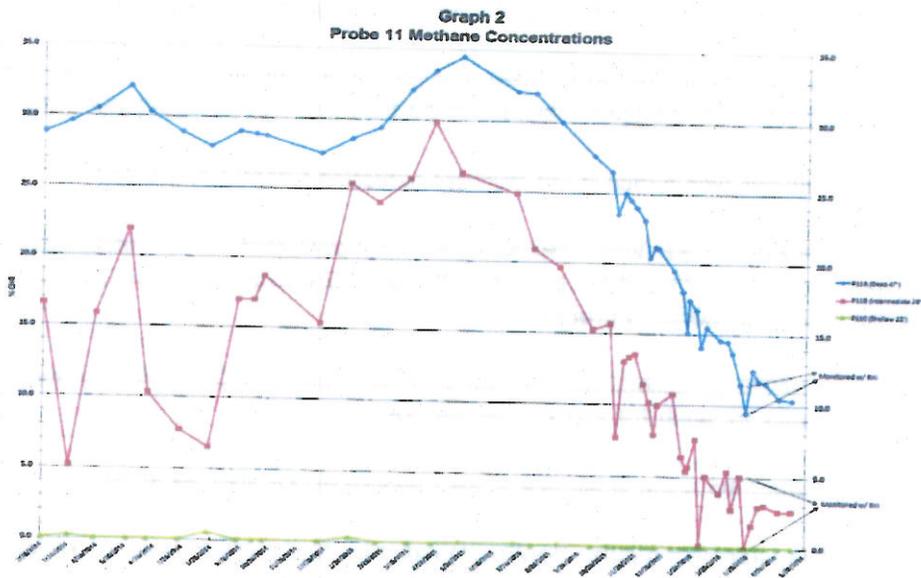
Repairs and maintenance of the leachate collection system are performed on a routine basis. The most recent visual inspection and cleaning of the pumps in Phase 1 & 2 was performed in April 2016 and confirmed that the system is operating properly.

- ✓ As a condition of the extension, the operator shall continue to submit monthly methane monitoring results for wells P-8 and P-11 to the LEA

Monthly reports are submitted at the beginning of each month to LEA staff via email.

In the past year, data derived from regular monitoring indicates that methane concentration levels have decreased significantly. The methane concentration in P-8 and P-11 have decreased 70% and continue to show downward trends as indicated in the attached methane concentration graphs and table:





	May 2015	April 2016	
	% Methane	% Methane	Approximate % Decrease
Probe Depth / Interval			
P-8 (Shallow)	27.6	5.6	80
P-8 (Intermediate)	30.1	9.7	68
P-8 (Deep)	28.6	13.5	53
P-8 (Shallow)	0.1	0	100
P-8 (Intermediate)	26.3	2.6	90
P-8 (Deep)	34.5	10.5	70

City of Redlands Proposed Plan of Action

The City of Redlands is requesting an extension to perform the following activities based on the recommendations provided by SCS Engineering. Upon extension request approval the City will:

- Install and or optimize LFG extraction wells in the existing and active waste fill areas
- Installation of six soil vapor extraction wells (SVE) along the header to the south of the unlined portion of the west side Landfill as interceptor wells. These SVE's would cut off the flow of LFG in the coarse sand layer and prevent migration south under the existing and future lined cells
- Installation of four SVE's along the southern boundary of Phases 2 and 3 to collect any trapped gas near probes P-8 and P-11

- Further optimize extraction via well tuning in the existing LFG wells utilizing the increased vacuum resulting from recent flare piping modifications

In addition, should the concentration of methane gas migrating from the disposal site exceed 5% by volume upon the compliance schedule deadline of May 19, 2017, the LEA may issue a Notice and Order pursuant to 14 CCR, Section 18304 or request an additional one year extension to CalRecycle pursuant to 14 CCR, Section 18365 (b)

The City of Redlands, owner of the California Street Landfill, has made significant progress in the mitigation of methane gas exceedance for probes P-8 and P-11. Based on these actions, the LEA requests approval of the compliance schedule extension, until May 19, 2017 by the Executive Director for CalRecycle or his designee.

Sincerely,

A handwritten signature in black ink, appearing to read "Almond", with a stylized flourish extending to the right.

Diana Almond, REHS
Supervising LEA

Cc: Troy Weber, CalRecycle (Troy.Weber@CalRecycle.ca.gov)
Diane Ohiosumua, CalRecycle, (Dianne.Ohiosumua@calrecycle.ca.gov)



QUALITY OF LIFE
DEPARTMENT

City of
REDLANDS

Incorporated 1888
City of Redlands
35 Cajon Street, Suite 222, Redlands, CA 92373
909-798-7624
cboatman@cityofredlands.org

Chris Boatman
Director

May 19, 2016

Diana Almond, REHS
Supervising Environmental Health Specialist
Department of Public Health
172 3rd Street, 1st Floor
San Bernardino, CA 92415

RE: REQUEST FOR EXTENSION OF COMPLIANCE SCHEDULE FOR THE CALIFORNIA STREET LANDFILL, SWIS #36-AS-0017

Dear Ms. Almond,

With this letter, the City of Redlands is requesting a one-year extension to the compliance schedule for the California Street Landfill (SWIS #36-AA-017). Approval of this request will extend the deadline for compliance from May 19, 2016 to May 19, 2017. The purpose of this request is to complete repairs and upgrades detailed in the following letter in order to address methane concentration exceedance in monitoring probes P-8 and P-11.

Background

On May 19, 2014, the California Street Landfill was placed on the Inventory List for ongoing violations of 27 CCR 20921 – Gas Monitoring and Control. On June 6, 2014, the San Bernardino County LEA (LEA) issued a compliance schedule to the City with a final compliance date of May 19, 2015 which was later extended to May 19, 2016. The violations were related to methane exceedances in Probes P-8 and P-11 which are located at the southwest and southeast corners of Phase 2 (double-lined).

The City of Redlands has been making diligent efforts to reduce and control methane exceedance in Probes P-8 and P-11. The City's efforts include the following as outlined in the City's April 2015 compliance extension request:

- 1) Request for additional assessment, consultation, repair recommendation and construction observation to mediate the high methane levels

City Staff advertised a Request for Proposals (RFP) for Technical Evaluation and Design for LFG Collection System in July 2015. The project was awarded to SCS Engineers who conducted an assessment of the gas collection system. SCS completed an assessment of the gas collection system and submitted a draft of their recommendations in February 2016. Their recommendations

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outlined a plan to increase landfill gas extraction and removal in order to bring methane levels into compliance. CalRecycle staff have requested to review the proposed project and provide feedback. The City is in the process of preparing a Request for Bids and advertising the construction project and will submit the documentation to CalRecycle and advertise the project after feedback is received.

- 2) Complete the flare burner modification to help separate landfill gas and digester gas

In 2013 GC Environmental (GCE) prepared plans and specifications for a modification to the flare burner manifold that would allow better interaction between the landfill and wastewater treatment operations. SCS was contracted by the City to perform these modifications designed by GCE but due to complications with the South Coast Air Quality Management District (SCAQMD), a permit for a temporary thermal oxidizer needed to be obtained. A permit application to operate up to five (5) Portable Thermal Oxidizers and extraction blowers is was submitted to the SCAQMD in January 2015. The City received the approved permit in December 2015; however, the permitted oxidizers are not available due to their use at the Southern California Gas Porter Ranch Wellfield.

SCS reviewed the proposed GCE flare modifications in August 2015 and devised an alternative that would allow an increase in vacuum to the landfill wellfield without the need for an extensive flare shutdown and SCAQMD permitting. The alternative solution involved a piping modifications that routed the gas stream from the digester to the inlet side of the blowers from their current configuration at the outlet of the blowers. This modification was successful in separating the landfill gas and digester gas at the flare.

- 3) Install two soil vapor extraction wells between the lined waste in place at the southwest corner of Phase 2 and probes P-8 and P-11

Upon award of contract, SCS evaluated the city's plans to install the two soil vapor extraction wells and recommended that the city not take immediate action to install the wells. Rather, SCS recommended that it be included in its evaluation of the methane gas collection system. Following the completion of their report, SCS recommended installation of four soil vapor extraction wells along the southern boundary of Phases 2 and 3. These SVE's would collect any trapped LFG south of the lined cells. SCS also strongly recommends installation of six SVE wells along the header to the south of the unlined portion of the west side landfill as interceptor wells. These SVE's would cut off the flow of LFG in the coarse sand layer and prevent migration south under the existing and future lined cells. This plan will be submitted to CalRecycle for review and will be let to bid once approval is received.

- 4) Perform repairs to Sumps CS#3 and CS#4

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SCS performed a field investigation of the existing perimeter header adjacent to CS#3 and CS3#4. Using a pipe inspection camera, it was determined that the forcemain line in service for CS#3 and both Phase 1 and 2 LCRS locations was plugged. A bypass of the blockage was designed and constructed. The bypass has resulted in greater and more consistent vacuum to all LFG wells.

- 5) Identify the low vacuum at wells VW-51 through VW-56

Vacuum levels have been increased to wells VW-51 through VW-56 as a result of the bypass noted above as well as re-configuring the digester piping at the flare station. The piping modifications allowed for adjustments to the wellfield VFD. These adjustments have resulted in an increase in blower vacuum from 8 to 28.5 inches of water column resulted in 16 to 20 inches of water column in Phases 1 and 2.

- 6) Evaluate the connection of the LCRS 2 to the header to help remove gas from Phase II

Using a pipe inspection camera, it was determined that the forcemain line in service for CS#3 and both Phase 1 and 2 LCRS locations was plugged. A bypass of the blockage was designed and installed.

- 7) Repair and/or install new pumps in the leachate collection systems as needed

Repairs and maintenance of the leachate collection system are performed on a routine basis. The most recent visual inspection and cleaning of the pumps in Phase 1 & 2 was performed in April 2016 and confirmed that the system is operating properly.

- 8) As a condition of the extension, the operator shall continue to submit monthly methane monitoring results for wells P-8 and P-11 to the LEA

Monthly reports are submitted at the beginning of each month to LEA staff via email.

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 May 19, 2016

Over the past 12 months, data derived from regular monitoring indicates that methane concentration levels have decreased significantly since high levels were first detected. In total, the methane concentration in the probes have decreased 70% and continue to show downward trends as indicated in the attached methane concentration graphs and the following table:

	May-15	Apr-16	
	% Methane	% Methane	Approximate % Decrease
Probes/ Depth Interval			
P-8 (shallow)	27.6	5.6	80
P-8 (Intermediate)	30.1	9.7	68
P-8 (Deep)	28.6	13.5	53
P-11 (shallow)	0.1	0	100
P-11 (Intermediate)	26.3	2.6	90
P-11 (Deep)	34.5	10.5	70

Proposed/Planned Action by City

As part of our ongoing efforts, the City is requesting the extension to perform the following activities based on the recommendations provided by SCS Engineering:

- Install and or optimize LFG extraction wells in the existing and active waste fill areas
- Installation of six soil vapor extraction wells (SVE) along the header to the south of the unlined portion of the west side Landfill as interceptor wells. These SVE's would cut off the flow of LFG in the coarse sand layer and prevent migration south under the existing and future lined cells
- Installation of four SVE's along the southern boundary of Phases 2 and 3 to collect any trapped gas near probes P-8 and P-11
- Further optimize extraction via well tuning in the existing LFG wells utilizing the increased vacuum resulting from recent flare piping modifications

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May 19, 2016

The City is committed to meeting all regulatory requirements at the California Street Landfill. Please feel free to contact me should you have any questions and/or need additional information.

Sincerely,

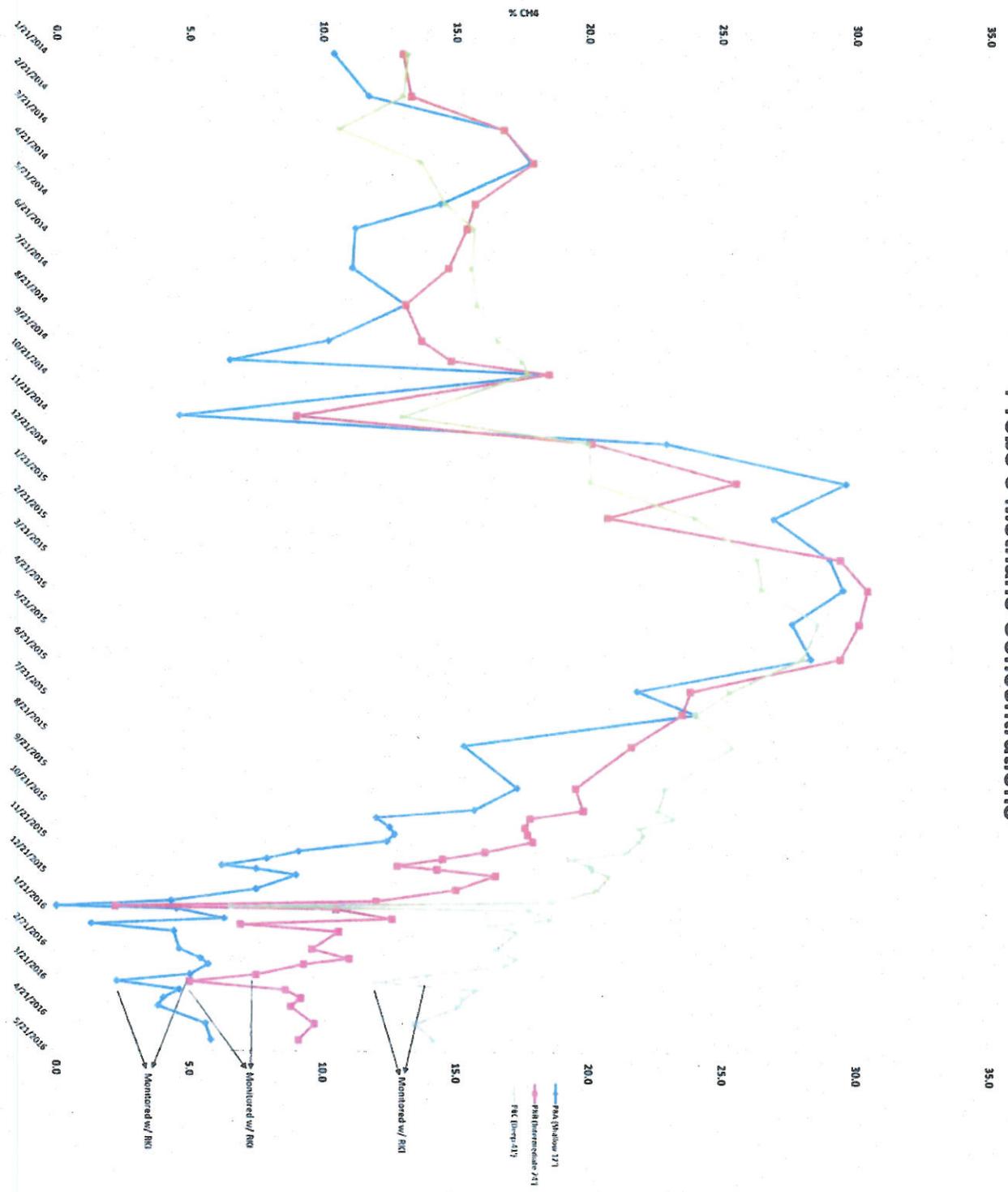


Chris Boatman
Quality of Life Department Director
City of Redlands

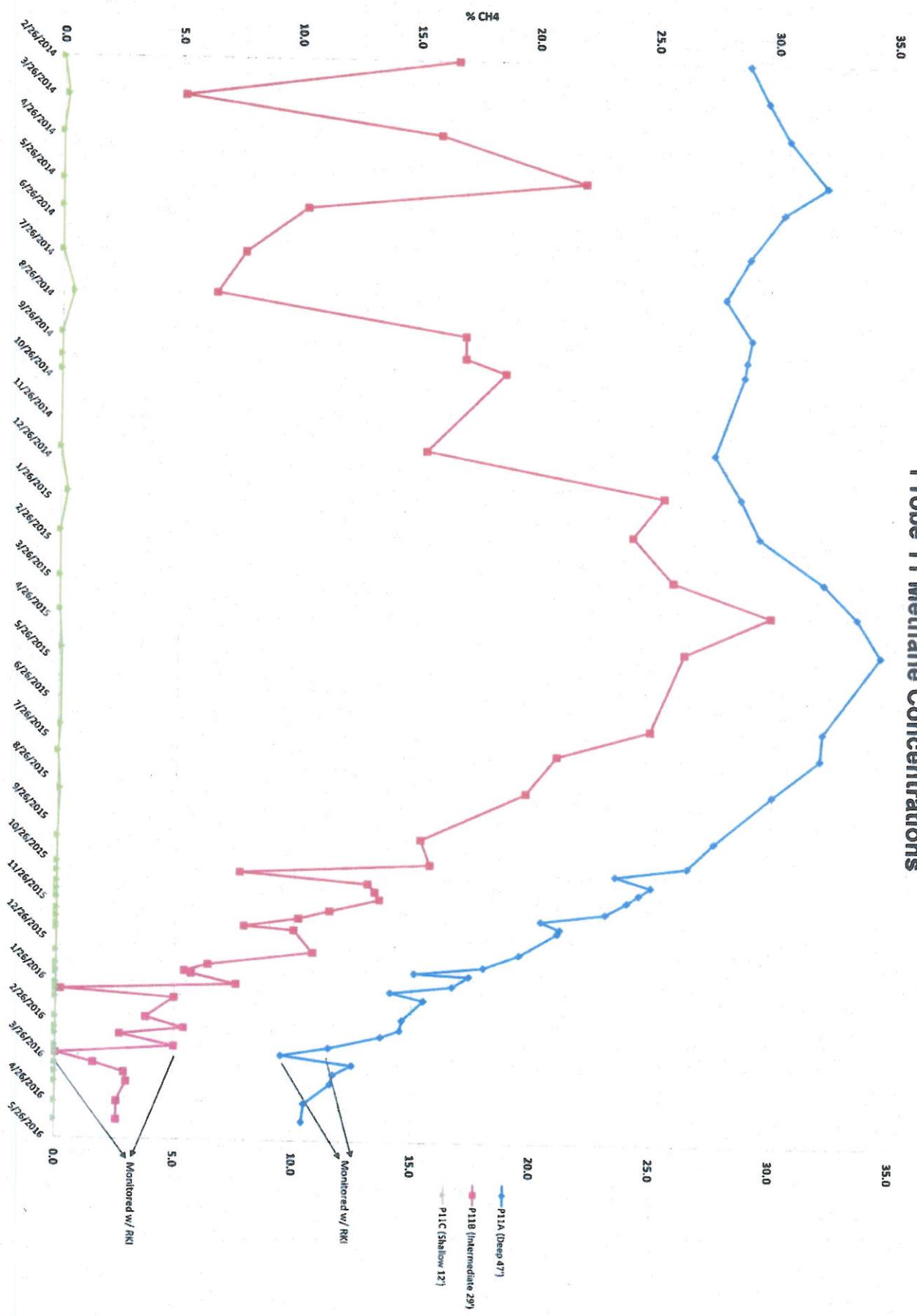
Attachments: Probes P-8 and P-11 Methane Concentration Graphs

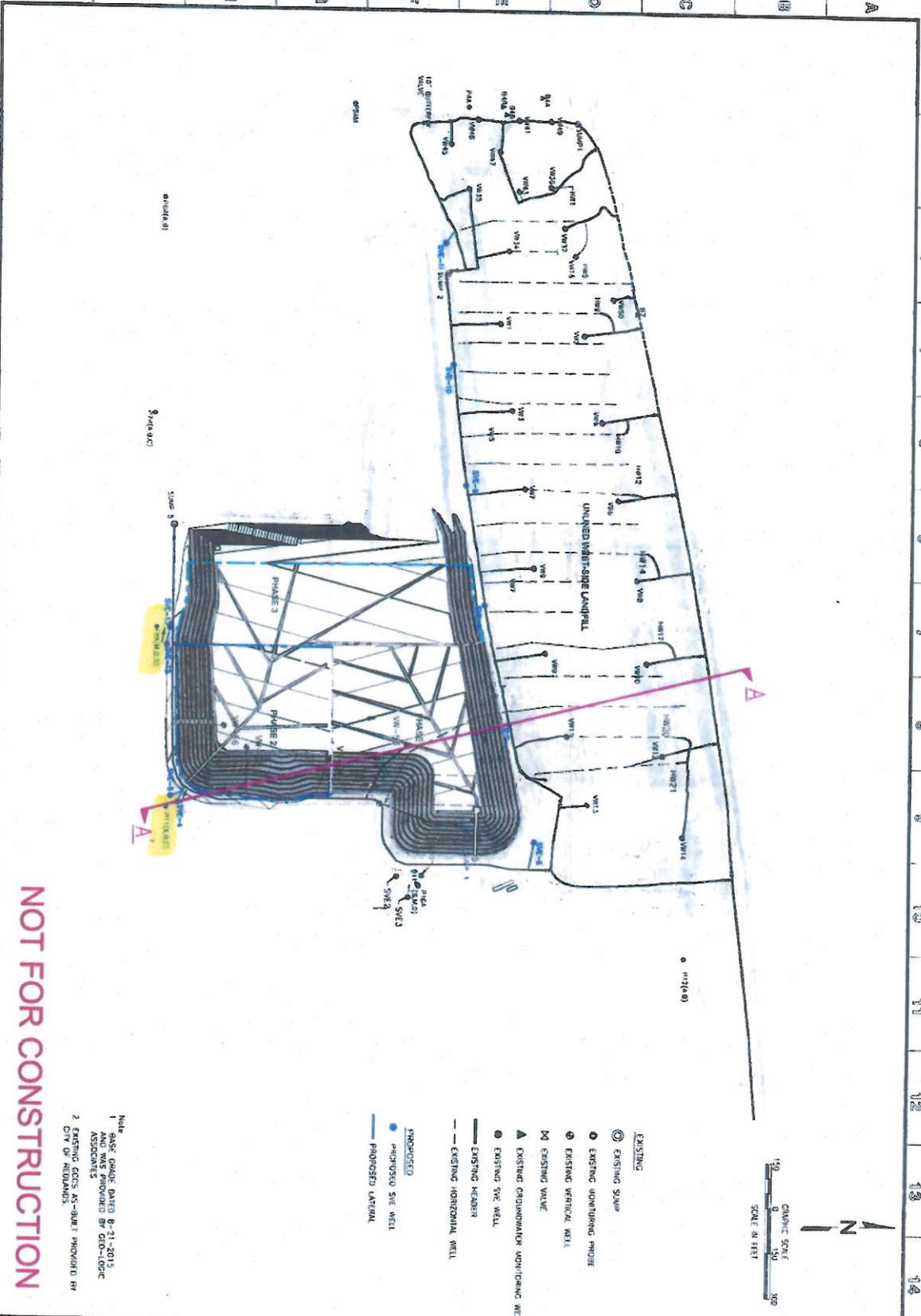
Cc: Troy Webber

Graph 1 Probe 8 Methane Concentrations



Graph 2 Probe 11 Methane Concentrations





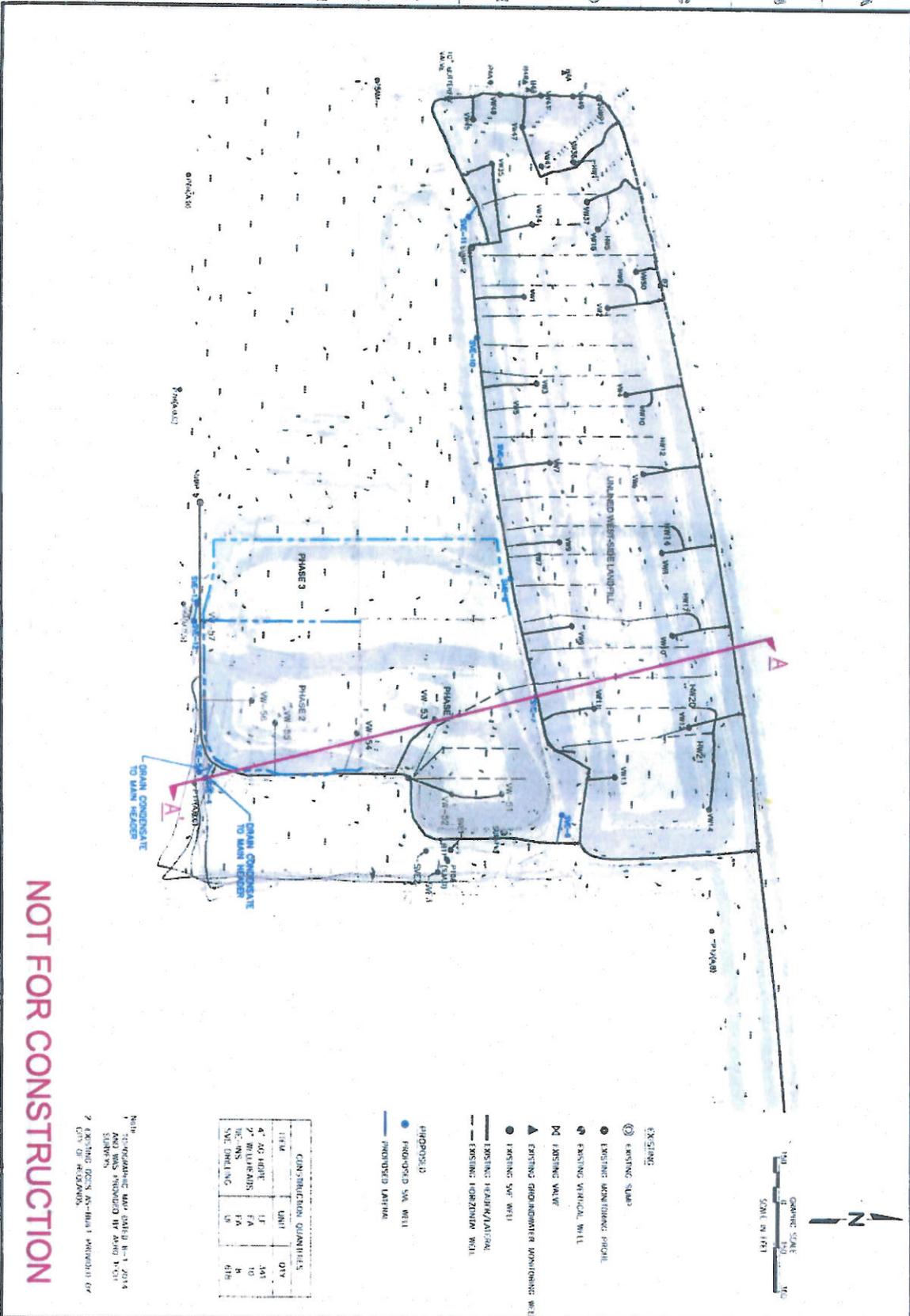
NOT FOR CONSTRUCTION

Note
 1 BASE GRADE DATED 8-31-2015 AND WAS PROVIDED BY CIO-100IC ASSOCIATES
 2 EXISTING GCCS AS-BUILT PROVIDED BY CITY OF REDLANDS.

- EXISTING
- EXISTING STUMP
- EXISTING MONITORING POINT
- EXISTING VERTICAL WELL
- EXISTING VALVE
- EXISTING CHIDOMAKER MONITORING WELLS
- EXISTING SVE WELL
- EXISTING HEADER
- EXISTING HORIZONTAL WELL
- PROPOSED
- PROPOSED SVE WELL
- PROPOSED LATERAL

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS 1000 W. GARDEN AVENUE SUITE 200 REDLANDS, CA 92373 TEL: 909.528.8888 FAX: 909.528.8889 WWW.SCS-ENGINEERS.COM	CLIENT CITY OF REDLANDS 35 CAJON STREET, SUITE 222 REDLANDS, CA 92373	SHEET TITLE	NO.	REVISION	DATE
		PROJECT TITLE 2016 FIVE WELL INSTALLATION CALIFORNIA STREET LANDFILL 252 NEVADA STREET REDLANDS, CA 92373	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15	FOR CLIENT REVIEW	2-12-16

FIGURE 2



NOT FOR CONSTRUCTION

NOTE:
 1. PROGRAMMING DATE: 01/15/16
 2. DRAWING DATE: 02/15/16
 3. DRAWING BY: J. L. [Name]
 4. DRAWING CHECKED BY: J. L. [Name]
 5. DRAWING APPROVED BY: J. L. [Name]

ITEM	UNIT	QTY
4" AC HIGH	LF	144
2" W/LEAKS	EA	10
10" RNS	R	8
SVE DRAIN	CF	618

- PROPOSED:**
- PROPOSED SVE WELL
 - PROPOSED LAMPING

- EXISTING:**
- EXISTING SUMP
 - EXISTING MONITORING POINT
 - EXISTING VERTICAL WELL
 - EXISTING WATER
 - EXISTING GROUNDWATER MONITORING WELL
 - EXISTING SVE WELL
 - EXISTING HEADWATER
 - EXISTING FORTIFIED WALL

SCS ENGINEERS ENVIRONMENTAL CONSULTANTS 35 CAJON STREET, SUITE 222 REDLANDS, CA 92373	SHEET TITLE: SVE LAYOUT	NO. FOR CLIENT REVIEW: 2	REVISION: 2-12-16	DATE: 2-12-16
	PROJECT TITLE: 2016 SVE WELL INSTALLATION CALIFORNIA STREET LANDFILL 2151 NEVADA STREET REDLANDS, CA 92373	FIGURE 1		

MEMORANDUM

Date: July 6, 2016

To: Troy Weber
Inspection and Enforcement Agency Compliance Unit A
Solid Waste Enforcement Section
Waste Evaluation and Enforcement Branch

From: 
Michael Wochnick, P.E., Manager
Closure and Technical Support Unit
Engineering Support Branch
Department of Resources Recycling and Recovery

Subject: CALIFORNIA STREET LANDFILL, SAN BERNARDINO COUNTY (36-AA-0017)
LANDFILL GAS REMEDIATION PLAN
REVIEW COMMENTS

Engineering Support Branch (ESB) Closure and Technical Support Unit (Closure) staff has reviewed the draft landfill gas (LFG) remediation plan (Plan) for the California Street Landfill. The document reviewed was:

- *Technical Evaluation and Design for the LFG Collection System at the California Street Landfill, City of Redlands*; dated February 8, 2016; prepared by SCS Engineers. (The Plan is marked draft.)

The Plan surmises that the landfill gas monitored in LFG Wells P-8A and P-11 is from the older, unlined portion of the landfill and is migrating in the most permeable zones beneath the lined portions of the landfill. The operator (City of Redlands) has implemented some improvements to the LFG system; however, the wells still exhibit LFG concentrations in excess of regulatory limits. Therefore, additional remedial actions have been proposed.

The Plan proposes that ten soil vapor extraction (SVE) wells be installed: four near monitoring wells P-8A and P-11 and six along the southern edge of the unlined waste cell. While the Plan states that the SVE wells should mitigate the methane exceedances, the Plan also notes that the ideal solution would be to install additional LFG extraction wells in the waste mass fill areas in both the lined and unlined areas.

ESB staff is concerned about the installation of SVE wells in close proximity to the impacted monitoring wells (P-8A and P-11). Should the SVE wells produce a vacuum or otherwise impact the efficacy of the monitoring wells, the monitoring wells could no longer be considered adequate for migration monitoring and would need to be replaced. The use of SVE wells for a limited time period (a few months) may be acceptable for removing LFG that has already migrated, but SVE wells that impact monitoring wells shall not be considered a long term solution. While ESB staff does not object to the temporary use of the SVE wells near the monitoring wells, staff concurs with the Plan that the ideal solution would be additional extraction wells.

Should you have any questions or comments concerning the above matter, please contact Michael Wochnick at (916) 341-6289. Alternatively, Closure staff may be reached by email at michael.wochnick@calrecycle.ca.gov.

cc: Tadese Gebrehawariat, Supervisor, Inspection and Enforcement Agency Compliance Unit A
Paulina Lawrence, Manager, Solid Waste Enforcement Section

