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: Cathy Blair, Solid Waste Enforcement Section

Request Date: April 1, 2015

Action By: May 28 2015

Decision Subject: Consideration of an Extension to the Compliance Schedule Due Date for a Facility included on the Inventory of Solid Waste Facilities Which Violate State Minimum Standards (Inventory), West Central Landfill, Facility No. 45-AA-0043, Shasta County

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SUMMARY
The West Central Landfill is located 10 miles southwest of Redding in a remote area of the foothills west of Interstate 5. The landfill is owned and operated by the County of Shasta. The contract operator is the City of Redding. The facility is permitted for a maximum of 700 tons of waste per day and accepts an average of about 400 tons per day. Adjacent land is mostly open space. The nearest receptors are the Northern California Veterans Cemetery located 750 feet southwest, several homes 2000 feet south, and several residences 2500 feet north west of the disposal area.

The West Central Landfill, Facility was added to the Inventory on March 26, 2010, and a Notice and Order (N&O) was issued by the LEA on April 12, 2010. Title 14, California Code of Regulations (CCR) allows the LEA to issue compliance schedules with a final compliance date beyond two years from the date the facility is included on the Inventory only upon approval of CalRecycle. CalRecycle has previously extended the final compliance date three times due to the operator's good faith effort in correcting a difficult long-term landfill gas migration violation.

The LEA is now requesting ***a fourth Extension to the compliance due date to March 26, 2016.*** The LEA has determined that the operator continues to make a good faith effort due in part to the recent submittal of an updated remediation plan, the recent installation of 18 new extraction wells, and the submittal of a complete and correct permit revision application package to incorporate recently acquired buffer land. In addition, statistical analysis of monitoring data shows a downward trend in landfill gas migration levels.

Furthermore, MP-2 should be in compliance by the time of the approved permit revision within the next six months. However, MP-11 and MP-4 will not be corrected by the time of the permit revision. Both MP-11 and MP-4, currently at 20% and 9.7% respectively, are trending downward, and should be in compliance between six months and a year.

OPTIONS

1. Approve the one-year extension for the proposed compliance due date to March 26, 2016.
2. Conditionally approve the extension request.
3. Deny the extension request and direct the LEA to take increased enforcement action.

BACKGROUND

- On March 26, 2010, the West Central Landfill was included on the Inventory for ongoing violations of Title 27, California Code of Regulations (CCR), Section 20921 – Gas Monitoring and Control. In response, the Shasta County LEA issued a N&O on April 12, 2010 which included a final compliance date of November 1, 2011 to control the landfill gas concentrations at all wells at the permitted facility boundary.

- A landfill gas control and collection system (GCCS) was installed and operational by October 15, 2011, as described in the approved landfill gas (LFG) remediation plan and as required by the N&O.

- On October 31, 2011, the LEA determined that the operator had made a good faith effort to comply with the N&O and granted the operator an extension to April 1, 2012, to control the landfill gas concentrations below the regulatory limit at all wells at the permitted facility boundary.

- During implementation of the approved LFG remediation plan, and after several months of continuous operation of the new GCCS, the operator determined that it would take longer than expected to bring perimeter landfill gas concentrations into compliance with applicable requirements. On March 30, 2012, the LEA requested approval from CalRecycle for a one-year extension of the compliance due date to March 26, 2013. On April 16, 2012, CalRecycle granted ***the first one year compliance extension*** until March 26, 2013.

- The operator has continued to operate and adjust the GCCS with some success. The concentration of methane in the three perimeter monitoring wells of concern decreased, but remained well above 5% methane. On April 5, 2013 the operator submitted an updated LFG remediation plan and requested another extension of the final compliance date. On April 9, 2013, the LEA requested approval from CalRecycle for a second one-year extension. On May 1, 2013 CalRecycle granted ***the second compliance extension*** with a six month extension to September 26, 2013, and a conditionally approved additional six month extension to March 26, 2014.

- On July 8, 2013 the operator completed the purchase of 160 acres of land west of the landfill and directly adjacent to well MP-2 in order to expand the permitted facility boundary and install additional LFG compliance wells farther from waste. However, the operator determined that more time would be required to obtain approvals, revise the permit, secure a new contractor, and complete the extensive work required to expand the LFG monitoring system.

- On April 17, 2014, the operator submitted an updated LFG remediation plan and request for extension. The LEA, after determining that the operator had made a good faith effort to comply with the N&O, submitted a third request to CalRecycle on April 18, 2014, requesting a deadline extension of one year. However, on August 1, 2013, CalRecycle denied the third request as the operator failed to submit a permit application to expand the permitted boundary as described in the updated remediation plan.

- On October 7, 2014, after receiving the operator's application for permit revision, the LEA submitted an updated extension request. On October 17, 2014, CalRecycle granted ***the third compliance extension*** until March 26, 2015.

- On March 19, 2015, the operator submitted an updated remediation plan and status report, requesting a one year extension. On March 20, 2015, the LEA submitted ***the fourth one year extension request with a compliance date of March 26, 2016.***

ANALYSIS

The LEA may grant a one-year extension beyond two years upon approval by CalRecycle's Executive Director or his/her delegate. CalRecycle approval is based upon a 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 submitted an application for permit revision on September 15, 2014 with a request for the LEA to accept the application as incomplete to accommodate the time needed to complete the CEQA process.
- The operator later submitted a complete and correct application package which was accepted by the LEA on February 24, 2015, and
- On March 30, 2015 the LEA submitted a proposed revised permit to incorporate the recently acquired buffer land.
- Per PRC 44008(a) "A decision to issue or not issue the permit shall be made by the enforcement agency within 120 days from the date that the application is deemed complete." Therefore, the LEA has until June 25, 2015 to issue the permit.
- The operator is committed to constructing the new perimeter monitoring probes once the Solid Waste Facility Permit is issued and anticipates construction beginning during the summer of 2015.

- The operator's monitoring logs and statistical analysis demonstrate a significant decreasing trend in all three probes, especially MP-4 and MP-11.
- MP-11 has decreased from a peak of 59% methane in March 2011 down to 20% in March 2015.
- MP-4 has decreased from a peak of 33.5% methane in June 2010 down to 9.7% in March 2015.
- MP-2 has only decreased from a peak of 62% methane in March 2011 down to 52% in March 2015. However, the operator has acquired 160 acres of adjacent buffer land west of the landfill to allow for the relocation of MP-2 farther from waste (additional wells will also be required to maintain the1000-foot spacing requirement).
- In November 2014, the operator installed an additional 18 infill gas extractions wells to the GCCS which are expected to further decrease landfill gas migration levels.

FINDINGS

The owner and operator have demonstrated a good faith effort in bringing the facility back into compliance. The operator is continuing with the activities as outlined in the updated remediation plan, including the recent installation of 18 additional gas extraction wells, acquisition of adjacent buffer land, and submittal of an application for permit revision. The operator has also demonstrated through statistical analysis that the monitoring probes are showing a significant decreasing trend over time. Based on the factors set forth in 14 CCR 18084, the operator has made a good faith effort and the LEA is taking appropriate enforcement action. Therefore it is reasonable to grant the additional time to bring the facility into full compliance.

RECOMMENDATION

Due to recent actions by the operator described above, including the demonstration of a downward trend in gas migration levels and the proposed revision of the permit, CalRecycle staff recommends the operator be granted a one-year extension, until March 26, 2016. CalRecycle staff has reviewed the operator's extension request, including documentation of good faith effort, and agree with the LEA's determination that it is reasonable to extend the compliance date, allowing the operator time to revise the permit, construct the new monitoring probes, and continue analysis of downward trends in landfill gas migration.

BRANCH CHIEF ACTION

On the basis of the information in this Request for Action, I hereby issue, pursuant to 14 CCR, Section 18365(b), conditionally approve a one-year extension upon the completion of three milestones to the operator of the West Central Landfill, Facility No. 45-AA-0043, to March 26, 2016.

Dated: 5/29/2015

Georgianne Turner
Branch Chief
Waste Evaluation and Enforcement Branch

Shasta County

DEPARTMENT OF RESOURCE MANAGEMENT
1855 Placer Street, Redding, CA 96001

Richard W. Simon, AICP
Director

March 20, 2015

Georgianne Turner, Branch Chief
Waste Evaluation and Enforcement Branch
California Department of Resources, Recycling and Recovery
P.O. Box 4025 Mail Stop 10A-17
Sacramento, CA 95812

CORRECTIVE ACTION SCHEDULE EXTENSION REQUEST FOR THE WEST CENTRAL LANDFILL PERIMETER GAS MONITORING SYSTEM, SHASTA COUNTY, SWIS # 45-AA-0043

The Shasta County Environmental Health Division (SCEHD) received an extension request on March 20, 2015, from the Shasta County Department of Public Works (Operator) for the Corrective Action Schedule in the Notice and Order (Order) for the West Central Landfill which was originally issued by SCEHD on April 12, 2010. The Order to comply contained specific time frames for compliance which either have been met or extended. Number five was extended to achieve compliance with regulatory maximum levels of methane at all probes in the approved perimeter monitoring network by March 26, 2015, in compliance with 27CCR, Section 20921.

The operator was directed to demonstrate significant progress to proceed with a Solid Waste Facility Permit (SWFP) revision to expand the facility permitted boundary in order to install additional perimeter gas monitoring wells further out in anticipation of a reduced methane level below 5%. SCEHD received a SWFP application for revision on September 15, 2014. The application was incomplete at the time and accepted by the LEA waiving the time frames so the operator could submit additional documentation and obtain appropriate local and state approvals, including financial assurances. The LEA has reviewed, made a complete and correct determination, and will forward the application package to your staff within the next week, which includes the finalized SWFP which has been reviewed by CalRecycle staff.

- Additionally, SCEHD received a "Perimeter Monitoring Boundary Expansion Work Plan" on April 23, 2014, to install additional gas monitoring probes on this newly acquired buffer land further away from the waste. SCEHD conditionally approved this work plan so that work may start after the SWFP revision is complete. The Operator added 18 infill gas extraction wells this past November to the Gas Control and Collection System (GCCS) which have the potential to decrease landfill gas migration to the perimeter monitoring wells.

The Operator has made a good faith effort over the last several years to come into compliance with the long-term gas violation. Their reports are thorough and informative. It is unlikely that the current landfill gas migration poses an imminent threat to public health, safety, and the environment. The land use surrounding the landfill is mainly open space and receptor sites are quite a distance away from the facility boundary. Although, due to the constituents in landfill gas, it is hard to eliminate the potential for the environmental threat, mainly groundwater contamination. This could occur regardless if the level at the perimeter boundary is below the regulatory-allowed maximum.

SCEHD is requesting that your agency approve an extension request until March 25, 2016, to issue the revised SWFP, install the expanded perimeter monitoring wells, and conduct at least two quarters of gas monitoring. At that time, we will evaluate the level of compliance which will include reduction in levels of methane at the perimeter.

Thank you for your consideration. Please contact me should you have any questions or need additional information.

Sincerely,

Ken Henderson

Ken Henderson, REHS
Environmental Health Specialist

KRH/pw
GTMAR20-15.WD

Enclosure

c: Jon Whitehill, CalRecycle
Reinhard Hohlwien, CalRecycle
Paul Clemens, City of Redding Solid Waste Utility
John Heath, Shasta County Department of Public Works
Catherine Blair, CalRecycle
Dale Stultz, California Regional Water Quality Control Board
Lindsey Welch, Shasta County Air Quality Management District

Shasta County

DEPARTMENT OF PUBLIC WORKS

1855 PLACER STREET
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530.225.5661 530.225.5667 FAX
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PATRICK J. MINTURN, DIRECTOR
C. TROY BARTOLOMEI, DEPUTY
SCOTT G. WAHL, DEPUTY

FWS 070319

March 19, 2015

Carla Serio
Environmental Health Division Manager
Shasta County Department of Resource Management
1855 Placer Street
Redding, CA 96001

Subject: West Central Landfill Gas Migration Compliance

Dear Carla:

With regards to the April 2010 Notice and Order concerning migration of methane beyond the West Central Landfill alternate compliance boundary, monitoring done in March 2015 shows that wells MP-2, MP-4 and MP-11 still have methane concentrations in excess of 5% by volume. The compliance deadline is March 26, 2015. As detailed herein, we have completed all of the previously proposed corrective actions except expansion of the alternate compliance boundary, which is scheduled for construction this summer. With that, we are requesting a one-year extension of the compliance deadline to March 26, 2016.

While methane concentrations in the affected wells are still in excess of the compliance limit, the previously noted downward trends have continued, and even expanded to include additional monitoring zones. Analysis of the monitoring data now shows statistically significant decreasing trends in methane concentration in the following wells and zones:

- The intermediate monitoring zone in well MP-2. Previously, no statistically significant decreasing trends were detected in MP-2.
- The intermediate and deep monitoring zones in well MP-4. Previously, only the intermediate zone showed evidence of decreasing methane concentrations. The shallow monitoring zone in MP-4 has been below the 5% limit since June 2013.
- All of the monitoring zones (shallow, intermediate and deep) in well MP-11. This is continued from the 2014 assessment.

A monitoring data review with details of the statistical trend analysis is included with this request.

In our April 2014 request for extension of the compliance deadline we listed corrective actions to be implemented during the extension period. In follow up, the status of the proposed corrective actions is as follows:

- Corrective Action: Apply for a revised Solid Waste Facility Permit in order to incorporate the recently acquired buffer property into the Permitted Facility Boundary.

  Status: An application for revision of the Solid Waste Facility Permit was submitted on September 15, 2014.

- Corrective Action: Submit a workplan for expansion of the alternate compliance boundary onto the recently acquired buffer property in order to extend the boundary beyond the MP-2 area.

  Status: The workplan was submitted on April 23, 2014.

- Corrective Action: Install additional landfill gas extraction wells.

  Status: The installation of 18 new gas extraction wells was completed in November 2014.

- Corrective Action: Expand the alternate compliance boundary as proposed in the April 2014 workplan.

  Status: We are awaiting issuance of the revised Solid Waste Facility Permit before commencing with this work. We anticipate construction of the new monitoring wells required by the expanded alternate compliance boundary during the summer of 2015.

Regarding proposed corrective actions to address gas migration in the areas of MP-4 and MP-11, as these wells have shown increasingly significant declines since the onset of gas control efforts, we are proposing to take no additional action at these locations. Instead, we propose to rely on the continuation of the current trend of declining methane concentrations to reach compliance.

In making this compliance extension request, we reaffirm the conclusions previously drawn regarding the existing migration: it offers no threat to public health and safety and there is no evidence of expansion of the migration pattern in either extents or magnitude.

Thank you for your consideration in this matter. If you have any questions or comments please contact me at (530) 245-6596 or jheath@co.shasta.ca.us.

Sincerely,

Patrick J. Minturn, Director

By John A. Heath
John A. Heath, Supervising Engineer
Solid Waste Division

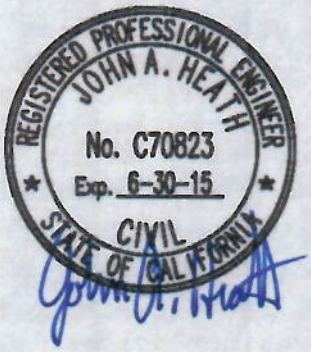
JAH/dlw
Attachment

WEST CENTRAL LANDFILL

SWIS No. 45-AA-0043

14095 Clear Creek Road, Igo, California

LANDFILL GAS MIGRATION REMEDIATION PLAN 2015 Monitoring Data Review



PREPARED BY:

SHASTA COUNTY
DEPARTMENT OF PUBLIC WORKS

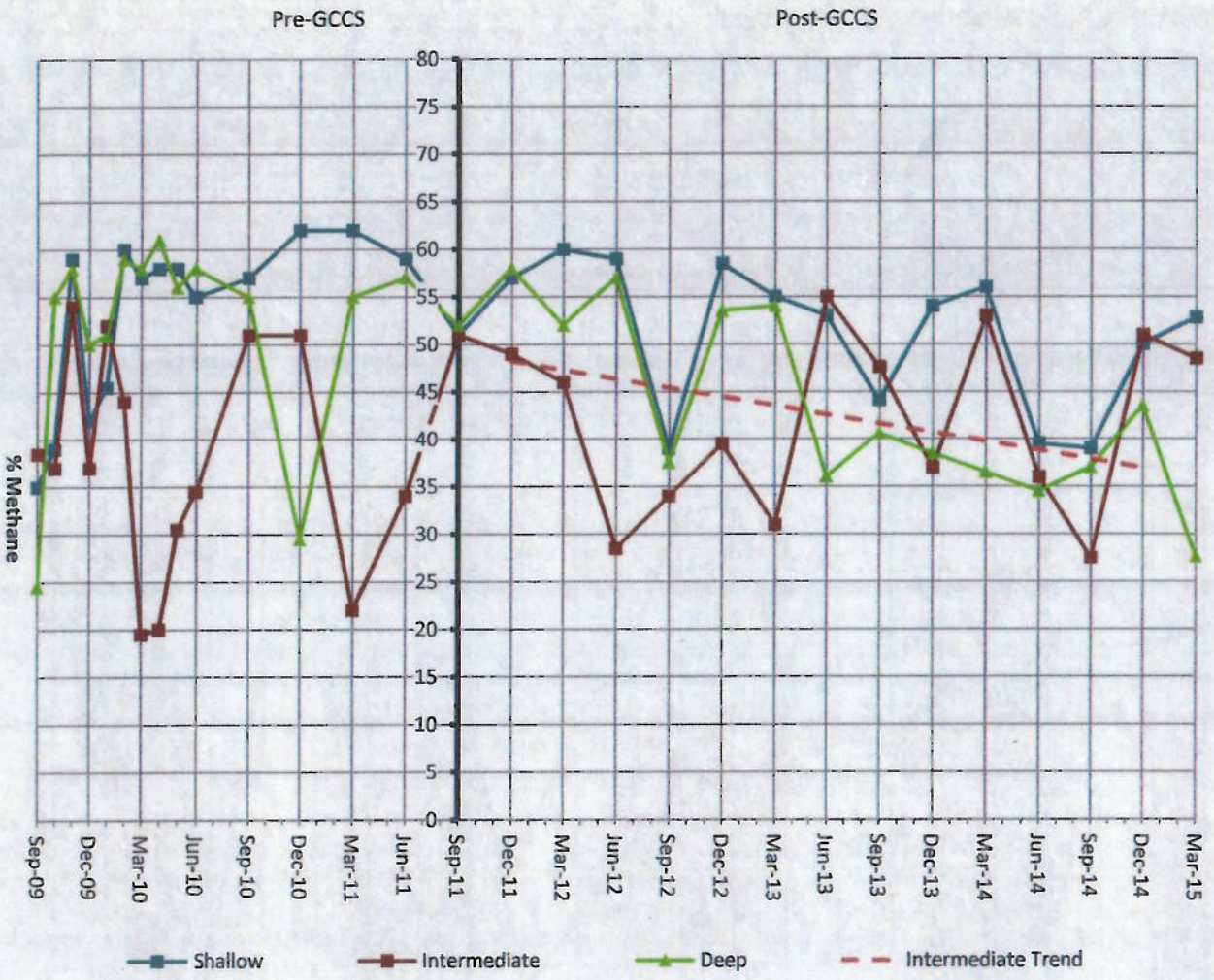
March 2015

In order to assess the effectiveness of the gas collection and control system ("GCCS") in mitigating landfill migration at West Central Landfill, post-GCCS methane concentrations from the affected wells was analyzed using standard statistical methods. Specifically, the analysis utilized the Mann-Kendal Test for Trends to determine if statistically significant decreasing trends were present in the post-GCCS methane concentrations. If a trend was detected, the data was further analyzed using the Sen's Slope Estimation procedure to estimate the slope (change over time) of the trend. These methods are further described below:

- Mann-Kendall Test for Trends: In the Mann-Kendall analysis the difference between all possible pairs of measurements is computed. Following comparison, the number of positive and negative differences is tallied. If the difference between the positive and negative tallies (the *S* statistic) is positive and meets the criteria for the chosen significance level, a positive trend is indicated. If the *S* statistic is negative and meets the criteria for the chosen significance level, a negative trend is indicated. If either result fails to meet the criteria for the chosen significance level, the conclusion is that there is not enough evidence to make the determination of a trend. A significance level of 95% was used (i.e. 5% chance for a false result) for this analysis.
- Sen's Slope Estimation: In the Sen's Slope Estimation procedure the slope (difference in methane concentration per quarter) is computed for all possible pairs of measurements and the median value of these individual slopes is used as an estimate of the overall slope of the trend.

Analysis of the data, which is presented on the accompanying pages, revealed:

- **MP-2**: A statistically significant decreasing trend was detected in the intermediate monitoring zone of MP-2. This is the first trend detected in the monitoring data for MP-2. No statistically significant trends, increasing or decreasing, were detected in either the shallow or deep monitoring zones. The Sen's Slope Estimation for the intermediate monitoring zone revealed a median change in methane concentration of -0.94% per monitoring period (every 3 months).
- **MP-4**: Statistically significant decreasing trends were detected in the intermediate and deep monitoring zones of well MP-4. The decreasing trend in the deep monitoring zone is newly developed and was not evident during previous data reviews. The shallow monitoring zone was not analyzed as this zone has been in compliance with the 5% methane concentration limit since June 2013. The Sen's Slope Estimation for the intermediate and deep monitoring zones returned median changes in methane concentration of -1.8 and -0.3% per monitoring period, respectively.
- **MP-11**: Statistically significant decreasing trends were detected in all of the MP-11 monitoring zones. These trends are a continuation of those detected during previous monitoring data reviews. The Sen's Slope Estimation revealed median slopes of -1.5, -1.25 and -1.25% methane per monitoring period, respectively.



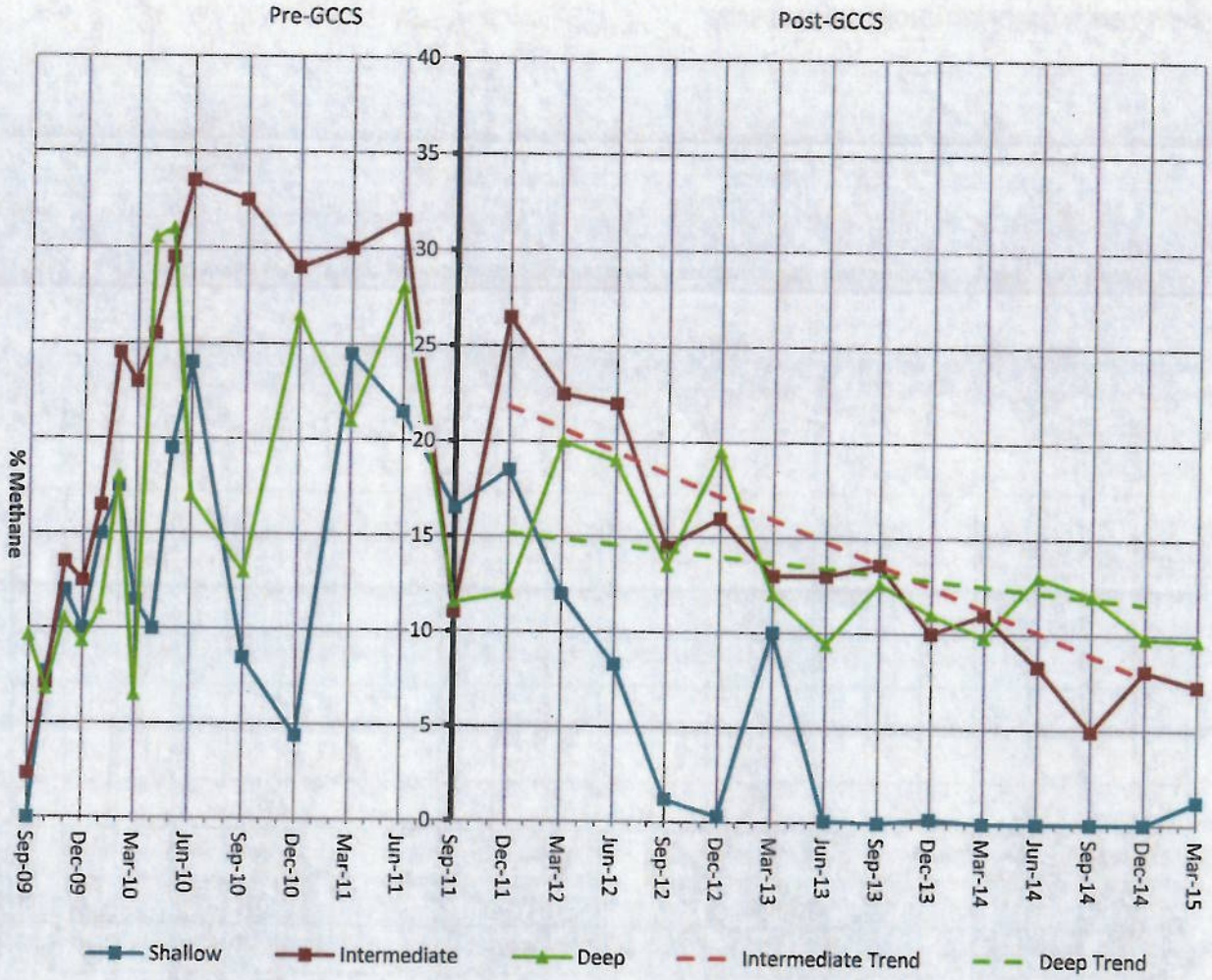
Trends shown as line through the average post-gccs methane concentration with slope as indicated by Sen's Slope value

	Methane Concentrations (% vol)			
	Date	Monitoring Interval		
		Shallow	Intermediate	Deep
Pre-GCCS	Sep-09	35.0	38.5	24.5
	Oct-09	39.0	37.0	55.0
	Nov-09	59.0	54.0	58.0
	Dec-09	42.0	37.0	50.0
	Jan-10	45.5	52.0	51.0
	Feb-10	60.0	44.0	59.0
	Mar-10	57.0	19.5	58.0
	Apr-10	58.0	20.0	61.0
	May-10	58.0	30.5	56.0
	Jun-10	55.0	34.5	58.0
	Sep-10	57.0	51.0	55.0
	Dec-10	62.0	51.0	29.5
	Mar-11	62.0	22.0	55.0
	Jun-11	59.0	34.0	57.0
	Sep-11	51.0	51.0	52.0
Post-GCCS	Dec-11	57.0	49.0	58.0
	Mar-12	60.0	46.0	52.0
	Jun-12	59.0	28.5	57.0
	Sep-12	39.0	34.0	37.5
	Dec-12	58.5	39.5	53.5
	Mar-13	55.0	31.0	54.0
	Jun-13	53.0	55.0	36.0
	Sep-13	44.1	47.6	40.6
	Dec-13	54.0	37.0	38.5
	Mar-14	56.0	53.0	36.5
	Jun-14	39.5	36.0	34.5
	Sep-14	39.0	27.5	37.0
	Dec-14	50.0	51.0	43.5
	Mar-15	52.8	48.5	27.6
	Decreasing Trend [1]	No	Yes	No
	Slope of Trend [2]	-	-0.94	-

1. Mann-Kendall Trend Analysis, 95% confidence

2. Sen's Slope, expressed as methane concentration change per quarter

PERIMETER GAS MONITORING DATA: WELL MP-2

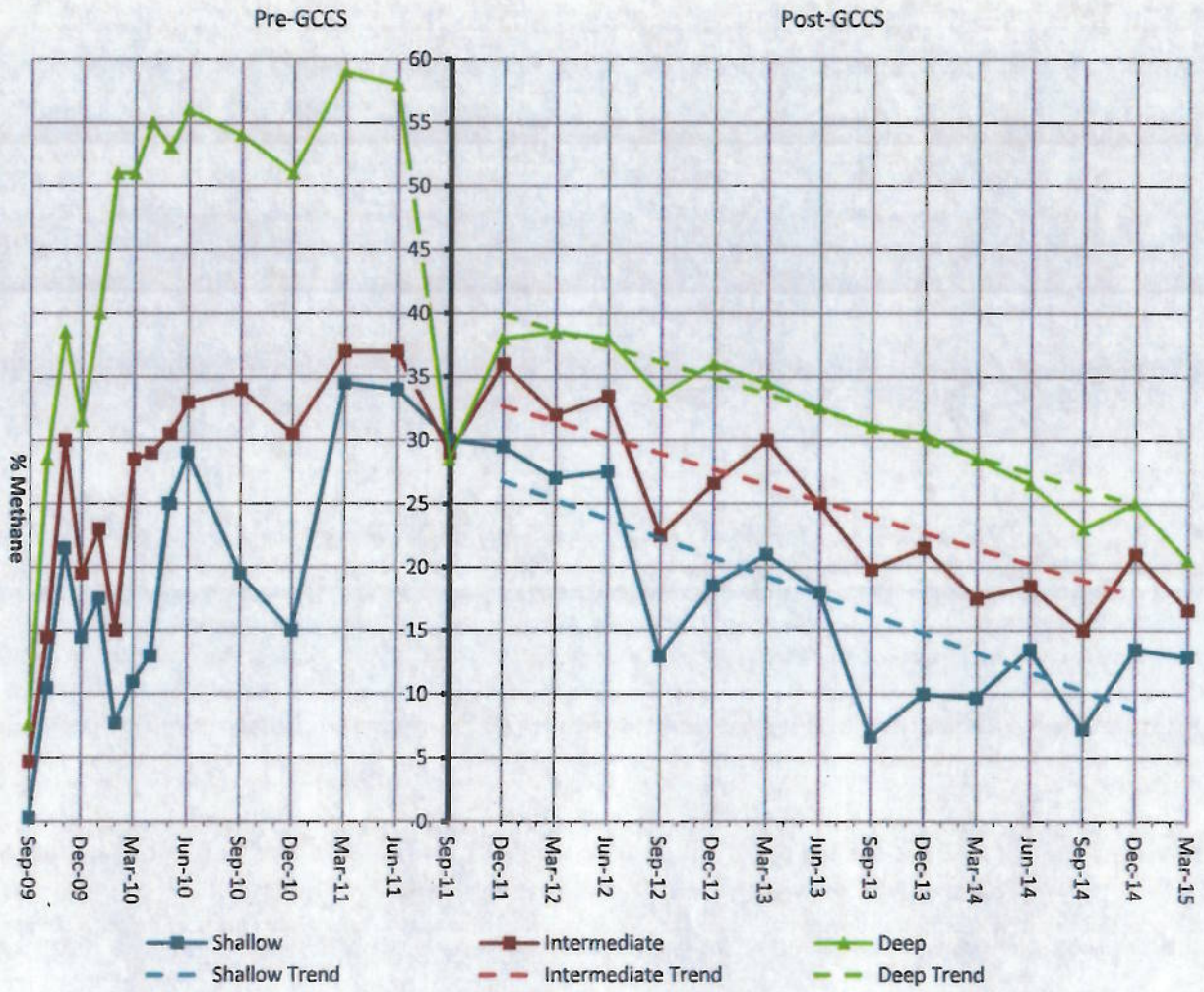


Trends shown as line through the average post-gccs methane concentration with slope as indicated by Sen's Slope value

	Date	Methane Concentrations (% vol)		
		Monitoring Interval		
		Shallow	Intermediate	Deep
Pre-GCCS	Sep-09	0.0	2.3	9.6
	Oct-09	7.7	7.1	6.8
	Nov-09	12.0	13.5	10.5
	Dec-09	10.0	12.5	9.3
	Jan-10	15.0	16.5	11.0
	Feb-10	17.5	24.5	18.0
	Mar-10	11.5	23.0	6.5
	Apr-10	10.0	25.5	30.5
	May-10	19.5	29.5	31.0
	Jun-10	24.0	33.5	17.0
	Sep-10	8.5	32.5	13.0
	Dec-10	4.4	29.0	26.5
	Mar-11	24.5	30.0	21.0
	Jun-11	21.5	31.5	28.0
	Sep-11	16.5	11.0	11.5
Post-GCCS	Dec-11	18.5	26.5	12.0
	Mar-12	12.0	22.5	20.0
	Jun-12	8.3	22.0	19.0
	Sep-12	1.2	14.5	13.5
	Dec-12	0.3	16.0	19.5
	Mar-13	10.0	13.0	12.0
	Jun-13	0.1	13.0	9.4
	Sep-13	0.0	13.6	12.6
	Dec-13	0.2	10.0	11.0
	Mar-14	0.0	11.0	9.8
	Jun-14	0.0	8.3	13.0
	Sep-14	0.0	4.9	12.0
	Dec-14	0.0	8.1	9.8
	Mar-15	1.2	7.3	9.7
	Decreasing Trend [1]	-	Yes	Yes
	Slope of Trend [2]	-	-1.18	-0.30

1. Mann-Kendall Trend Analysis, 95% confidence
2. Sen's Slope, expressed as methane concentration change per quarter

PERIMETER GAS MONITORING DATA: WELL MP-4



Trends shown as line through the average post-gccs methane concentration with slope as indicated by Sen's Slope value

	Methane Concentrations (% vol)			
	Date	Monitoring Interval		
		Shallow	Intermediate	Deep
Pre-GCCS	Sep-09	0.3	4.7	7.6
	Oct-09	10.5	14.5	28.5
	Nov-09	21.5	30.0	38.5
	Dec-09	14.5	19.5	31.5
	Jan-10	17.5	23.0	40.0
	Feb-10	7.7	15.0	51.0
	Mar-10	11.0	28.5	51.0
	Apr-10	13.0	29.0	55.0
	May-10	25.0	30.5	53.0
	Jun-10	29.0	33.0	56.0
	Sep-10	19.5	34.0	54.0
	Dec-10	15.0	30.5	51.0
	Mar-11	34.5	37.0	59.0
	Jun-11	34.0	37.0	58.0
	Sep-11	30.0	29.0	28.5
Post-GCCS	Dec-11	29.5	36.0	38.0
	Mar-12	27.0	32.0	38.5
	Jun-12	27.5	33.5	38.0
	Sep-12	13.0	22.5	33.5
	Dec-12	18.5	26.6	36.0
	Mar-13	21.0	30.0	34.5
	Jun-13	18.0	25.0	32.5
	Sep-13	6.6	19.8	31.0
	Dec-13	10.0	21.5	30.5
	Mar-14	9.7	17.5	28.5
	Jun-14	13.5	18.5	26.5
	Sep-14	7.2	15.0	23.0
	Dec-14	13.5	21.0	25.0
	Mar-15	12.9	16.6	20.5
	Decreasing Trend [1]	Yes	Yes	Yes
	Slope of Trend [2]	-1.50	-1.25	-1.25

1. Mann-Kendall Trend Analysis, 95% confidence

2. Sen's Slope, expressed as methane concentration change per quarter

PERIMETER GAS MONITORING DATA: WELL MP-11