

Received: from localhost (speclab1.cr.usgs.gov [136.177.81.5])
by speclab1.cr.usgs.gov (8.13.3/8.13.3) with ESMTTP id o5GN58o1008189
for <gswayze@speclab1.cr.usgs.gov>; Wed, 16 Jun 2010 17:08:22 -0600 (MDT)

Received: from gscodenm05.cr.usgs.gov [136.177.7.15]
by localhost with POP3 (fetchmail-6.2.5)
for gswayze@speclab1.cr.usgs.gov (single-drop); Wed Jun 16 17:08:22 2010

To: Todd M Hoefen <thoefen@usgs.gov>, Roger N Clark <rclark@usgs.gov>,
Keith E Livo <elivo@usgs.gov>, Gregg Swayze <gswayze@usgs.gov>,
Raymond Kokaly <raymond@usgs.gov>

MIME-Version: 1.0

Subject: Fw: Evaporation rates

X-KeepSent: 57572ECB:E3B2A34C-8725772D:005D8A68;
type=4; name=\$KeepSent

X-Mailer: Lotus Notes Release 8.5 December 05, 2008

Message-ID: <OF57572ECB.E3B2A34C-ON8725772D.005D8A68-8725772D.005DB9D1@usgs.gov>

From: Geoffrey S Plumlee <gplumlee@usgs.gov>

Date: Mon, 24 May 2010 11:03:43 -0600

X-MIMETrack: Serialize by POP3 Server on gscodenm05/SERVER/USGS/DOI(Release
8.0.2FP1HF618 | November 5, 2009) at 06/16/2010 17:19:07,
Serialize complete at 06/16/2010 17:19:07

Content-Type: multipart/alternative; boundary="=_alternative 005DB9D08725772D_="

This is a multipart message in MIME format.

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Content-Type: text/plain; charset="US-ASCII"

HI All - I thought that I had sent this along yesterday morning regarding
amount of oil loss to evaporation and dissolution in the seawater upon
release from the well.

Geoff

Geoffrey S. Plumlee, Ph.D.
Research Geochemist, Environment and Human Health
U.S. Geological Survey
Crustal Geophysics and Geochemistry Science Center
MS964 Denver Federal Center
Denver, CO 80225
303-236-1204, FAX 303-236-1229, Cell 303-589-4746
gplumlee@usgs.gov
<http://crustal.usgs.gov>

----- Forwarded by Geoffrey S Plumlee/GD/USGS/DOI on 05/24/2010 11:01 AM

From:
Bill.Lehr@noaa.gov
To:
Victor F Labson <vlabson@usgs.gov>
Cc:
Robert J Rosenbauer <brosenbauer@usgs.gov>, Geoffrey S Plumlee
<gplumlee@usgs.gov>, Marcia K McNutt <mcnutt@usgs.gov>
Date:

05/23/2010 08:14 AM

Subject:

Re: Evaporation rates

>From the report I am preparing to deliver to the NIC today

Spilled oil can take several pathways in the environment as shown in the diagram In the process of rising through the water column and weathering on the sea surface, oil loses many constituents to dissolution and evaporation. Since this oil contains a high fraction of volatile compounds, we expect that a large fraction of the oil is lost to evaporation. We used the pseudo-component evaporation model used in the NOAA model, ADIOS2, initialized with data on the oil composition provided by BP, to estimate the fraction of oil possibly lost to evaporation over the period on the order of weeks to months. After the more volatile compounds have evaporated, the remaining oil tends to persist without evaporative change for many months, but other mechanisms such as photo-oxidation and biodegradation can reduce the remaining oil. . Our models suggest that as much as half of the oil can be lost to natural processes over several weeks on the sea surface. Without further samples, we cannot sub-divide the amount lost to evaporation compared to dissolution.

We measured the composition of weathered oil collected from the sea surface on 16 May using GC/MS, and analyzed the results using the pseudo-component evaporation model. We found that the weathered oil sample had lost 38% of its mass to the combination of evaporation and dissolution. This analysis could be improved with a careful simulated evaporation study on the fresh oil, but we have not yet initiated this study. Therefore, as a first approximation, 30-50 % of the spilled oil, not removed by the response, has been removed by natural processes

----- Original Message -----

From: Victor F Labson <vlabson@usgs.gov>

Date: Sunday, May 23, 2010 6:52 am

Subject: Evaporation rates

To: Bill Lehr <Bill.Lehr@noaa.gov>, Robert J Rosenbauer <brosenbauer@usgs.gov>

Cc: Geoffrey S Plumlee <gplumlee@usgs.gov>, Marcia K McNutt <mcnutt@usgs.gov>

> Bill and Bob,

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>
> Thanks,
>
> Vic
>
> Victor F. Labson, Ph.D.
> Director - Crustal Geophysics and Geochemistry Science Center
> US Geological Survey
> Denver, Colorado
> Phone 1(303)236-1312, fax 1(303)236-1229e-mail vlabson@usgs.gov

--=_alternative 005DB9D08725772D_
Content-Type: text/html; charset="US-ASCII"

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303-236-1204, FAX 303-236-1229, Cell 303-589-4746

gplumlee@usgs.gov

http://crustal.usgs.gov<font size=2
face="sans-serif">

----- Forwarded by Geoffrey
S Plumlee/GD/USGS/DOI on 05/24/2010 11:01 AM -----

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<td>From:
<td>Bill.Lehr@noaa.gov
<tr valign=top>
<td>To:
<td>Victor F Labson <vlabson@usgs.gov>
<tr>
<td valign=top>Cc:
<td>Robert J Rosenbauer <brosenbauer@usgs.gov>,
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<td>Date:
<td>05/23/2010 08:14 AM
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<hr noshade>

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