

Cinza

**ENTERED****Monzeglio, Hope, NMENV**

From: Robinson, Kelly [KRobinson@PIRNIE.COM]
Sent: Thursday, May 18, 2006 11:48 AM
To: Monzeglio, Hope, NMENV
Cc: Randy Schmaltz; Tucker, Dennis; Cindy Hurtado; Gibbs, James
Subject: Giant Refining Company Bloomfield - Request to Amend the Bioventing Monitoring Plant (Revised)
Importance: High
Attachments: Bioventing System Monitoring Plan Amendment Request Letter.pdf

Good Morning Hope,

We appreciate your time in talking with us yesterday morning. As we discussed during yesterday's conference call, Malcolm Pirnie (on behalf of Giant Refining Company Bloomfield) is requesting NMED's approval to amend the *Bioventing Monitoring Plan (Revised)* dated October 28th, 2005.

Thank you for considering this request.
If you have any questions, please feel free to contact me or Randy Schmaltz directly at (505) 632-4171.

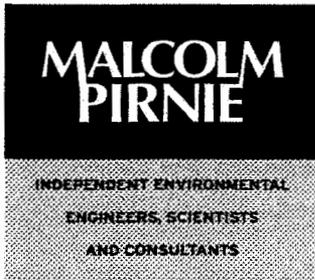
Regards,

Kelly Robinson
Engineer

Malcolm Pirnie, Inc.
4646 E. Van Buren, Suite 400
Phoenix, AZ 85008

Fax: 602-231-0131
Direct: 602-797-4628
E-Mail: krobinson@pirnie.com

5/22/2006



Malcolm Pirnie, Inc.
4646 E. Van Buren Street
Suite 400
Phoenix, AZ 85008-6945
602-241-1770 602-231-0131 FAX

May 18, 2006

Ms. Hope Monzeglio
NMED Hazardous Waste Bureau
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505

Re: Giant Refining Company – Bloomfield’s River Terrace
Bioventing System Monitoring Plan Amendment

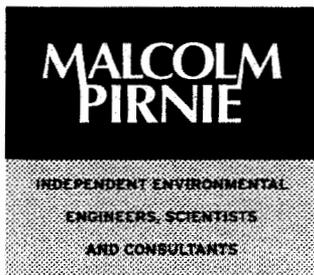
Dear Ms. Monzeglio

On behalf of Giant Refining Company Bloomfield (GRCB), Malcolm Pirnie, Inc. is requesting NMED’s approval to amend the *Bioventing Monitoring Plan (Revised)* dated October 28, 2005.

GRCB requests NMED’s approval to modify the sampling regimen for evaluating the effectiveness of the bioventing system located within the Giant Refinery river terrace area by assessing the in situ biodegradation rates in the impacted soil zone. The assessment comprises a respiration rate test, which consists of turning off the supplied air to the subsurface and monitoring the rates at which oxygen is depleted, carbon dioxide is generated, and TPH vapors are reduced. The most important data that reflects the in situ biodegradation rate is the rate at which oxygen is consumed by soil microbes, known as the oxygen utilization rate (OUR).

The rate at which TPH is being degraded in situ is derived from the OUR by using stoichiometry and estimations of soil properties at the site. This in situ biodegradation rate is expressed in terms of the mass of TPH (in mg) being degraded per unit soil (in kg) per unit of time (usually days), or mg/kg-d.

Primarily because of monitoring instrument limitations, the sampling regimen proposed in the monitoring plan is not physically achievable, and is not technically necessary to satisfy the data objectives of this progress sampling event. Giant requests that a modified



sampling regimen be accepted that will satisfy all the data objectives associated with progress sampling of a bioventing system.

The proposed modified sampling regimen is presented in the table below:

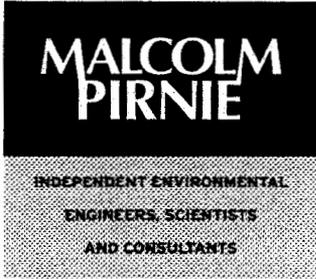
Monitoring Location	Analyte(s)	Frequency	Duration
TP-1, TP-2, TP-5, TP-6, TP-8, TP-9	O ₂ , CO ₂ , VOCs	every 1 hr	first 8 hrs
TP-1, TP-2, TP-5, TP-6, TP-8, TP-9	O ₂ , CO ₂ , VOCs	every 12 hrs	next 48 hrs
All BV Wells	O ₂	every 12 hrs	first 72 hrs

NOTE: The specified TP wells are located within the bioventing area.

An initial soil-gas sample will be collected from each temporary piezometer (TP) within the bioventing area before the air supply is turned off, then again as soon as possible after the air supply is turned off. Then the sampling regimen listed in the table above will begin.

The temporary piezometers (TPs) listed in the table are targeted because their construction will yield soil-gas results that are responsive and representative of in situ soil gas conditions. Sampling data from biovent wells (BVs) may help support the TP data, but the response of the BVs is likely to lag because of the time required for diffusion of vapors through the well sand pack and into the wells.

This modified sampling plan will provide technically adequate data to assess the rate at which oxygen is being depleted within the expected range of in situ biodegradation rates observed at many TPH bioventing systems operated around the country. The modified sampling plan is consistent with the sampling regimen described in *Soil Bioventing Principles and Practice*⁽¹⁾. The guidance presented in that book is based on experiences from implementing the Air Force Bioventing Initiative under diverse conditions at sites around the world.



Giant Bloomfield River Terrace
Bioventing System Monitoring Plan Amendment
May 18, 2006
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GRCB looks forward to receiving NMED approval of the requested variations. Please feel free to call me at 602-797-4623, or Randy Schmaltz at 505-632-4171, if you have any questions.

Sincerely,

MALCOLM PIRNIE, INC.

A handwritten signature in black ink that reads "Dennis L. Tucker". The signature is written in a cursive style with a large initial 'D'.

Dennis L. Tucker, P.E., BCEE
Senior Associate

Cc: Randy Schmaltz – Giant Refining Co., Bloomfield

REFERENCE:

1. Leeson, A. and R.E. Hincee. (1997) Soil Bioventing Principles and Practice. CRC Press. NY. p80.

Monzeglio, Hope, NMENV

From: Randy Schmaltz [rschmaltz@giant.com]
Sent: Monday, May 22, 2006 12:22 PM
To: Monzeglio, Hope, NMENV; Robinson, Kelly
Cc: Tucker, Dennis; Cobrain, Dave, NMENV
Subject: RE: Giant Refining Company Bloomfield - Request to Amend the Bioventing Monitoring Plant (Revised)

Hope,
 Kelly is in transition to Bloomfield, so I got a hold of Malcolm Pirnie's expert who provided the following answers. If you need additional information or have more questions please call or email me!
 Thanks
 Randy

Here are responses to good questions!

1. Why are the bioventing wells only monitored for oxygen and starting at every 12 hours? (initially it appears the bioventing wells would also monitor CO2 and for the same duration as the temporary wells)

Soil gas concentrations in the bioventing wells are likely to lag substantially behind the concentrations in temporary piezometers because the vapors must diffuse and equilibrate between the soil formation and the inside of the well bore. That diffusion will cause a delay and possibly misleading results. The temporary piezometers are more likely to yield reliable results because they are of smaller diameter and without a sand pack. Those features make them more responsive to in situ soil gas changes, so the (modified) respiration test focuses on them and much less on the bioventing wells.

Carbon dioxide is an indicator of biodegradation, but not as reliable an indicator as oxygen depletion. This is because carbon dioxide can be incorporated into soil minerals after formation. The rule commonly used is that the presence of carbon dioxide indicates biodegradation, but the absence of carbon dioxide does not indicate the absence of biodegradation.

2. Why are the temporary wells only measured for 48 hours and not 72 hours.

The TPs are to be monitored every hour for 8 hours, then every 12 hours for the next 48 hours. These 12 concentration and time data pairs should be more than adequate to determine the in situ oxygen utilization rate. The bioventing wells are monitored until 72 hours because of the expected lag in response behind the TPs described above.

I hope that helps clarify and resolve any questions and concerns.

Jim Gibbs

From: Monzeglio, Hope, NMENV [mailto:hope.monzeglio@state.nm.us]
Sent: Monday, May 22, 2006 9:53 AM
To: Robinson, Kelly
Cc: Randy Schmaltz; Tucker, Dennis; Cobrain, Dave, NMENV
Subject: RE: Giant Refining Company Bloomfield - Request to Amend the Bioventing Monitoring Plant (Revised)

Kelly

I have the following questions for the in-situ respiration testing.

1. Why are the bioventing wells only monitored for oxygen and starting at every 12 hours? (initially it appears the bioventing wells would also monitor CO2 and for the same duration as the temporary wells)

2. Why are the temporary wells only measured for 48 hours and not 72 hours.

5/22/2006

Thanks

Hope

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