

Letter Health Consultation

Follow-Up to June 2010 Letter Health Consultation

Phosphine gas and human exposures from Pond 15S

FMC SITE, EASTERN MICHAUD FLATS

CHUBBUCK AND POCATELLO, IDAHO

**Prepared by the
Idaho Department of Health & Welfare**

DECEMBER 10, 2010

Prepared under a Cooperative Agreement with the
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Health Consultation: A Note of Explanation

A health consultation is a verbal or written response from ATSDR or ATSDR's Cooperative Agreement Partners to a specific request for information about health risks related to a specific site, a chemical release, or the presence of hazardous material. In order to prevent or mitigate exposures, a consultation may lead to specific actions, such as restricting use of or replacing water supplies; intensifying environmental sampling; restricting site access; or removing the contaminated material.

In addition, consultations may recommend additional public health actions, such as conducting health surveillance activities to evaluate exposure or trends in adverse health outcomes; conducting biological indicators of exposure studies to assess exposure; and providing health education for health care providers and community members. This concludes the health consultation process for this site, unless additional information is obtained by ATSDR or ATSDR's Cooperative Agreement Partner which, in the Agency's opinion, indicates a need to revise or append the conclusions previously issued.

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December 8, 2010

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1435 North Orchard Street
Boise, Idaho 83706

RE: Phosphine gas and human exposures from Pond 15S, FMC site, Eastern Michaud Flats—Follow-Up to June 2010 Letter Health Consultation

Dear Mr. Weigel:

This letter is a follow up to the letter health consultation prepared by the Department of Health and Welfare, Division of Public Health, Bureau of Community and Environmental Health (BCEH) on June 2, 2010 under a cooperative agreement with ATSDR. BCEH has completed an evaluation of the latest ambient air sampling data from May 7, 2010 through July 31, 2010 for the Pond 15S Resource Conservation and Recovery Act (RCRA) area of the FMC Eastern Michaud Flats Superfund site near Chubbuck and Pocatello, Idaho. We conclude that during the period of June 1 to July 31, breathing zone levels of phosphine gas (PH₃) being released to ambient air from Pond 15S were not expected to harm people's health. Phosphine levels began to decline in mid-May, and did not increase again for the remainder of the sampling period. The real-time meters (Draeger PacIII) used to measure phosphine in ambient air at breathing zone height near the Pond 15S lift station number 1 (LS1) were the same ones used in previous sampling efforts. During the May-July sampling period, samples were generally taken 3-4 times per 24-hours at approximately 4 to 6 hour intervals. Readings at LS1 adjacent to Pond 15S were in the range of 0 to 0.29 parts per million (ppm) for the June 2010 period, and 0 to 0.07 ppm for the July 2010 period, as shown in Table 1. For comparison, the Occupational Safety and Health Administration Permissible Exposure Limit (OSHA PEL) is 0.30 ppm time-weighted over an 8 hour work shift.

Table 1: Phosphine in ambient air at Pond 15S LS1, May 7-July 31 2010

Sampling Dates	Samples (count)	Maximum (ppm)	Median (ppm)	Mean (ppm)
May 7-31 PH ₃	83	20+	0.110	0.653
June 1-30 PH ₃	119	0.290	0.000	0.020
July 1-31 PH ₃	115	0.070	0.000	0.001

Ambient air concentrations up to 0.07 ppm were observed in person during a visit to the site on August 10, 2010. The current low levels of phosphine near LS1 are attributable to FMC's installation and operation of a gas extraction system on Pond 15S. LS1 was also better sealed to prevent possible escape of phosphine to the atmosphere.

Contractors performing gas extraction, supervising FMC employees, visitors to the site, and trespassers on the site could potentially be exposed to gas releases in or adjacent to the Pond 15S area. However, with gas extraction working effectively for 12 weeks from May to July to reduce ambient levels of phosphine gas at Pond 15S, BCEH believes that the air around Pond 15S LS1 is no longer a public health hazard. In the June 2010 letter health consultation, BCEH provided recommendations to safeguard the health of anyone on site near LS1. The following are the original recommendations and the status of each.

1) Local emergency personnel remain apprised of the potential risks on site. *Status: Done – EPA provided information to local responders.*

2) Engineering controls and work practices to minimize contact with phosphine should be an immediate priority at the pond area of the site. Contractors working to lower the phosphine concentration under the Pond 15S cap must take the lower explosive limit (LEL), flammability and toxicity risks into consideration. *Status: Done – FMC installed a gas extraction system on Pond 15S.*

3) Efforts are made to assure that there is no trespassing into the pond area, including inspection of current fences and additional signage if lacking. Signage should be in both Spanish and English, and should clearly state the potential health risk to trespassers. *Status: Existing signage was verified in person but larger, bilingual signs are still recommended.*

4) Efforts are made to more comprehensively monitor phosphine levels at the fence line, specifically on the north side of the pond area, to determine if the public right-of-way is being impacted by phosphine. Monitors should be placed at ground level as well as at breathing height since phosphine is heavier than air. The lower detection limit (LDL) should be an order of magnitude below the permissible exposure limit (PEL). Frequency of sampling at minimum should be several times per day at different times of the day. *Status: FMC completed several weeks of fence line monitoring at various times of day and found no detectable levels (LDL = 0.01 ppm) of phosphine in ambient air. FMC is now proposing to conduct future monitoring closer to ponds since they are the source of phosphine production and areas adjacent to the ponds are more likely to have detectable levels than areas further away at fence line. FMC's proposal for future monitoring seems reasonable given the below LDL readings at fence line throughout the summer.*

5) EPA and FMC pursue controls and formulate an ongoing sampling plan. *Status: Ongoing - FMC has been cooperating with EPA on this. A site-wide characterization of phosphine gas has been completed and long term monitoring requirements are being developed.*

6) All persons entering the RCRA pond area be required to wear/carry a real-time portable phosphine monitor. *Status: This was BCEH's recommendation to EPA and OSHA for the health and safety plan (HASP) and BCEH has been notified that it has been conditionally adopted based on personal communication from EPA. FMC has agreed to require every vehicle entering the site to now have its own phosphine monitor, and every person carry a monitor if persons will be working more than 20 feet apart at any time.*

7) OSHA should be consulted to ensure that OSHA standards are met and National Institute for Occupational Safety and Health (NIOSH) worker respiratory protection recommendations are followed onsite. *Status: Done – OSHA Enforcement conducted a site visit in September 2010. A report is pending.*

BCEH does not have any further recommendations at this time.

As part of our continued support on this site, BCEH and ATSDR will support EPA in:

- Assessing new data for Pond 15S as they become available to ensure conditions remain protective of human health.
- Assessing new data for other ponds in the RCRA pond area.
- Encouraging electronic data recording for all ambient air monitoring.

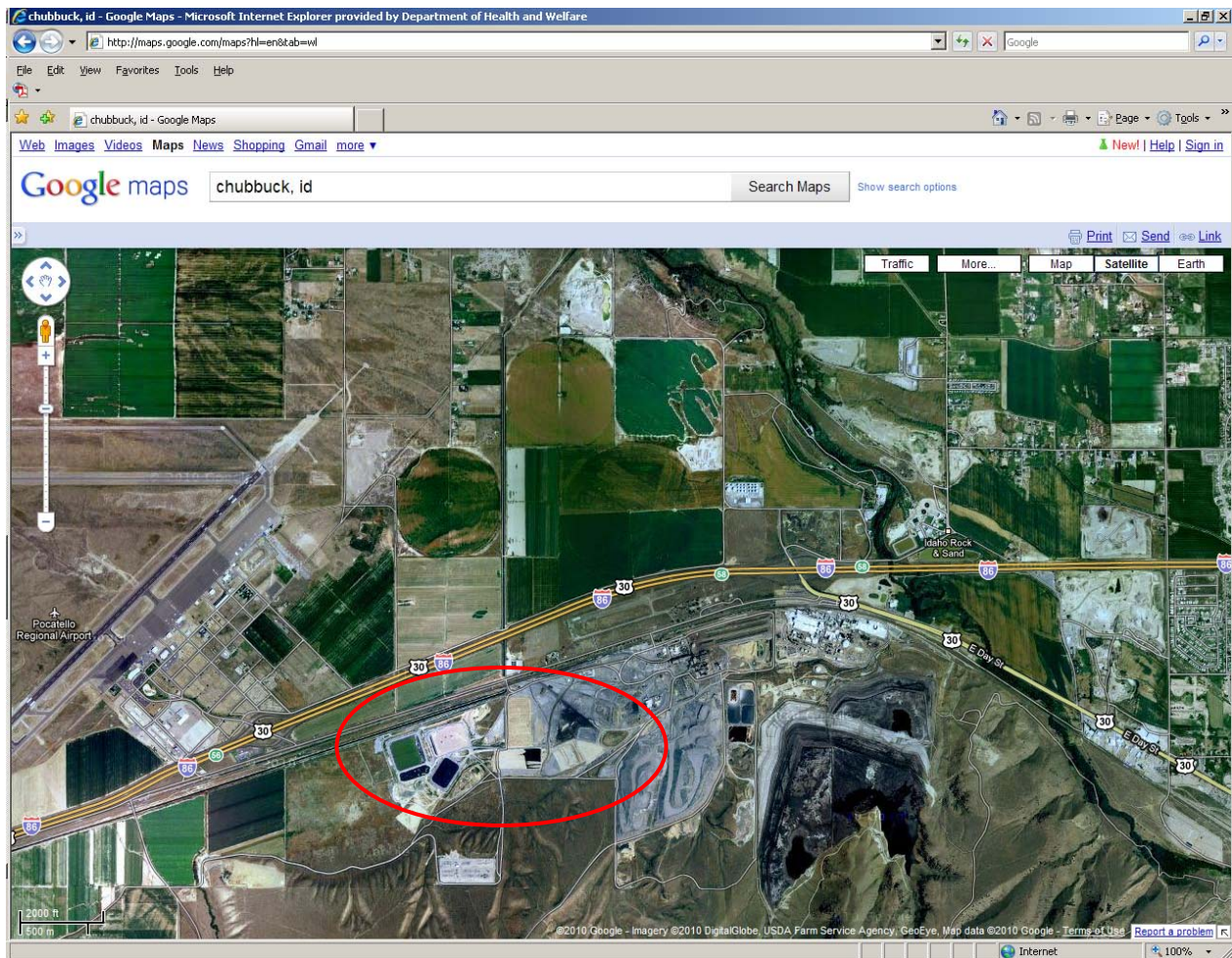
Feel free to provide my contact information (listed in the first page header) to other interested parties involved in this matter. If you have questions, please contact BCEH any time.

Best regards,

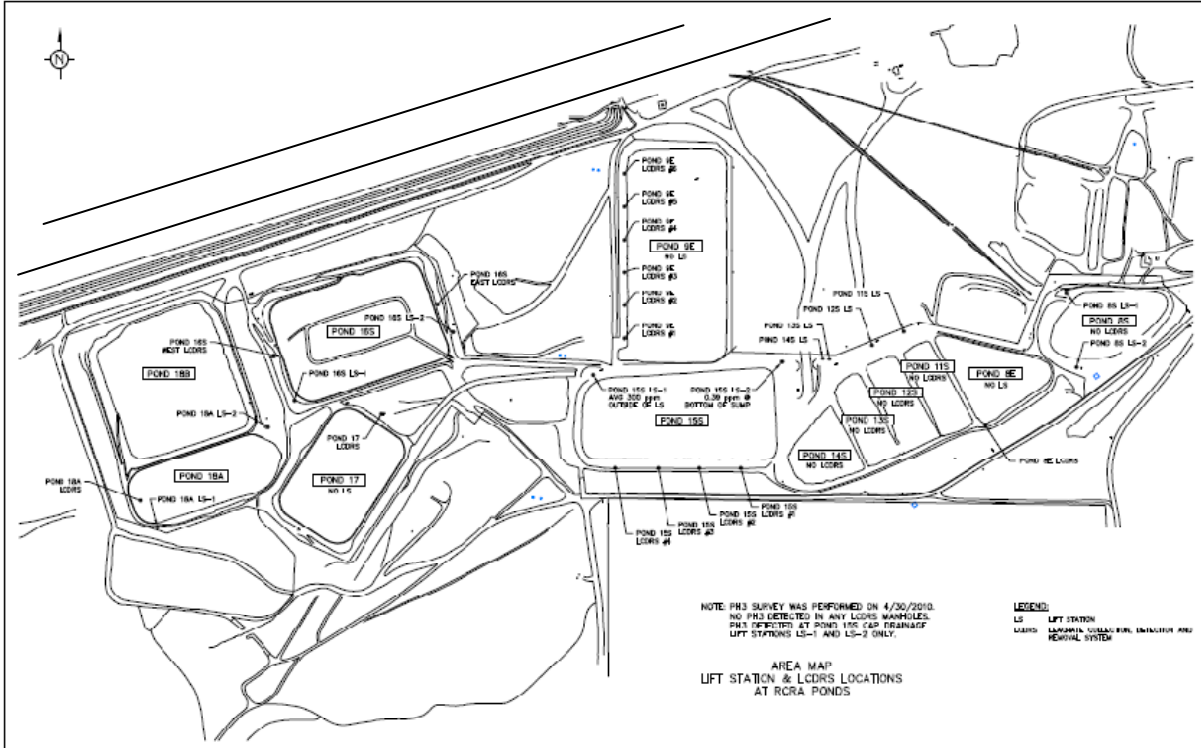


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Attachments (4): Aerial photo of vicinity; Map of RCRA Ponds; Photo of Pond 15S LS1 after improvements; References.



Screen shot of an aerial image with the RCRA pond area circled in red. East County Rd. runs adjacent to the site and parallel to Interstate 86. The Pocatello Airport and business park is visible on the left side of the photo. Outlying residential areas in Chubbuck/Pocatello are visible on the right side of the photo.



RCRA pond area map. Pond 15S is in the center of the map. The site fence line is adjacent to Pond 9E. East County Road is represented by the lines paralleling the fence line on the north side.



Pond 15S lift station 1 (LS1) after improvements to prevent gas seepage. This is the location of the phosphine ambient air samples that prompted the initial letter health consultation in June.

REFERENCES

ATSDR (June 2, 2010; accessed October 2010). Letter Health Consultation: Phosphine gas and human exposures from pond 15S: FMC Site, Eastern Michaud Flats. Available online: <http://www.atsdr.cdc.gov/HAC/pha/EasternMichaudFlatsFMC Pond15S/FMCEasternMichaudFlatsLHC06022010.pdf>.

ATSDR (April 2002; accessed May 2010). ToxFAQs for Phosphine. Available online: <http://www.atsdr.cdc.gov/toxfaqs/tf.asp?id=1014&tid=214>

FMC. FMC Report on Phosphine at FMC Pond 15S. Response to EPA Questions dated April 19, 2010 (Submitted April 26, 2010 (43 pages, plus 5 addendum pages for Table 3).

OEHHA-Cal/EPA (9/24/03; accessed May 2010). Technical support document: Toxicology. Clandestine drug labs: Methamphetamine. Vol. 1, Number 5. PHOSPHINE. Available online: http://www.oehha.org/public_info/pdf/TSD%20Phosphine%20Meth%20Labs%2010'8'03.pdf.

CERTIFICATION

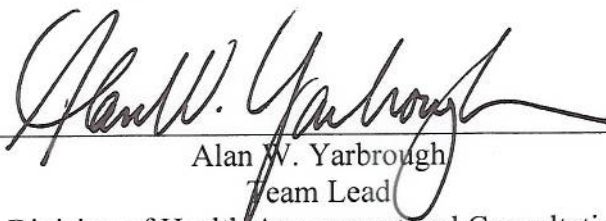
This health consultation was prepared by the Idaho Division of Public Health (IDPH) under a cooperative agreement with the federal Agency for Toxic Substances and Disease Registry (ATSDR). It was completed in accordance with approved methodologies and procedures existing at the time the health consultation was initiated. The editorial review was completed by the Cooperative Agreement partner.



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