NRC Report

Extended Spill Summary Report for DataID #1516584

Report Date: 1/10/2014 **Report Time:** 8:56 AM

Hotline Log Entry Information

Data ID: 1516584

Date Of Report: 09-JAN-14 19:16 **NRC #:** 1070627 **State #:** **ERNS #:**

Material Type: Haz **Receiver:** d matlock

Material / Amount: METHYLCYCLOHEXANE (0 UNKNOWN AMOUNT);

Location: City:
County: KANAWHA
State: WV

Source of Pollution: WEST VIRGINIA AMERICAN WATER

Water Body: ELK RIVER

State Or EPA Responded: WVDEP and EPA

Initial EPA Action: WVDEP responded to odor complaint. WV Governor declared emergency for severla counties. OSC Matlock will be on scene to WV EOC Friday, 1/10.

Status: 1 - Pending

URL:

Associated Action Reports

DataID: 0680179

Date: 2014/01/10	**Time:** 00:04	**Submitted by:** HQ Duty Officer
Duty Officer/Responder Name: d matlock	**NRC Report #:** 1070627	**Hotline Log DataID:** 1516584

Action Information

Description: OSC Matlock will meet with FEMA, WVDEP and RP personnel on Friday, 1/10.
FEMA mission assignment for OSC Matlock and EPA Rep in the RRCC to support operations.

Person Contacted

Name: Mike Dorsey

Organization: WVDEP
Phone #:

Associated NRC Report

NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with a
applicable federal and/or state Freedom of Information and Pri

Incident Report # 1070627

INCIDENT DESCRIPTION

*Report taken by: CIV KEVIN WILLIAMS at 19:16 on 09-JAN-
Incident Type: STORAGE TANK
Incident Cause: UNKNOWN
Affected Area: ELK RIVER
Incident occurred on 09-JAN-14 at 10:47 local incident time.
Affected Medium: WATER ELK RIVER

REPORTING PARTY
Name: WILLIAMS
Organization: NATIONAL RESPONSE CENTER

WASHINGTON, DC

PRIMARY Phone: (800)4248802
Type of Organization: FEDERAL GOVERNMENT

SUSPECTED RESPONSIBLE PARTY
Name: UNKNOWN
Organization: WEST VIRGINIA AMERICAN WATER

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION
ELK RIVER County: KANAWHA
1015 BARLOW DRIVE
State: WV

RELEASED MATERIAL(S)
CHRIS Code: MCY Official Material Name: METHYLCYCLOHEX

Freedom_0006121_0003

DESCRIPTION OF INCIDENT

RESIDENTS IN CHARLESTON AND SURROUNDING COUNTIES WERE TOLD THURSDA
NOT TO DRINK, COOK WITH OR WASH WITH WATER SUPPLIED BY WEST VIF
AMERICAN WATER, FOLLOWING A LEAK EARLIER IN THE DAY AT A CHEMICAL
ALONG THE ELK RIVER.

ANY WATER SUPPLIED BY WEST VIRGINIA AMERICAN WATER IN KANAWHA, E
BOONE, JACKSON AND LINCOLN COUNTIES WAS TO BE USED ONLY FOR FLU
TOILETS AND PUTTING OUT FIRES.

THE STATE OF EMERGENCY INCLUDES WEST VIRGINIA AMERICAN WATER CUST
BOONE, LINCOLN, KANAWHA, JACKSON AND PUTNAM COUNTIES, ACCORDING
STATION WSAZ.

RESIDENTS WERE TOLD NOT TO DRINK THE WATER, BATHE IN IT OR COOK W
WATER AND ONLY USE IT FOR FLUSHING AND FIRE EMERGENCIES. BOILING
NOT REMOVE THE CHEMICALS.

THE DECLARATION IS BELIEVED TO IMPACT 100,000 CUSTOMERS, WSAZ RE

THE STATION SAID THE CHEMICAL LEAKED FROM A TANK AT FREEDOM INDUS
CHARLESTON. THE LEAKED PRODUCT IS 4-METHYLCYCLOHEXANE METHANOL, W
USED IN THE FROTH FLOTATION PROCESS OF COAL WASHING AND PREPAR

ACCORDING TO WEST VIRGINIA AMERICAN WATER, DUE TO A CHEMICAL LEAK
INTO THE ELK RIVER THURSDAY, A DO NOT USE WATER ORDER HAS BEEN IS
THE COUNTIES OF BOONE, JACKSON, KANAWHA, LINCOLN, AND PUTNAM I

RESIDENTS LIVING IN THESE COUNTIES WHO USE WEST VIRGINIA AMERICAN
BEING ASKED TO NOT USE TAP WATER FOR DRINKING, COOKING, WASHING, C
UNTIL FURTHER NOTICE.

THE PUBLIC SERVICE DISTRICT SAYS THIS ONLY AFFECTS CUSTOMERS WHO
VIRGINIA AMERICAN WATER. CUSTOMERS IN ST. ALBANS AND CEDAR GROVE
AFFECTED BY THIS.

IT IS BELIEVED THAT THE MATERIAL MAY BE HAZARDOUS AND MAY HAVE ENT
WATER SYSTEM.

THE GOVERNOR OF WV HAS DECLARED A STATE OF EMERGENCY.

A SPOKESPERSON FOR WEST VIRGINIA AMERICAN WATER SAYS IF YOU CAM
CONTACT WITH THE WATER AND FEEL ILL, CALL THE POISON CONTROL HOTLINE
222-1222.

IMPACT

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES:	NO	Hospitalized:	Empl/Crew:	Passer
FATALITIES:	NO	Empl/Crew:	Passenger:	Occu
EVACUATIONS:	NO	Who Evacuated:	Radius/Area:	

Damages: NO

Closure Type		Description of Closure	Hours Closed	Direc Closu
Air:	N			
Road:	N			
Waterway:	N			
Track:	N			

Passengers Transferred: NO
Environmental Impact: UNKNOWN
Media Interest: HIGH Community Impact due to Material:

REMEDIAL ACTIONS

Release Secured: UNKNOWN
Release Rate:
Estimated Release Duration:

WEATHER

ADDITIONAL AGENCIES NOTIFIED

Federal: EPA REGION III
State/Local: STATE OF WEST VIRGINIA EOC
State/Local On Scene:
State Agency Number:

NOTIFICATIONS BY NRC

ATLANTIC STRIKE TEAM (MAIN OFFICE)
09-JAN-14 20:00 (609)7240008 MARCHUT

DHS NOC (NOC)
09-JAN-14 19:42 (202)2828114

CG INVESTIGATIVE SERVICE BALTIMORE (MAIN OFFICE)
09-JAN-14 19:42 (410)5762555

CGIS RAO ST. LOUIS (COMMAND CENTER)
09-JAN-14 19:42 (314)2692420

CHEM SAFETY AND HAZARD INVEST BOARD (AFTER HOURS)
09-JAN-14 19:43 (202)6312440 NO VERBAL

Freedom_0006121_0005

CHEM SAFETY AND HAZARD INVEST BOARD (CSB AUTOMATIC NOTIFICATI(
09-JAN-14 19:42 (202)3780334
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
09-JAN-14 19:42 (202)3661863
DOT OFFICE OF INSPECTOR GENERAL (OFFICE OF INVESTIGATORS)
09-JAN-14 19:42 (202)3295487
EPA OEM (MAIN OFFICE)
09-JAN-14 19:45 (202)5643850 GRIER
EPA OEM (AFTER HOURS SECONDARY)
09-JAN-14 19:48 (202)5643850 GRIER
U.S. EPA III (MAIN OFFICE)
09-JAN-14 20:13 (215)8143255 MATTLOCK
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
09-JAN-14 19:42 (202)2829201
NOAA RPTS FOR WV (MAIN OFFICE)
09-JAN-14 19:42 (206)5264911
NATIONAL RESPONSE CENTER HQ (AUTOMATIC REPORTS)
09-JAN-14 19:42 (202)2671136
NRC SENIOR WATCH OFFICER (MAIN OFFICE)
09-JAN-14 20:13 (202)2672100 MATTICE
HOMELAND SEC COORDINATION CENTER (MAIN OFFICE)
09-JAN-14 19:42 (202)2828300
ORSANCO (MAIN OFFICE)
09-JAN-14 19:42 (513)2317719
SECTOR OHIO VALLEY (COMMAND CENTER)
09-JAN-14 19:42 (502)7795424
OFFICE OF ENV. POLICY & COMPLIANCE (MAIN OFFICE)
09-JAN-14 19:42 (215)5975012
USCG DISTRICT 8 (MAIN OFFICE)
09-JAN-14 19:42 (504)5896225
WEST VIRGINIA DEP (MAIN OFFICE)
09-JAN-14 19:42 (304)5585938
WV DEP ATTN: DUTY OFFICER (MAIN OFFICE)
09-JAN-14 19:42 (800)6423074
WV DEP SPILL LINE (MAIN OFFICE)
09-JAN-14 19:42 (304)3683960
WV INTELLIGENCE/FUSION CENTER (COMMAND CENTER)
09-JAN-14 19:42 (304)5584831

ADDITIONAL INFORMATION

*** END INCIDENT REPORT # 1070627 ***
Report any problems by calling 1-800-424-8802
PLEASE VISIT OUR WEB SITE AT http://www.nrc.uscg.mil

Marzulli, Linda

From: Jason Heath [jheath@orsanco.org]
Sent: Sunday, January 12, 2014 8:05 AM
To: Spillreports-l
Subject: Fwd: NRC#1070863

---------- Forwarded message ----------
From: <HQS-PF-fldr-NRC@uscg.mil>
Date: Sun, Jan 12, 2014 at 12:27 AM
Subject: NRC#1070863
To: nrcmail@orsanco.org

NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with any
applicable federal and/or state Freedom of Information and Privacy Laws

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Freedom_0006121_0008

Ex. 5 - Deliberative

Freedom_0006121_0009

Ex. 5 - Deliberative

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Jason Heath, P.E., BCEE
Manager - Monitoring, Assessment & Standards Programs
Ohio River Valley Water Sanitation Commission (ORSANCO)
5735 Kellogg Avenue
Cincinnati, OH 45230
513-231-7719 work
859-630-7235 cell
www.orsanco.org

Freedom_0006121_0010

HOTSITES

Matsinger, Josie

From: Burns, Francis
Sent: Friday, May 02, 2014 2:53 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSC Dennis Matlock reports that the WV Department of Environmental Protection (WVDEP) has approved Freedom Industries' plan to divert clean water collected outside the containment wall into the Elk River. The WVDEP issued a modified NPDES permit that includes an additional sampling schedule to confirm clean discharge of water.

The facility completed removal of six fiberglass tanks. The Chemical Safety Board (CSB) was at the facility and their work is scheduled to be done by mid-May.
The facility has received concurrence on their revisions to the Tank Decommissioning Plan for removal of all tanks north of tank 403. Work continues on enhancing the secondary containment around tanks 403, 404, and 405. Freedom is planning to have all tanks down by June 22.

Marzulli, Linda

From: HQS-PF-fldr-NRC@uscg.mil
Sent: Thursday, January 09, 2014 9:45 PM
To: Faulkner, Mike; Miller, Johanna; epa.hscenter@dhs.gov; HQS-PF-fldr-NRC@uscg.mil; Eoc, Epahq; fema-operations-center@dhs.gov; Terry, Ed; mullins.james@epamail.epa.gov; Jackson, Robert W.; linda.daugherty@rspa.dot.gov; Mosher, Eric; Mjoness, Mark; Kevin.Smith@uscg.mil; thomas.cheamitru@uscg.mil; Marzulli, Linda; Runge, Roberta; Syed.M.Qadir@uscg.mil; Dunkelman, Tom; joy.kadnar@dot.gov; rrc.r9@epa.gov; Broyles, Ragan; Hawthorn, Steve; blake.velde@usda.gov; rsp.div@hq.doe.gov; staves.james@epa.gov; Tulis, Dana; Cunningham, John; Guria, Peter; Craig.Crockett@uscg.mil; john.r.caplis@uscg.mil; eric.j.miller2@uscg.mil; andrew.a.kennedy@uscg.mil; thomas.a.maca@uscg.mil; richard.l.layman@uscg.mil; john.hess@dot.gov; OPSAccident@dot.gov; christopher.g.mattice@uscg.mil; peter.frost@usdoj.gov; james.payne2@usdoj.gov
Subject: National Response Center Incident Summary

This report is being sent to you on behalf of the National Response Center (NRC) and contains information related to a significant environmental release and/or maritime transportation security incident.

*** NRC INCIDENT SUMMARY ***

NRC NUMBER:	1070627
OCCURRENCE DATE/TIME:	09-JAN-14 10:47 (LOCAL TIME)
LOCATION:	WV (KANAWHA)
FOSC:	U.S. EPA III
INCIDENT TYPE:	STORAGE TANK
SEVERITY:	MAJOR
BODY OF WATER AFFECTED:	ELK RIVER
MATERIAL:	METHYLCYCLOHEXANE
QUANTITY DISCHARGED:	0 UNKNOWN AMOUNT
QUANTITY ENTERING WATER:	0 UNKNOWN AMOUNT
INSUM NUMBER:	1334

SUMMARY:
ON JANUARY 9, 2014 THE NATIONAL RESPONSE CENTER RECEIVED MULTIPLE CALLS FROM PRIVATE CITIZENS IN CHARLESTON, WV, AND THE SURROUNDING COUNTIES, WHO WERE CONCERNED ABOUT THEIR HEALTH AFTER DRINKING OR HAVING COME IN CONTACT WITH POSSIBLY CONTAMINATED WATER. ACCORDING TO MEDIA SOURCES, A STORAGE TANK IN CHARLESTON, WV LEAKED AN UNKNOWN AMOUNT OF 4- METHYLCYCLOHEXANE METHANOL INTO THE ELK RIVER AT APPROXIMATELY 10:00 AM EST ON THURSDAY, JANUARY 9TH. THOUGH NO INJURIES HAVE YET TO BE REPORTED, THE GOVERNOR OF WEST VIRGINIA HAS DECLARED A STATE OF EMERGENCY AND IS TELLING THE RESIDENTS OF THE EIGHT COUNTIES POSSIBLY AFFECTED BY THE SPILL TO NOT DRINK, BATHE, OR COOK WITH PUBLIC WATER. NO WATERWAY CLOSURES HAVE BEEN REPORTED. THIS INCIDENT HAS HIGH MEDIA COVERAGE. TO THE KNOWLEDGE OF NRC STAFF, THE RESPONSIBLE PARTY HAS NOT SUBMITTED AN INITIAL SPILL REPORT, SO THE INFORMATION CONTAINED IN THIS INSUM WAS SOLELY DERIVED FROM MEDIA SOURCES. EPA REGION 3 WAS NOTIFIED AS THE FEDERAL ON-SCENE COORDINATOR AND A REPORT WAS SENT TO THE USCG SECTOR OHIO VALLEY.

MSTC MATTICE
National Response Center

For more information about the NRC, please visit us on the web at http://www.nrc.uscg.mil or call us at (800)424-8802.

Freedom_0006121_0013

Marzulli, Linda

From: Burns, Francis
Sent: Thursday, January 30, 2014 2:29 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSCs Matlock and Linden reported that the facility is continuing to pump water from upgradient of the secondary containment area. However, the majority of the site remains frozen and most of the sumps dug inside the tank containment are frozen and cannot be pumped. The site team met with the facility's consultant to discuss amending the remediation plan to include improvements to the interceptor trench and installation of an additional sump.

Due to heavy ice conditions in the river, the booms are being allowed to freeze in place. However, ice continues to be cleared from the outside of the boom so boats can access the booms along the facility shoreline.

The facility's remediation consultant, CEC, collected two surface water samples on January 29, 2014. EPA, WVDEP, and plaintiff representatives collected split samples. EPA's split samples were shipped to the Region 3 Lab for Trace VOC and MCHM/PPH analysis. CEC plans on re-developing monitor wells onsite to facilitate collection of groundwater samples, which should occur on Monday, February 3, 2014.

EPA continues to leave messages for the Marshall University professor who reported formaldehyde in a drinking water sample from a restaurant in Charleston, WV but no response to date. EPA's Ft. Meade lab is also investigating the formaldehyde issue.

CSB is onsite and is continuing their investigative work.

Marzulli, Linda

From: Burns, Francis
Sent: Wednesday, January 29, 2014 3:31 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSCs Matlock and Linden reported that during a Multi-Agency Briefing at the WV American Water Company, the National Guard Civil Support Team announced that they will start sampling the 233 schools identified on the WVAWC distribution system within the 9 impacted counties. They will be collecting one sample per school from the kitchen sink.

EPA will be taking split samples on January 29 along with WV DEP and CEC, the facility's remediation contractor, from the collection trench, a seep behind the secondary containment area, and four monitoring wells down gradient of the tank farm. The Ft. Meade Lab is ready to run the samples (5-7 sample locations). The sampling will depend on the amount of water that has accumulated in the sumps. The samples will be analyzed for MCHM/PPH and total VOCs.

The facility is collecting clean water originating off-site into a dike at the perimeter of the facility and per agreement with WVDEP the water will be used to dilute the glycerin to produce a component of antifreeze. The product will be shipped to the facility's customers. The material is stored in tank 399.

The local media reported that a Marshall University professor found formaldehyde in a drinking water sample from a restaurant in Charleston, WV. EPA is reaching out to the professor to indentify his sampling and analytical methods.

Marzulli, Linda

From: Burns, Francis
Sent: Tuesday, January 28, 2014 3:02 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSCs Linden and Matlock reported that the facility is continuing to pump water upgradient of the secondary containment area. The majority of the site is frozen and most of the holes/sumps dug inside the tank containment are frozen and cannot be pumped.

The facility revised their estimate of the amount of material leaked to 10,000 gallons. The facility's contractor continued to pump water from the containment trench into an onsite tank for temporary storage. The facility is improving the containment trench by installing perforated pipe and a sump under the liner. The liner will be placed over the pipe and will be tied into the base of the slope.

Ice in the river is causing difficulty with maintaining the river boom in place. The facility contractor continues to break the ice and to properly position the river booms. The booms will be allowed to freeze in place. However, ice will continued to be cleared from the outside of the boom to allow boat access to the booms.

The facility's remediation consultant, CEC, plans on collecting surface water and groundwater samples on January 29, 2014. EPA and WVDEP will collect split samples.

EPA CID, FBI and CSB were on site today. The investigative team will be making an entry into the tank that leaked.

Marzulli, Linda

From: Burns, Francis
Sent: Sunday, January 26, 2014 1:28 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Bill Arguto of Region 3's Water Division reported that the West Virginia Division of Homeland Security and Emergency Management has posted operational sampling results as of January 25. Sample data for PPH testing as of Jan 23 and Jan 24 is also posted. The web site is http://www.dhsem.wv.gov/Pages/WV-American-Water-Emergency.aspx

OSCs Linden and Matlock reported that the facility is continuing to pump water from outside of the secondary containment area. The majority of the site is frozen and most of the holes/sumps dug inside the tank containment are frozen and cannot be pumped. The facility dug a hole behind Tank 394 about three feet down and found only loose fill, not the expected gravel/compacted soil. The hole was to prepare for a planned vertical French drain that could vacuum product from under the tanks. The subsurface loose fill and brick debris make the planned French drain ineffective for recovering product.

Ice in the river continues to be a significant issue with maintaining the river boom in place. The facility contractor is attempting to break ice and to properly position the river booms. Because of the ice, once the boom is repositioned further from the river bank, it will be allowed to freeze in place.

The facility and its remediation consultant, CEC, are scheduled to meet with WVDEP and EPA on Monday, January 27, 2014, to discuss the remediation plan.

Overnight the facility broke the surface ice on the containment trench at the base of the hill and pumped out the water to maintain a safe freeboard, which should prevent potential overflow. The facility reported that water seeped in underneath the liner. WV DEP, EPA, the facility, and their contractor discussed removal of the water and repair of the poly liner. The facility will add salt to melt the ice in the trench and pump out the water. After the water is pumped out, the polyethylene liner will be cut and rolled back to pump out the accumulated water and possible product. The polyethylene liner will then be placed back in the trench and positioned into the hillside so it collects surface runoff, subsurface water and possible product.

This weekend, chemists and lab managers have formed a group to share information about the analysis of MCHM and PPH. The group participants include the National Guard, WV American Water, American Water Research, REI Consulting, DuPont, Dow, Matric, NIH, EPA R3 Lab and EPA ERT lab. The group is communicating by e-mails and conference calls.

Marzulli, Linda

From: Burns, Francis
Sent: Saturday, January 25, 2014 2:21 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSC Linden reports that overnight operations were once again focused on pumping water from off site that pools outside the containment wall. The area inside the containment area is not frozen, but appears still so it is not being pumped. Freezing temperatures have frozen the majority of the site. The facility's contractor was breaking up the ice inside the boom until the motor failed on their boat. A new motor is expected this afternoon.

One of today's main concerns is for the crew on the river maintaining the boom. Maintaining the boom is dangerous is these extremely low temperatures. The ice has pushed the boom in toward the shore. They are hoping to reset the boom to its original location when the boat arrives this afternoon and they can break up the ice outside the boom. The water department has been notified of the issues with the boom and will be notified if there was a release or suspected release.

OSC Melissa Linden spoke with Art Smith, the OSC in Region 4, who directed her to the KY Department of Environmental Protection, Waste Management Division. KYDEP stated that Big Run Landfill has now decided to decline accepting the waste. Big Run Landfill confirmed this decision and stated that they recently notified Freedom Industries. The Big Run Landfill is concerned that the waste with its low odor threshold could enter their leachate, which is processed by a local wastewater treatment plant. They fear that the odor would cause the wastewater treatment plant to stop accepting the landfill's leachate. Melissa notified WV DEP about Big Run Landfill's decision. WVDEP is planning to contact Big Run Landfill to discuss the properties of MCHM so that the landfill will accept the MCHM material. The facility is exploring other options for disposal and their contractor will be speaking to their sales staff to identify other options.

WVDEP approved a load of a mixture of glycerin and river water for shipment off from the site. The plan of action is that all storage tanks inside the containment will be emptied, cleaned, and removed from the site. Legal approval will be needed removing the tanks from the site.

The facility will attempt to install the "vertical French drain" between Tank 394 and 393. This drain should remove additional water from the secondary containment area, including the removal of retained product. The installation of the drain depends on the ability of the workers to dig through the soil.

Marzulli, Linda

From: Burns, Francis
Sent: Friday, January 24, 2014 3:21 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Patti-Kay Wisniewski of Region 3's Water Division reported that drinking water samples collected between January 10 and 16, and on January 22, 2014 were reanalyzed for PPH. These samples were from the intake (raw water) as well as finished drinking water. All 30 samples were reported as nondetectable for PPH at a detection limit of 2 ppm. Further testing is planned with a detection limit of 1 ppm. In addition, water testing at the WV American Water Treatment Plant indicated no sign of phenol, a by-product that would appear if the PPH had reacted with water treatment processes.

OSCs Linden reported that overnight operations focused on collection of water from outside the containment wall, before it could pass through the site and to the retention pond. This water is being pumped into tank 398, tested, and, if acceptable, used for thinning the glycerin for pumping and transport. When the retention pond reaches a pumpable level, the hoses are treated with glycerin and the water is pumped to the tanker. This helps to prevent the hoses from freezing. In addition to the site being frozen, sections of the Elk River are frozen the entire width of the river.

The frozen river has caused some concerns in controlling the ice down inside the boom containment. Two options are to leave the ice in place behind the containment boom or to carefully remove the bottom boom and force the ice from behind the containment and reinstall the boom. The facility has asked WVDEP to approve one of the options.

Disposing material at Big Run Landfill in Ashland, KY, was delayed because the sub-freezing temperatures have frozen the water in the holding tank. The facility has requested approval from WVDEP for the disposition of all collected water and approval to use water from the Elk River to dilute the glycerin to aid in pumping of the product.

Senator Manchin was on site late yesterday to discuss the plans for the site. He spoke with the EPA OSCs and the WVDEP. The National Guard escort stayed behind and was escorted on a site walk by the WVDEP.

The Central Regional Lab (CRL) in Ft. Meade, MD has been working to identify analytical techniques for the single compound MCHM in water, striving to lower analytical detection limits for the compound and attempting to ensure the reliability of analytical methods employed by public utilities and other organizations. In addition, the CRL will use several analytical techniques to identify the constituents in the product mixture samples collected from the tanks at Freedom Industries in Poco, WV facility. This material may have different compound ratios than the ruptured tank. CRL also will work to identify the appropriate analytical method(s) for identifying PPH in water and attempt to attain acceptable detection limits for making public health evaluations.

Marzulli, Linda

From: Burns, Francis
Sent: Thursday, January 23, 2014 3:11 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Today EPA is taking a sample of the MCHM/PPH mixture that is being staged at the POCA Blending Facility. This material was removed from Tanks 395, 396 (failed tank), and 397 at Freedom Industries. The material from Tank 396 was mixed with the other tanks went the material was taken off-site for storage. The facility stated that the MCHM/PPH ratio in Tanks 395 and 397 may differ slightly from that of Tank 396. The sample will be sent to Ft. Meade with delivery expected tomorrow.

Currently, the facility is attempting to pump out the sumps on and off the property, but is battling freezing temperatures. The contents of all the hoses are frozen but it does not appear that the water/ice in the sumps has risen. The facility also continues to monitor the boom along the river edge to ensure the ice does not build up. Currently there is no ice buildup on the bank.

The facility announced that all the water pumped from the site will be taken to Big Run Landfill of Ashland, Kentucky. WVDEP suggested that Freedom Industries, WVDEP, EPA, and the Coast Guard meet to discuss the contents of Freedom's Remediation Plan. That meeting has not yet been scheduled.

Marzulli, Linda

From: Burns, Francis
Sent: Wednesday, January 22, 2014 1:42 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSCs Linden and Sharma reported that the facility continues to monitor the boom along the river edge to ensure the ice does not build up. The facility's contractor has teams of two rotating every 45 minutes to inspect the boom condition and ice buildup. Ice has begun to form and the teams have been instructed to break the ice located between the river bank and boom.

There has been trouble with freezing in the tubes used for pumping out the sumps around the facility. Most of the sumps are frozen at this point, but water is still running on the outside of the secondary containment. The remediation contractor's, CEC, primary goal for today is to locate the source of the water and divert it around the facility property. WVDEP met with the facility about the remediation plan and locations for future sampling.

Marzulli, Linda

From: Burns, Francis
Sent: Tuesday, January 21, 2014 12:01 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Bill Arguto of Region 3's Water Division reported that the West Virginia American Water Company is continuing flushing and re-sampling until the samples show a non-detect level throughout the distribution system. Labs that are available to measure down to the non-detect level could be an issue. The flushing and sampling will continue until all areas are determined to be at a non-detect level.

OSCs Sharma and Linden reported that work continues to contain water coming from the upgradient source. A hole was excavated near the front gate to determine the origin of the water. The water, which is clean, will be pumped into the tank containing the glycerin sludge to dilute the sludge, which should ease pumping the glycerin. The glycerin will be hauled to customers to comply with the WVDEP order. An updated inventory of the remaining chemicals will be provided to the WVDEP tomorrow.

The booms on the river appear in good condition and are not collecting any visible material. No visible sheen was seen on the river behind the booms.

Soil removal is delayed due to the cold temperatures and snow fall. The WVDEP requested that the contractor look at the north end of the trench where the poly sheeting has folded back and needs to be repaired. The facility's contractor will inspect the river boom to break up the ice and stop ice from forming during the lowering temperatures throughout the week. This will prevent the ice from becoming a conduit if there was an additional release.

The Chapter 11 court hearing has delayed shipment of the Baker double-walled tankers. The tankers will not be released until after today's court appearance. The filing is extremely important for Freedom Industries to continue to operate and continue to meet WV DEPs requirements. If they are unable to proceed with Chapter 11 filing for reorganization, then Freedom Industries will have to file Chapter 7 and discontinue the removal work.

The remediation contractor, Civil Environmental Consultants, has begun to work on a plan for the site. They stated that the cost or scope of remediation work will not be cost prohibitive due to deterioration of the product and the clay base under the site that kept the chemical from infiltrating deep into the ground.

Marzulli, Linda

From: Burns, Francis
Sent: Monday, January 20, 2014 2:28 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Bill Arguto of Region 3's Water Division reported that the West Virginia American Water Company's tests results show that MCHM readings in the plant's raw water and finished water have been non-detectable since Monday evening, January 13.

The West Virginia American Water Company is conducting sampling throughout the distribution system to determine when non-detectable levels are achieved. Distribution sampling points are at entry points, middle points and dead end points within each zone. The West Virginia Water Company is reporting that a majority of the samples collected in the distribution sample are non- detect.

ORSANCO continues to monitor the plume. The plume is predicted to arrive at Henderson, Indiana at 05:30 AM, Jan. 20, and Mt Vernon, Indiana at 6:30 PM, Jan. 20.

OSCs Matlock and Ventura report that the focus of site operations continues to be controlling the on-site water and collecting contaminated water/product from the ditches and the collection trench. WVDEP, EPA, and the facility contractor walked the site to find a location where to pipe the runoff water that is flowing to the Site. A sump will be hand-dug along the road in an attempt to collect the runoff water before the water reaches the property. The collected water will either be diverted or collected in tanker trucks to send to a wastewater treatment plant.

The collection trench was extended to capture contaminated water from the seep, preventing the water from reaching the river. The facility continues to maintain the boom and is reporting no odor or sheen on the absorbent booms. A vacuum truck is now being used along the slope to vacuum contaminated surface soil and water.

The facility is receiving more double-walled tanks at the Poca facility to contain water from the site. The facility will profile the water for disposal by collecting samples from the storage tanks.

Marzulli, Linda

From: Burns, Francis
Sent: Sunday, January 19, 2014 2:11 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV
Attachments: Freedom_Industries_Chemical_Spill Map Update 01 18 2014 .pdf; Photolog_RP_contractor_work_activity_1_19_14 .pdf

Bill Arguto of Region's Water Division reports that the West Virginia American Water Company has lifted the alert for three towns (Buffalo, Frazier's Bottom and Pliny). Results from all 11 samples taken yesterday in these three areas indicated "No Detect" levels in parts per million.

The West Virginia American Water Company has been sampling at the plant at both the parts per million (ppm) and parts per billion (ppb) levels. West Virginia American Water will continue to test the system at the parts per billion level.

There may be precautionary boil water advisories in place for several smaller groups of customers throughout the service district after water storage tanks were depleted following excessive flushing activities or water line breaks.

ORSANCO predicted the plume that will arrive at Cannelton Lock and Dam (three miles upstream from Cannelton, Indiana) Sunday, Jan. 19, at 1:00 AM. Up river concentrations at Louisville KY peaked at 3.5 ppb.

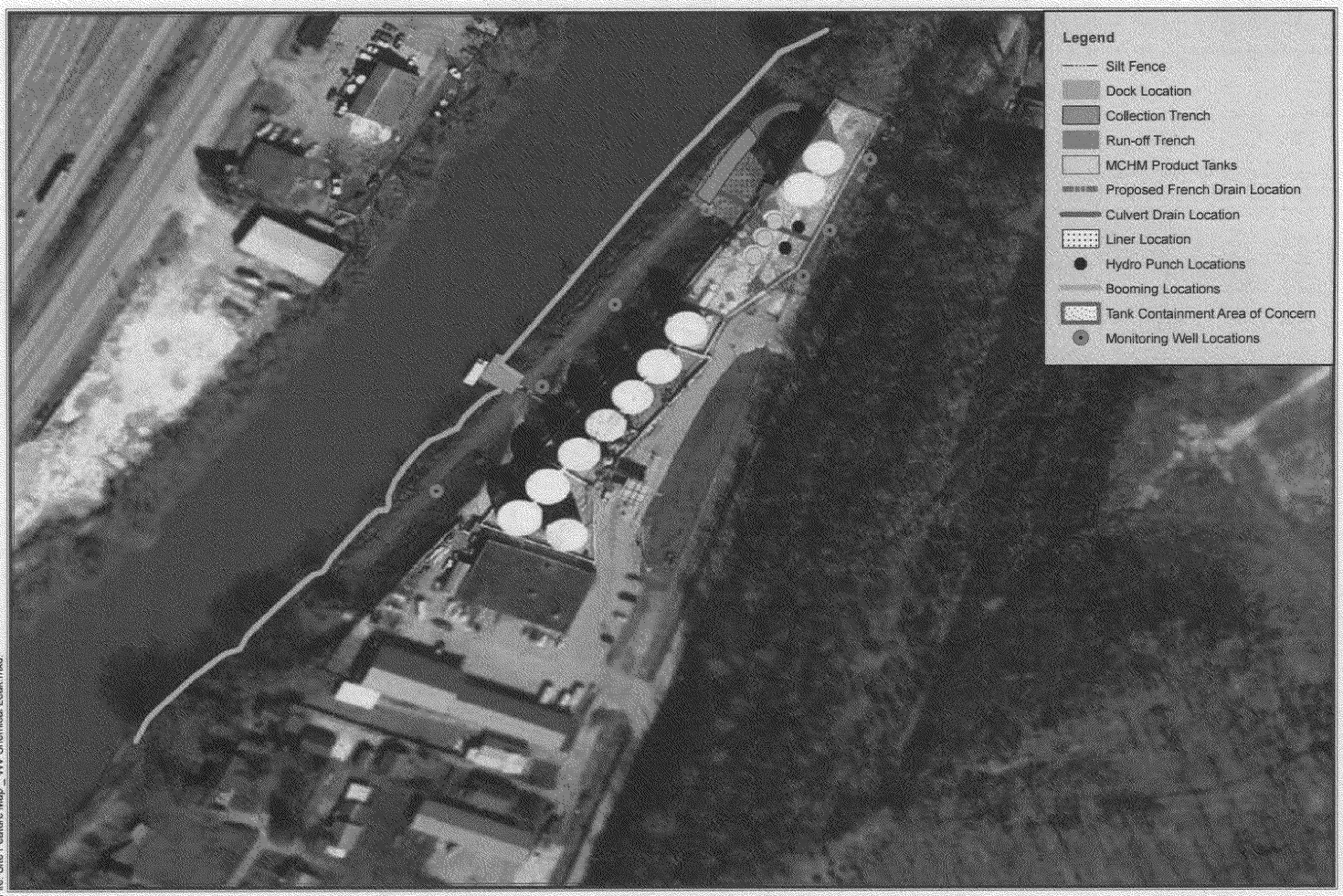
OSCs Matlock and Ventura reported that the facility extended the boom approximately 20 feet upstream in the river so that it would contain the drainage from the additional "seep" that was located along the northeastern bank of the facility. Under WVDEP order, the facility's contractor hand-dug an extension to the existing trench to the end of the tank farm, at the northeastern end of the facility. Attached is a drawing of the work at the site.

The facility conducted exploratory excavation in an attempt to identify the source of the water that is collecting beneath the tank farm. A compromised corrugated drainage pipe was located just inside the containment area, in the vicinity of the MCHM tanks. In the same area, three additional smaller-sized pipes were discovered, which may be water/foam suppression lines used by the former owners of the facility. Just outside the containment area, water continues to collect at the base of the containment wall. The contractors are continually pumping water from inside and outside of the containment wall, at a rate of approximately 5,000 gallons every 10 hours. WVDEP was provided water samples from the area inside the containment. The source of this water is currently unknown. Attached are pictures of the work at the containment wall.

The facility is attempting to consolidate the high-concentrated MCHM water and segregate it for treatment and disposal. The facility will provide EPA and WVDEP with an inventory of the volume of water at the Poca facility. In addition, the facility has hired an environmental consulting firm, CEC, to develop a remediation plan for the site, per the WVDEP order.

Additional security measures for both the Poca staging facility and the tank farm at Freedom Industries are scheduled for tomorrow. Wireless cameras will be used to monitor activity at both locations. The security should enable immediate response if additional discharge or compromise of the tanks on site occurs.

ATSDR today was on site to consult with EPA and WVDEP.



File: Site Feature Map _ WV Chemical Leak.mxd

TechLaw

TDD No. TL01-14-01-001
START Contract No. EP-S3-10-04

Site Feature Map - West Virginia Chemical Leak
Etowah River Terminal
Etowah, Kanawha County, West Virginia

0 137.5 275 550 Feet

Map Modified By: MAD

Date Modified: 01/18/2014

Scale: 1:2,093

Source:
Feature locations are approximate. Features will be updated periodically as the situation progresses.

West Virginia Chemical Leak
Etowah, Kanawha County, West Virginia
TDD No TL01-14-01-001

Photo No. IMG_1606; Taken on 01/19/14 at 11:00 hours by START MD. The contractor excavated a trench inside the wall of the containment area and discovered a compromised corrugated pipe that runs under the site.

Photo No. IMG_1610; Taken on 01/19/14 at 11:05 hours by START MD. Contractors continue to pump water from the unknown source located just outside the containment wall.

Photo No. IMG_1619; Taken on 01/19/14 at 11:16 hours by START MD. Standing at the corner of the containment wall, looking down at the Elk River, the trench is visible and has been extended to contain the newly discovered "seep."

Photo No. IMG_1622; Taken on 01/19/14 at 11:16 hours by START MD. The trench at the northeastern end of the facility is currently successfully collecting the drainage from the containment area.

Marzulli, Linda

From: Burns, Francis
Sent: Saturday, January 18, 2014 3:25 PM
To: R3 HOTSITES
Cc: Capacasa, Jon
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Bill Arguto of Region 3's Water Division reports that the West Virginia American Water Company is reporting that drinking water restrictions have been lifted in all water distribution zones with some exceptions. Precautionary boil water advisories are in place for several smaller groups of customers throughout the district after water storage tanks were depleted following excessive flushing activities.

Additionally, the West Virginia American Water Company has not lifted the alert for three towns (Buffalo, Frazier's Bottom and Pliny). Water sampling results indicated additional flushing and sampling is required in this area. The West Virginia American Water Company also reported that once the system is fully restored, they will test the system at the parts per billion level to ensure non-detectable levels in the water.

ORSANCO continues to monitor the plume. Water from tributaries to the Ohio are diluting the MCHM to low concentrations. Louisville, KY Zorn intake peaked at 3.5 ppb.

OSCs Matlock and Ventura reported that MCHM was detected at 285 ppm in the water sample collected from the "seep" area at the northeastern end of the facility. The facility's contractor observed that the area had fluids with a rainbow-colored film. The color suggests that petroleum hydrocarbons are present. Since the fluids still contain MCHM, the facility will dig additional trenching to collect these fluids. The trenching operations will be delayed because the soils are near frozen at the surface. WVDEP plans to collect samples and analyze them for petroleum-related products. The facility will extend the boom 20 feet upstream in the river to ensure that the seeped material is captured.

Due to extremely wet soils on Site, overnight operations were limited to monitoring the interceptor trench and pumping water from the trench into tanker trucks. As temperatures significantly dropped overnight, the volume of water that is emerging from the storm drain continues to reduce.

EPA visited the Poca facility to investigate staging operations of the MCHM-contaminated water. By observation and conversations with the facility staff, EPA found that four tanks were full with MCHM product, three tanks were full with MCHM-contaminated water, and one tank was full of product mixed with water.

Marzulli, Linda

From: Garvin, Shawn
Sent: Friday, January 17, 2014 5:16 PM
To: frankel, michael; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Old news. Nothing is changing. Thx

From: frankel, michael
Sent: Friday, January 17, 2014 4:26:52 PM
To: Garvin, Shawn; Burns, Francis; R3 HOTSITES
Subject: RE: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

CNN just reported that Freedom ndustries file for Bankruptcy protection today

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From: Garvin, Shawn
Sent: Friday, January 17, 2014 3:41 PM
To: Burns, Francis; R3 HOTSITES
Subject: RE: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Fran – Thanks.

To All – Spoke to Administrator McCarthy this afternoon. She wanted me to pass along to all involved in the response to this incident her appreciation and recognition of the fantastic job you are doing. I concur completely with the Administrator sentiments.

Thank you!

Shawn

From: Burns, Francis
Sent: Friday, January 17, 2014 3:32 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Bill Arguto of Region 3's Water Division reports that the West Virginia American water company (WVAWC) has lifted the "do not use" order for the last customer area. Customers in the Clendenin area may begin flushing according to the established guidelines. However, the West Virginia American Water Company has advised the customers of three towns (Buffalo, Frazier's Bottom and Pliny) to not drink the water and have limited contact with their water because new water sampling results indicated additional flushing is needed.

West Virginia American Water is also reporting that peak demand of water in the cleared areas may cause low water pressure, outages, and reduction in the amount of water available for fire protection. In some areas, pressure has dropped to the point that advisories have been issued to boil water. Plant operators will continue to assess tank levels and water pressure overnight. The company continues to request that customers follow the flushing procedures and also only begin flushing when their service area is cleared. EPA drinking water program is requesting additional information on monitoring that will be in place once restrictions are lifted.

ORSANCO estimated the MCHM plume in the Ohio River will arrive at Louisville Water Friday, 1/17/14, at 9:00 AM and at Cannelton Locks and Dam Sunday, 1/19/14, at 1:00 AM. The Cannelton Locks and Dam are located on the Ohio River at mile 720.7 below Pittsburgh, Pennsylvania. It is three miles upstream from Cannelton, Indiana. ORSANCO reports that concentrations of MCHM at Beckjord (approximately 10 miles upstream from Cincinnati) are now below estimated detection levels after peaking at approximately 18 ppb at 1/15/14 at 9 AM

OSCs Matlock and Ventura report that river flow has significantly decreased, and is almost back to normal. The facility continues to maintain the boom deployed in the river. The boom had no MCHM odor and no product was observed on the absorbent booms.

WVDEP granted a minor permit modification to Freedom Industries allowing disposal of solid waste at the City of Charleston's Landfill. The MCHM solid waste was deemed non-hazardous according to RCRA. Approval was granted for disposal of 2,000 tons per year. Freedom Industries is awaiting WVDEP permit for the approval of treatment of the MCHM-contaminated water, via air stripping and carbon treatment.

A total of 19 baker tanks are full of the MCHM-contaminated water, and are stored at the Poca facility. The single-walled Baker tanks are being replaced with double-walled tanks. Additional security measures are being taken in this staging area, including installation of wireless cameras. These cameras are also going to be installed in the tank storage area at Freedom Industries, in order to conduct 24-hour monitoring of the tanks to ensure that no additional leaks are occurring.

Removal of trees and vegetation was completed at the northeastern end of the facility, along the slope that is beneath the two 400,000-gallon glycerin tanks. These tanks still contain approximately 48,000 gallons of glycerin, which is too thick to pump out. Plans remain to add water to the glycerin in order to increase the viscosity of the fluids to facilitate pumping into transport trucks. Glycerin from the other four storage tanks located at the southwestern end of the facility is currently being pumped into tanker trucks and transported off-site, per WVDEP order.

The poly liner in the interceptor trench was peeled back to facilitate extension of the trench. The trench was extended in a northeastern direction, towards the rear of the 400,000-gallon glycerin tanks. The contractors covered the trench with poly liner and extended it into the existing interceptor trench area. At this time, all poly liner is connected to divert all of the runoff water from the containment areas and storm drain into a single interceptor trench.

The facility developed four monitoring wells in the base of the slope, located adjacent to the riverbank. The wells are 20 feet below ground surface. There are three monitoring wells located in front of the containment area, adjacent to the road; these are 40 feet below ground surface.

January 17, 2014

Freedom Industries files for bankruptcy

by Kate White

CHARLESTON, W.Va. -- Freedom Industries, the company that fouled thousands of West Virginians' water with a chemical leak last week, filed for Chapter 11 bankruptcy today.

The company's assets and liabilities are "unknown."

Under the bankruptcy code, Chapter 11 permits a company to reorganize and continue operating.

Marzulli, Linda

From: Garvin, Shawn
Sent: Friday, January 17, 2014 3:41 PM
To: Burns, Francis; R3 HOTSITES
Subject: RE: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Fran – Thanks.

To All – Spoke to Administrator McCarthy this afternoon. She wanted me to pass along to all involved in the response to this incident her appreciation and recognition of the fantastic job you are doing. I concur completely with the Administrator sentiments.

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To: R3 HOTSITES
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West Virginia American Water is also reporting that peak demand of water in the cleared areas may cause low water pressure, outages, and reduction in the amount of water available for fire protection. In some areas, pressure has dropped to the point that advisories have been issued to boil water. Plant operators will continue to assess tank levels and water pressure overnight. The company continues to request that customers follow the flushing procedures and also only begin flushing when their service area is cleared. EPA drinking water program is requesting additional information on monitoring that will be in place once restrictions are lifted.

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A total of 19 baker tanks are full of the MCHM-contaminated water, and are stored at the Poca facility. The single-walled Baker tanks are being replaced with double-walled tanks. Additional security measures are being taken in this staging area, including installation of wireless cameras. These cameras are also going to be installed in the tank storage area at Freedom Industries, in order to conduct 24-hour monitoring of the tanks to ensure that no additional leaks are occurring.

Removal of trees and vegetation was completed at the northeastern end of the facility, along the slope that is beneath the two 400,000-gallon glycerin tanks. These tanks still contain approximately 48,000 gallons of glycerin, which is too thick to pump out. Plans remain to add water to the glycerin in order to increase the viscosity of the fluids to facilitate pumping into transport trucks. Glycerin from the other four storage tanks located at the southwestern end of the facility is currently being pumped into tanker trucks and transported off-site, per WVDEP order.

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Freedom_0006121_0032

Marzulli, Linda

From: Burns, Francis
Sent: Friday, January 17, 2014 3:32 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

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The facility developed four monitoring wells in the base of the slope, located adjacent to the riverbank. The wells are 20 feet below ground surface. There are three monitoring wells located in front of the containment area, adjacent to the road; these are 40 feet below ground surface.

Freedom_0006121_0034

Marzulli, Linda

From: Burns, Francis
Sent: Wednesday, January 15, 2014 3:34 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV
Attachments: MCHM at Huntington.docx

Vicky Binetti of Region 3's Water Division reported that the West Virginia American Water Company has lifted the drinking water use restrictions in more pressure zones this morning, advising customers that they can use water for all purposes after flushing their plumbing systems. WVAWC reports that more than 51,000 customers (more than 50% of their approximately 100,000 customers, and more than half of the 300,000 persons served by the system) can now use their water for all purposes.

The Region has received some reports from ORSANCO's ODS (organics detection system) sampling in the Elk and Ohio rivers. The attached chart shows MCHM concentrations at Huntington, WV, at Ohio River mile 304 (note that these concentrations are reported as parts per billion, or ppb). ORSANCO reports that the leading edge of the plume was detected at 9:00 pm on January 14th at Meldahl Locks and Dam, at Ohio river mile 436.

OSCs Matlock and Ventura report that a representative from US Fish & Wildlife arrived today to collect information for a possible Natural Resource Damage Assessment. His primary concern is mussels and, based to the half-life of the chemical and the toxicology report, he was not overly concerned at this point.

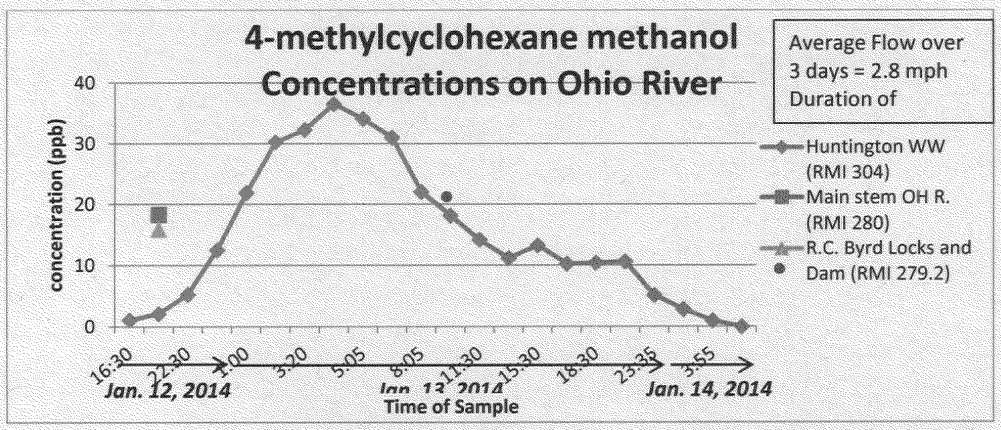
The morning meeting was conducted with the following staff: EPA, WVDEP, CSB, USCG, OSHA, USF&W, the facility, the facility's contractor, Attorney General representative, and USCG. WVDEP was concerned about the water collecting in the secondary containment of the tank farm. The facility directed their contractor to pump this water into vacuum trucks. In addition, water for the interceptor trench continues to be pumped directly into vacuum trucks.

WVDEP, USCG, and EPA approved the facility's proposal to install a French Drain along the base of the slope. The drain will run along the base of the slope to the lowest point beneath the liner. The pipe will have two or three lines, which will lead directly to vacuum trucks. Excavated dirt resulting from the drain installation will be stored in a lined roll-off located on site and will undergo testing for disposal. In addition, silt fence will be installed along the base of the slope to prevent erosion of soils into the river.

The facility tested the water emerging from the storm drain area and preliminary results detected fluorine in the water. The water company believes that the area has a broken pipe that they are currently preparing to repair. The repair should diminish the flow of water emerging at the storm drain area.

The facility also deployed boom in accordance with USCG's strategy, that WVDEP and EPA approved. WVDEP requested that additional horizontal booms (absorbent) be placed inside the hard boom, which the facility agreed to complete. USCG removed the three mile safety zone restriction in the river. Commercial traffic will receive a broadcast alerting traffic of the boom at the facility.

The facility's contractor will punch test holes into the area surrounding the tanks to investigate the presence of product. If the product is detected in certain areas, sumps will be dug to vacuum the product out and transfer it into tanker trucks. The agencies decided that the empty MCHM tanks will not be cut up or removed from the site until the product is removed. EPA's contractor is producing a map depicting the deployed boom, interceptor trench, liner, culvert area, and hydro-punch locations.


4-methylcyclohexane methanol Concentrations on Ohio River
Average Flow over 3 days = 2.8 mph Duration of
concentration (ppb)
40
30
20
10
0
16:30
22:30
4:00
3:20
5:05
8:05
11:30
15:30
18:30
23:35
3:55
Jan. 12, 2014
Jan. 13, 2014
Jan. 14, 2014
Time of Sample
Huntington WW (RMI 304)
Main stem OH R. (RMI 280)
R.C. Byrd Locks and Dam (RMI 279.2)

Marzulli, Linda

From: Burns, Francis
Sent: Tuesday, January 14, 2014 7:54 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

USCG, WVDEP, EPA, and the facility held a meeting to discuss USCG's boom deployment strategy which was approved by WVDEP and EPA. The facility agreed to the strategy and directed their contractor to deploy the boom. The contractor deployed boom around the Etowah River Terminal's outfall, located at the southwestern end of the facility and also at the northeastern end of the facility, approximately 20 feet upstream of the property fence line (upstream of the spill area). The boom installed at the WVAWC is expected to be removed tonight. WVAWC's protective measures will remain in place.

A confined-space certified contractor entered the breached tank in the presence of the CSB, EPA, and the Attorney General's staff. The purpose was to witness the photography of the hole in the bottom of the tank.

Poly liner was placed on the surface of the site soils, beginning under the mouth of the storm water pipe and extending down the slope, then along the existing interceptor trench. The liner should contain all of the storm water that is flowing beneath the secondary containment of the tank farm. The contractor continually pumped the storm water into vacuum trucks. WVAWC began to replace the entire section of water line that runs adjacent to the facility, which is located on the opposite side of the road. This new line may diminish the water flowing beneath the containment pad.

Analytical results are expected tomorrow morning for the soil sample data from the geoprobe/sampling operations and water sample data from the river sampling program, which is continuing. Plans remain to punch sumps around the breached tank to investigate the possible presence of the MCHM beneath the tank farm. WVDEP determined that the half-life of the chemical mixture is 28 days in soil; the half-life of the chemical mixture in water may possibly be 14 days or less.

Marzulli, Linda

From: Burns, Francis
Sent: Tuesday, January 14, 2014 12:24 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Vicky Binetti of Region 3's Water Division reported that as of this morning customers in the four pressure zones of the water distribution system in immediate Charleston area and two additional zones just beyond were asked to flush their premise plumbing according to explicit instructions posted on the WVAWC website. (See http://www.amwater.com/wvaw/about-us/news.html). More information is as follows:

- Sampling in the distribution system continues, moving outward into the distribution system, with samples being sent to multiple labs. At this time, nine GC/MS units are being employed to process the hundreds of samples in play. As the sample results from pressure zones show concentrations of MCHM less than 1 ppm, these zones are "cleared" for unrestricted use by customers (after customers follow instructions for flushing their premise plumbing).
- ORSANCO (Ohio Rover sanitation Commission) has been monitoring water concentrations to determine persistence of the MCHM plume in the Elk-Kanawha-Ohio drainage. We do not yet have access to hard data, although we understand that concentrations below the confluence of the Kanawha and Ohio are all < 0.5 ppm. ORSANCO has also used river modeling to forecast arrival time of any residual plume at locations downstream. (See http://www.orsanco.org/february-2013-technical-and-commission-meetings/347-new-how-will-the-elk-river-spill-affect-the-cincinnati-area)
- US Fish and Wildlife Service has sought information from WV American on their discharges from flushing, presumably because of Threatened and Endangered species concerns. We understand from WV DHHR that WVAMC is dechlorinated any water flushed out of their system.
- We understand that Senator Rockefeller has made a request to both EPA and ATSDR/CDC to conduct a joint study of the long-term public health effects of MCHM. (see attached)

OSCs Matlock and Ventura (replacement for OSC Linden) report that throughout the night, the facility's contractor continued to pump water from the containment area into trucks. The contractor will continue this operation as long as the rain and run-off water continues to collect in the containment area. The contractor will extend the liner in the trench area at the base of the facility, located adjacent to the river. Water will also continue to be pumped out of this area into tanker trucks.

During the morning briefing, personnel from the facility, USCG, WVDEP, CSB, EPA, and the Attorney General's office were present. The discussion was centered on preserving evidence for CSB's investigation. It was reported that the contractor found a hole, approximately the size of a quarter, in the bottom of the tank that breached. The facility's accounting department is working with past inventory and the volume of chemical that has been transported off site to more accurately estimate the size of the release.

As the volume of water near the storm water pipe is increasing, some thought that water is originating from an additional source. No odor was present, nor was sheen observed. WVDEP conducted a field test and detected chlorine in the water. The water department subsequently detected fluorine in the water, so the water department shut off a valve, which diminished the flow in the storm water drain area. Testing of this water will be conducted and an engineering plan will be used to construct a "directional ditch" to move this water directly into the river. WVDEP, USCG, and EPA will approve the plan and determine the discharge point into the river. Wells were punched into the ground every 10 yards in the area of the proposed directional ditch; no odor was detected in the soil and samples were sent for analysis.

The facility is continuing a river sampling program with analytical results expected by tomorrow. There are no reports of any fish kill or significant issues with aquatic life in the Elk River.

WVDEP and USCG agreed to remove the hard boom that extends across the entire river, and the boom located outside the water intake at the WVAWC. However, hard boom with interior absorbent boom will remain along the shoreline adjacent to the facility.

Freedom_0006121_0039

Marzulli, Linda

From: Burns, Francis
Sent: Thursday, January 16, 2014 3:33 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Vicky Binetti's of Region 3's Water Division reports that late yesterday (1/15/14), ATSDR/CDC provided additional advice to the Bureau for Public Health regarding the target screening level used for clearing the West Virginia American Water Company (WVAWC) distribution system. While the 1 ppm level of methylcyclohexanemethanol (BCHM) is still believed to be protective, ATSDR/CDC recommended that pregnant women be advised that they may wish to seek an alternate source of water. This precaution is featured prominently on the WVAWC website, adjacent to the 'water safety map,' and appears early in press advisories issued to announce the lifting of "Do Not Use" restrictions in successive zones within the distribution system.

WVAWC now estimates that 71,000 customers (of estimated 100,000) now can use water without restrictions. The instructions on how to flush household and building plumbing are explicit in material on WVAWC's website. However, unanticipated issues have arisen and new FAQs have been added to address common questions or previously unexplained matters. New FAQs addressing issues such as lingering odors, cloudy or discolored water, can be found at http://www.amwater.com/files/Elk%20River%20WQ%20FAQ.pdf.

The Poison Control Center has been designated as a source of information for consumers concerned about health issues. At this point, we understand that there is no clear association of health complaints with exposure. FEMA has issued ATSDR a limited mission assignment to initiate an epidemiological study.

OSCs Matlock and Ventura reported that WVAMC's repair of a waterline adjacent to the facility caused large amount of water to move across the road and into the facility. This water migrated and filled the sumps in the floor of the concrete pad. The facility's contractor spent most of the yesterday afternoon pumping water from the sumps and the interior of the containment area.

The facility's contractor deployed horizontal absorbent booms inside the hard skimmer boom that extends from the property line down to the dock area. A total of seven interior horizontal booms were deployed. The current boom strategy encompasses the entire sloped area of the Site, which is an area of possible migration of the MCHM into the river.

Exploratory geoprobe operations began in the containment area, in the vicinity of the breached MCHM tank. Holes were punched through the concrete to determine a location for a recovery well. Petroleum products were detected in these test holes, which were 10 feet below ground surface. Freedom Industries' lawyers have been in contact with Pennzoil, the previous owner of the site, concerning the issue. WVDEP is also aware of this legacy connection to previous facility operations.

WVDEP conducted exploratory digging along the hillside in the northeastern portion of the facility, just outside the containment area where the glycerin tanks are located. The odor of the product was prevalent. The facility's contractor placed absorbent boom along the wall and covered the area with a tarp, to prevent rain water from washing the product down the slope and into the river. The facility will excavate a trench from the containment wall in a downgradient direction towards the existing interceptor trench to collect product and water.

An oil/water separator is being used in an attempt to remove the MCHM from the water that is being vacuumed from the interceptor trench and dike area. In the initial phases, it appears successful in separating the product

from the water. The facility has collected samples from the influent and effluent of the separator to judge its performance. The facility is also requesting a permit from WVDEP's air division to use an air stripper that extracts volatiles, followed by two carbon vessels, to capture the product.

OSC Matlock attended a meeting at the US Attorney's Office (Booth Goodwin II). The invited agencies discussed roles and responsibilities during this emergency. The main focus of the meeting was to ensure investigative agencies were coordinating with each other. WVDEP and EPA outlined the efforts to control the MCHM at the facility.

Freedom_0006121_0041

Marzulli, Linda

From: Burns, Francis
Sent: Monday, January 13, 2014 7:30 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV
Attachments: Copy of Water Data Jan 13 2014.xls; WV - How to flush.pdf

Mark Ferrell, Region 3's West Virginia Liaison reported that the State held a press conference at noon today at Governor Tomblin's office, which included Randy Huffman (DEP), Karen Bowling (DHHR), Rep. Nick Rahall (D-3WV), Jeff McIntyre (WVAWC), and the National Guard. The "DO NOT USE" water advisory in place for 300,000 West Virginians will begin lifting today by zone and according to proximity to the water plant. Area hospitals were flushed first this morning and then it was announced that Zone 1 was given the go-ahead to begin. Water Company official said 90% of their samples are now well below the health risk level for HCHM. National Guard Gen. Hoyer said over 600 samples have been taken and 264 analyzed. This morning's readings were reported to be .031 at the intake and .006 after treatment. (Latest water sample results and copy of "How To Flush" protocol are attached)

The public can check maps to find out their zones and when to begin flushing at this website: http://www.amwater.com/wvaw/about-us/news.html or by calling the Hotline number at 855-390-4569. Local county health department officials are also fanning out into the communities to provide counsel and assistance.

The availability of bottled water and water buffalos continues to improve. Grocery stores are re-supplied and even a few restaurants/bars are slowly reopening once their potable water plan has been approved by local health department.

OSC Matlock reported that Chemical Safety Board (CSB) personnel arrived at the facility to conduct an investigation. The CSB estimated that their investigation will be completed this Friday, January 17, 2014. Their initial steps included interviewing the facility owners, WVDEP, USCG, and EPA. The facility is cooperating with the CSB. USCG offered the CSB a facility file, as the facility was formerly regulated. WVDEP offered the CSB a Brownfield file from the late 1990's.

A geoprobe was used to punch holes into the ground at the facility. Two holes were punched to the southeast (behind the tanks along the road side) and three holes were punched along the bank that leads to the river, below the spill area. No MCHM odor was detected by the contractors in any of the locations.

The OSRO continued to maintain the boom in the river. WVDEP requested that a portion of the boom near the immediate spill area be kept close to the shore. The downstream boom remains across the entire river. The boom is now catching a minimal amount of debris. The contractors are checking the boom by flipping it every 30-45 minutes, and replacing it when dirty.

The facility contractors completed pumping the storm water into a tanker truck from the trenched area at the base of the bank. The contractors cut the leaking storm water pipe and placed sand bags just beneath it to contain the water in a pooled area. This water will be continually pumped to a tanker truck.

HOW TO FLUSH YOUR PLUMBING SYSTEM

WEST VIRGINIA AMERICAN WATER

Following are step-by-step procedures customers can use to flush their plumbing system. To protect the health and safety of our communities, we recommend that you read carefully and follow the steps for flushing. Thank you for your cooperation. **NOTE: After flushing, your water filters need to be replaced. If you have any point of entry water treatment system such as a water softener or filter, please refer to "How to Flush Plumbing Appliances and Faucets."**

West Virginia American Water will be offering residential customers a credit of 1000 gallons, which is more than what will likely be required to flush the average residential home. The average residential customer uses approximately 3,300 gallons per month.

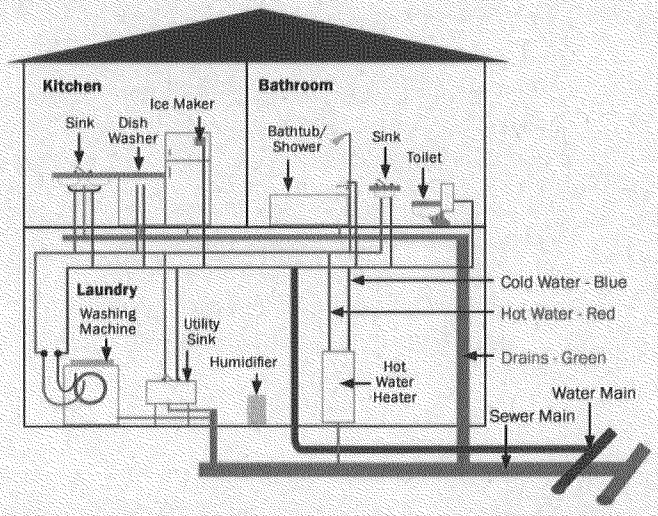
How to flush your plumbing system

Please complete these steps in the order set out below. Finish each step completely before moving on to the next step.

1. **Flush ALL hot water taps for 15 minutes**
   Begin the flushing procedure by opening the hot water taps in your bathroom(s). Open ALL hot water lavatory (sink) fixtures, hot water bath fixtures, and any other hot water fixtures, such as kitchens, wet bars, etc. **Run these hot water fixtures for at least 15 minutes. Shut water off after 15 minutes.** After you have flushed each hot water faucet for 15 minutes, your hot water heater will be safe for use.

2. **Flush ALL cold water taps for five minutes**
   Once the hot water tank and hot water piping have been flushed, open ALL of the cold water fixtures, flush each toilet at least one time. **Run these cold water fixtures for at least five minutes. Shut water off after five minutes.** This does include the water in your refrigerator water dispenser.

3. **Flush ALL remaining faucets and appliances**
   (Before starting step 3, please see **How to Flush Plumbing Appliances and Faucets** for more information.) Open any remaining fixtures such as hose bibs, external faucets or fixtures not used for drinking for at least five minutes to finish the plumbing system flushing. Take additional steps to remove water from other appliances. See **How to Flush Plumbing Appliances and Faucets** for more information. This includes:
   - Ice makers
   - Dishwashers
   - Washing machine
   - Humidifiers
   - Continuous Positive Airway Pressure (CPAP)
   - Oral, medical or health care devices
   - Baby formula, food and drinks made with water during DO NOT USE
   - Water filters
   - Water softeners
   - Reverse osmosis units



Any lingering smell, which is expected, is not a health issue.

For more information: Please contact our 24-Hour Customer Service Center at 1-800-685-8660 or visit our website at **www.westvirginiaamwater.com**.

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HOW TO FLUSH PLUMBING APPLIANCES AND FAUCETS

WEST VIRGINIA AMERICAN WATER

Once you've flushed your hot and cold water faucets, be sure to take these additional steps to flush plumbing appliances. To protect the health and safety of our communities, we recommend that you read carefully and follow the steps for flushing. Thank you for your cooperation.

- **Ice makers**
  If you have an ice maker in your refrigerator, first throw away all ice and then:

  If you have a filter on your ice maker:
  Some refrigerators, which have ice makers, also have filters on the small water line that feed the ice maker. If you have or use filters on your ice maker, you want to replace the filter **AFTER** flushing your refrigerator's ice maker. These filters require routine replacement. This would be a good time to replace the filter to ensure that the water line to the ice maker is completely flushed. Some refrigerators also provide filtered cold water. Check to make sure that you have replaced any filter **AFTER** flushing that is associated with the cold water supply. Then flush cold-water dispenser for five minutes.
- After flushing all of the other plumbing, let the ice maker container fill up completely and discard this ice and clean the container before replacing. If you have more than one refrigerator make sure you perform the same procedure on those units as well.
- **Dishwashers and washing machines-**
  Dishes and clothes that were washed during the DO NOT USE order should be rewashed. After flushing hot water pipes and water heater, run dishwasher and washing machine empty one time.
- **Humidifiers, CPAP and other devices**
  Throw away any water used in humidifiers, Continuous Positive Airway Pressure (CPAP), oral, medical or healthcare devices, and rinse the device with clean water.
- **Baby formula, food or drinks made with water during the DO NOT USE**
  Be sure you have thrown away any baby formula or other foods prepared with water on the days of the DO NOT USE. This includes drinks like Gatorade made with powder or concentrate.
- **Water filters**
  Clean or change your water filter, or contact the filter manufacturer for more details.
- **Water supplies for pets**
  Pets need clean water too. Be sure to empty all water bowls, bottles, or other water supplies for your pet. After flushing your water system, wash the pet bowl, bottle or other water supply. Then refill with tap water.
- **Point of entry/point of use devices (this may not apply to all customers)**
  If you have a Point of Entry water treatment system such as a water softener or filter, which all of the home's water passes through before it enters the main plumbing system, you should consider the following general guidelines before completing your household plumbing flushing.

(Continued on page 3)

For more information

Please contact our 24-Hour Customer Service Center at 1-800-685-8660 or visit **www.westvirginiaamwater.com**.

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HOW TO FLUSH PLUMBING APPLIANCES AND FAUCETS

WEST VIRGINIA AMERICAN WATER

- **Water softeners:** Household water softener, which uses a natural or synthetic resin material to exchange sodium for calcium and magnesium present in the water, should be manually regenerated before flushing your plumbing system. This will ensure that the softener resin has been backwashed and cleaned before flushing procedures begin. If you are unsure of how to manually initiate a regeneration cycle, refer to your softener owner's manual or call you equipment supplier for assistance.
- **Sediment Filters:** Household water filters usually fall in two basic categories:
  - Pressure filters, which can be backwashed to clean
  - Cartridge filters, which have a replaceable element or cartridge

  If your home has a pressure filter that can be backwashed, you should initiate a manual backwash of the filter before proceeding with, and after completing, the flushing procedures. If you have a whole house cartridge filter system, you should replace the cartridges after completing the flushing procedures.
- **Point of use filters/treatment:** If you have or use Point of Use filters, which are typically attached to your kitchen faucet you should replace the filter before using the faucet-connected unit. These filters require periodic replacement anyway so this would be a good time to do this.
- **Reverse Osmosis:** Reverse Osmosis drinking water treatment systems often have pre-filters, which you may want to replace before flushing the RO System. However the actual Reverse Osmosis membrane module should not require replacement. If the manufacturer of the membrane suggests that you replace this part of the system you should ask them to give you the specific reasons why.

For more information

Please contact our 24-Hour Customer Service Center at 1-800-685-8660 or visit our website at **www.westvirginiaamwater.com**.

01-12-2014

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SAMPLE ANALYSIS LOG FOR WV AMERICAN WATER INCIDENT
VARIOUS COLLECTION SITES
AS OF: JAN 13 2014, 1117

SAMPLE LOCATION / COUNTY	TIME & DATE	SAMPLE NUMBER	SAMPLE TEAM	ANALYSIS TEAM	RESULTS PPM/RECEIVED
HYD #168 / KANWAHA HYD #168 / KANWAHA	JAN 11 257PM	168	WVAW	DHHR DUPONT	1.39/ JAN 11 833 PM .7/ JAN 11 1012PM
HYD #1783 / KANWAHA HYD #1783 / KANWAHA	JAN 11 315PM	1783	WVAW	DHHR DUPONT	.76/ JAN 11 833PM .8/JAN 12 158AM
HYD #978 / KANWAHA HYD #978 / KANWAHA	JAN 11 323PM	978	WVAW	DHHR DUPONT	.92/ JAN 11 833PM .7/ JAN 12 158AM
HYD# 1900 DANNER RD HYD# 1900 DANNER RD	JAN 11 321PM	1900	WVAW	DHHR DUPONT	.76/ JAN 11 833PM .6/JAN 12 158AM
1860 CHANDLER DRIVE	JAN 11 330PM	1530	WVAW	DUPONT	1/ JAN 12 158AM
HYD# 1418	JAN 11 4PM	1600	WVAW	DUPONT	.9/ JAN 12 158PM
HYD# 2071 HYD# 2071	JAN 11 5PM	2071	WVAM	DHHR DUPONT	.79/ JAN 12 122AM .8/ JAN 12 158AM
HYD # 1167 HYD# 1167	JAN 11 424PM	1624	WVAW	DHHR DUPONT	.68/ JAN 11 107AM 1/JAN 11 1012
HYD# 448	JAN 11 507PM	1707	WVAW	DUPONT	1/ JAN 12 158AM
HYD# 1501 HYD# 1501	JAN 11 506PM	1706	WVAW	DHHR DUPONT	.93/ JAN 12 107AM .7/ JAN 12 158AM
HYD# 986 HYD# 986	JAN 11 418PM	1618	WVAW	DHHR DUPONT	.87/ JAN 12 221AM .9/ JAN 11 1012PM
HYD# 1084 HYD# 1084	JAN 11 450PM	1650	WVAW	DHHR DUPONT	.87/ JAN 12 221AM .9/ JAN 12 158AM
HYD# 451 HYD# 451	JAN 11 507PM	1707	WVAW	DHHR DUPONT	.83/ JAN 11 1107PM 1/ JAN 11 1012PM
RIVER KAN TURNPIKE NEW HYD RIVER KAN TURNPIKE NEW HYD	JAN 11 537PM	1737	WVAW	DHHR DUPONT	.85/ JAN 12 107AM .82/ JAN 12 158AM
HYD# 2809 HYD# 2809	JAN 11 550PM	1750	WVAW	DHHR DUPONT	.59/JAN 12 107AM .8/ JAN 12 158AM
HYD# 2018 HYD# 2018	JAN 11 550PM	1645	WVAW	DHHR DUPONT	.84/ JAN 12 107AM .9/ JAN 11 1012PM
HYD# 12530	JAN 11 801PM	2001	WVAW	DHHR	.78/ JAN 12 321AM
HYD# 6712	JAN 11 837PM	2037	WVAW	DHHR	.68/ JAN 12 321AM
HYD# A 5017	JAN 11 1004PM	2204	WVAW	DHHR	.60/ JAN 12 345AM
HYD # 341	JAN 12 1006AM	1006		MATRIC	0.496/ JAN 12 209PM
HYD # 1026	JAN 12 1026 AM	1026		MATRIC	0.046 / JAN 12 238PM
HYD # 926	JAN 12 1050 AM	1050		MATRIC	0.045 / JAN 12 238PM
HYD #215	JAN 12 1230PM	1230		MATRIC DHHR	0.021/ JAN 12 0.02 / JAN 12
HYD # 826	JA N 12 1245 PM	1245		MATRIC	0.0 / JAN 12

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K. C. Mall	JAN 12 1244 PM	1244		MATRIC	0.051 PPM
HYD # 821	JAN 12 1313 PM	1313	WVAW	MATRIC	0.035 PPM
HYD # 844	JAN 12 1320	1320	WVAW	MATRIC	ND
HYD # 334	JAN 12 1324	1324	WVAW	MATRIC	ND
HYD # 445	JAN 12 1345	1345	WVAW	MATRIC	0.066 PPM
HYD # 168A	JAN 11	1457	WVAW	Test America	0.85 PPM
HYD # 168B	JAN 11	2314	WVAW	Test America	0.32 PPM
HYD # 1783	JAN 11	1515	WVAW	Test America	0.82 PPM
HYD # 1418	JAN 11	1600	WVAW	Test America	0.82 PPM
HYD # 2018	JAN 11	1621	WVAW	Test America	0.80 PPM
HYD # 1501	JAN 11	1645	WVAW	Test America	0.79 PPM
HYD # 2809	JAN 11	1750	WVAW	Test America	0.74 PPM
HYD # 1900	JAN 11	1521	WVAW	Test America	0.56 PPM
HYD # 986	JAN 11	1618	WVAW	Test America	0.72 PPM
Wills Creek Booster	JAN 11	1836	WVAW	Test America	0.44 PPM
City Hall Tank	JAN 11	2109	WVAW	Test America	ND
Leather Wood Tank	JAN 11	2157	WVAW	Test America	ND
1st Ave & Dunbar Ave (HYD# 487)	JAN 11	2200	WVAW	Test America	0.51 PPM
HYD #12293	JAN 11	2330	WVAW	Test America	0.63 PPM
Howards Fork Drive	JAN 11	0008	WVAW	Test America	0.68 PPM
HYD#168	JAN 12	1457	WVAW	DHHR	0.50 PPM
HYD#921	JAN 12	1313	WVAW	DHHR	0.13 PPM
HYD#844	JAN 12	1320	WVAW	DHHR	0.06 PPM
HYD#445	JAN 12	1345	WVAW	DHHR	0.16 PPM
HYD#1751	JAN 12	1244	WVAW	DHHR	0.14 PPM
HYD#1031	JAN 12 930AM	0930	WVAW	MATRIC	0.563 PPM
HYD#1600	JAN 12 10AM	1000	WVAW	MATRIC	0.071 PPM
Trace Fork Dress Barn	JAN 12 1027AM	1027	WVAW	MATRIC	0.55 PPM
Trace Fork Pet Smart	JAN 12 1045AM	1045	WVAW	MATRIC	0.061 PPM
HYD#407	JAN 12 1048AM	1048	WVAW	MATRIC	0.039 PPM
HYD#1900	JAN 12 1101AM	1101	WVAW	MATRIC	0.060 PPM
Wheeler HYD#309	JAN 12 1115 AM	1115	WVAW	MATRIC	0.050 PPM
Wheeler HYD#788	JAN 12 1125AM	1125	WVAW	MATRIC	0.039 PPM
Trace Fork Target	JAN 12 525PM	1725	WVAW	MATRIC	0.20 PPM

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HYD#409	JAN 12	2132	WVAW	DHHR	0.08 PPM
HYD#409	JAN 12	2132	WVAW	MATRIC	ND
HYD#413	JAN 12	2137	WVAW	DHHR	0.05 PPM
HYD#413	JAN 12	2137	WVAW	MATRIC	0.0369 PPM
HYD#424	JAN 12	2152	WVAW	DHHR	0.04 PPM
HYD#424	JAN 12	2152	WVAW	MATRIC	ND
HYD#2450	JAN 12 1154	1154	WVAW	DHHR	0.40 PPM
HYD#1248	JAN 12 1405	1405	WVAW	MATRIC	0.24 PPM
KING ST./RT 60	JAN 12 1343	1343	WVAW	MATRIC	0.24 PPM
HYD#2153	JAN 12 1225	1225	WVAW	MATRIC	0.13 PPM
HYD#1817	JAN 12 1315	1315	WVAW	MATRIC	0.23 PPM
HYD#6410	JAN 12 1330	1330	WVAW	MATRIC	0.28 PPM
COURT ST @ CHILI'S 1720	JAN 12 1215	1215	WVAW	MATRIC	0.0144 PPM
HYD#2554	JAN 12 1141	1141	WVAW	MATRIC	0.14 PPM
HYD#312	JAN 12 1205	1205	WVAW	MATRIC	0.03 PPM
HYD#1705	JAN 12 1220	1220	WVAW	MATRIC	0.10 PPM
HYD#1031	JAN 12 0930	930	WVAW	Test America	0.52 PPM
HYD#293	JAN 12 1055	1055	WVAW	Test America	0.42 PPM
HYD#1600	JAN 12 1000	1000	WVAW	Test America	0.064 PPM
Trace Fork Dress Barn	JA N 12 1027	1027	WVAW	Test America	0.35 PPM
HYD#341	JAN 12 1006AM	1006	WVAW	Test America	0.31 PPM
HYD#1020	JAN 12 1026 AM	1026	WVAW	Test America	NO DETECTION
COURT ST @ CHILI'S	JAN 12 1215	1215	WVAW	Test America	NO DETECTION
HYD#293	JAN 12 1055	1055	WVAW	DHHR	0.77 PPM
HYD#307	JAN 12 1509	1509	WVAW	DHHR	
HYD#1014	JAN 12 1115	1115	WVAW	Test America	0.060 PPM
HYD#207	JAN 12 1145	1145	WVAW	Test America	0.038 PPM
HYD#309	JAN 12 1115	1115	WVAW	Test America	0.057 PPM
HYD#2549	JAN 12 1207	1207	WVAW	Test America	0.27 PPM
HYD#2382	JAN 12 1335	1335	WVAW	Test America	0.58 PPM
HYD#407	JAN 12 1048	1048	WVAW	Test America	0.034 PPM
HYD#311	JAN 12 1145	1145	WVAW	Test America	0.39 PPM
TRACE FORK BEHIND TARGET	JAN 12 1056	1056	WVAW	Test America	0.70 PPM
TRACE FORK BEHIND PET SMART	JAN 12 1045	1045	WVAW	Test America	0.088 PPM

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HYDRANT#2450	JAN 12 1154	1154	WVAW	Test America	0.32 PPM
HYD#926	JAN 12 1050	1050	WVAW	DHHR	0.02 PPM
HYD#4210	JAN 12 1426	1426	WVAW	MATRIC	0.025 PPM
HYD#316	JAN 12 1430	1430	WVAW	MATRIC	0.036 PPM
HYD#319	JAN 12 1500	1500	WVAW	MATRIC	0.073 PPM
HYD#3155	JAN 12 1600A	1600	WVAW	MATRIC	0.066 PPM
HYD#2140	JAN 12 1600B	1600	WVAW	MATRIC	0.040 PPM
HYD#2758	JAN 12 1350	1350	WVAW	MATRIC	0.46 PPM
HYD#2976	JAN 12 1350	1350	WVAW	MATRIC	0.45 PPM
HYD#345	JAN 12 1410	1410	WVAW	MATRIC	0.037 PPM
BREAM&2ND	JAN 12 0940	940	WVAW	MATRIC	0.031 PPM
HYD#1832	JAN 12 1003	1003	WVAW	MATRIC	0.059 PPM
FH#2418 TERRY RD	JAN 12 1011	1011	WVAW	MATRIC	ERROR BEING RETESTED
HYD#2442(JONES)	JAN 12 1027	1027	WVAW	MATRIC	0.070 PPM
22ND & CHEROKEE#926	JAN 12 1050	1050	WVAW	MATRIC	NON DETECTABLE
WHEELER#788	JAN 12 1125	1125	WVAW	MATRIC	0.024 PPM
HYD#2554	JAN 12 1141	1141	WVAW	MATRIC	0.050 PPM
FH#207	JAN 12 1145	1145	WVAW	MATRIC	NON DETECTABLE
HYD#312	JAN 12 1205	1205	WVAW	MATRIC	NON DETECTABLE
HYD#559	JAN 12 1215	1215	WVAW	MATRIC	NON DETECTABLE
COURT ST@CHILI'S #1720	JAN 12 1215B	1215	WVAW	MATRIC	0.014 PPM
FRAME TANK	JAN 11 2001	2001	WVAW	Test America	1.2 PPM
WHITEWATER DR	JAN 11 2014	2014	WVAW	Test America	0.77 PPM
HYD#6712	JAN 11 2037	2037	WVAW	Test America	0.57 PPM
QUEEN SHOALS TANK	JAN 11 2056	2056	WVAW	Test America	2.9 PPM
14629	JAN 12 0200	200	WVAW	Test America	0.70 PPM
1832	JAN 12 0155	155	WVAW	Test America	0.46 PPM
FH 1306	JAN 12 0145	145	WVAW	Test America	0.29 PPM
HYD#488	JAN 11 1707	1707	WVAW	Test America	0.70 PPM
5044 PENNSYLVANIA AVE	JAN 12 0540	540	WVAW	Test America	0.45 PPM
11726	JAN 12 0500	500	WVAW	Test America	0.29 PPM
1860 CHANDLER DRIVE	JAN 11 1530	1530	WVAW	Test America	0.85 PPM
ARCHIBALD HILL	JAN 11 2250	2250	WVAW	Test America	0.43 PPM
RIVER ST & KANAWHA	JAN 11 1737	1737	WVAW	Test America	0.7 PPM

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HYD#1367	JAN 11 2203	2203	WVAW	Test America	0.75 PPM
HYD#2609	JAN 12 1353	1353	WVAW	MATRIC	0.065 PPM
HYD#2608	JAN 12 1436	1436	WVAW	MATRIC	0.137 PPM
HYD#2797	JAN 12 1524	1524	WVAW	MATRIC	0.225 PPM
HYD#1694	JAN 12 1648	1648	WVAW	MATRIC	0.091 PPM
HYD#1670	JAN 12 0040	40	WVAW	DHHR	0.31 PPM
HYD#1096 28TH & DUNBAR	JAN 13 0345	345	WVAW	MATRIC	0.20 PPM
HYD#487 1ST & DUNBAR	JAN 130357	357	WVAW	MATRIC	0.019 PPM
HYD#3162	JAN 12 1630	1630	WVAW	MATRIC	0.057 PPM
HYD#2975	JAN 12 1635	1635	WVAW	MATRIC	0.40 PPM
HYD#17399	JAN 12 1714	1714	WVAW	MATRIC	0.050 PPM
28TH AND DUNBAR	JAN 12 0020	20	WVAW	DHHR	0.43 PPM
HYD#487	JAN 13 0357	357	WVAW	DHHR	0.0 PPM
HYD#271	JAN 13 0924	924	WVAW	DHHR	0.02 PPM
HYDRANT AT MOUTH OF DAVIS TRACE	JAN 12 2043	2043	WVAW	MATRIC	NOT DETECTED
EDENS FORK BAPTIST	JAN 12 2055	2055	WVAW	MATRIC	NOT DETECTED
YAWKEY QUICKMART TAP	JAN 12 2107	2107	WVAW	MATRIC	NOT DETECTED
HYD#4474	JAN 12 2118	2118	WVAW	MATRIC	NOT DETECTED
HYDRANT AT MOUTH OF TRACE FORK RT 3	JAN 12 2136	2136	WVAW	MATRIC	NOT DETECTED
HYD#1056 AT TRACE FORK	JAN 13 0833	833	WVAW	DHHR	0.44 PPM
HYD#2442(JONES)	JAN 13 0824	824	WVAW	DHHR	0.10 PPM
HYD#2418	JAN 13 1011	1011	WVAW	DHHR	0.15 PPM
SOUTH PARK HYD#341	JAN 13 0947	947	WVAW	DHHR	0.32 PPM
HYD#2418 TERRY ROAD	JAN 13 1011	1011	WVAW	DHHR	0.15 PPM
COURT STREET HYD AT CHILI'S	JAN 13 1215	1215	WVAW	DHHR	0.0 PPM
HYD#2809	JAN 13 0740	740	WVAW	MATRIC	0.0 PPM
HYD#1670	JAN 13 0750	750	WVAW	MATRIC	0.069 PPM
HYD#1832	JAN 13		WVAW	DHHR	0.02 PPM
HYD#2809	JAN 13		WVAW	DHHR	0.39 PPM
SOUTH OAKRIDGE TANK	JAN 12	2205	WVAW	MATRIC	0.486 PPM
UPPER EDGEWOOD	JAN 13	32	WVAW	MATRIC	0.259 PPM
MASSY TANK	JAN 13	55	WVAW	MATRIC	0.176 PPM
BERRY HILL TANK	JAN 13	150	WVAW	MATRIC	0.022 PPM
QUARRIER TANK	JAN 13	305	WVAW	MATRIC	0.298 PPM

SAMPLE ANALYSIS LOG FOR WV AMERICAN WATER INCIDENT
VARIOUS COLLECTION SITES
AS OF: JAN 13 2014, 1117

HYD#1815	JAN 13		WVAW	Test America	0.43 PPM
HYD#1819	JAN 13		WVAW	Test America	0.45 PPM
HYD#1746	JAN 13		WVAW	Test America	0.34 PPM
HYD# 1230	JAN 13		WVAW	Test America	0.18 PPM
HYD#2479	JAN 13		WVAW	Test America	0.41 PPM
HYD#3162	JAN 13		WVAW	Test America	0.051 PPM
HYD#3165	JAN 13		WVAW	Test America	0.062 PPM
HYD#2758	JAN 13		WVAW	Test America	0.60 PPM
HYD#1836	JAN 13		WVAW	Test America	0.63 PPM
HYD#4820	JAN 13		WVAW	Test America	0.048 PPM
HYD#4291A	JAN 13		WVAW	Test America	NOT DETECTED
HYD#4291B	JAN 13		WVAW	Test America	NOT DETECTED
HYD#3156	JAN 13		WVAW	Test America	NOT DETECTED
HYD#6470	JAN 13		WVAW	Test America	0.70 PPM
HYD#2996	JAN 13		WVAW	Test America	0.79 PPM
HYD#2976	JAN 13		WVAW	Test America	0.75 PPM
HYD#1777	JAN 13		WVAW	Test America	NOT DETECTED
HYD#4210	JAN 13		WVAW	Test America	NOT DETECTED
HYD#1900	JAN 13		WVAW	Test America	0.53 PPM
HYD#1901	JAN 13		WVAW	Test America	0.24 PPM
HYD#1867	JAN 13		WVAW	Test America	0.20 PPM
HYD#2153	JAN 13		WVAW	Test America	0.27 PPM

Marzulli, Linda

From: Smith, Bonnie
Sent: Monday, January 13, 2014 12:32 PM
To: Burns, Francis; R3 HOTSITES
Subject: Gov of West Va press conference NOW

Streaming go to on govenor.wv.gov

From: Burns, Francis
Sent: Monday, January 13, 2014 11:24:04 AM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Attached are powerpoint slides of the facility. Slide two shows the facility with the EPA's air monitoring results as indicated by the yellow triangles and corresponding values. The tanks at the top of the picture are the three tanks on the concrete pad, the tank is the middle of the three is the one that leaked.

OSCs Dennis Matlock and Melissa Linden reported that WV DEP oversight staff identified a small gas leak by observing water bubbling within the tank containment area. Mountaineer gas company was on the property this morning to correct the problem. This will delay the site work of cutting the tank.

All three tanks have been cleaned out. Prior to lifting and moving the tanks off the cement pad, a specific safety plan will be written for the tasks. The facility requested that EPA assist in the review of the general site safety plan and the contractor safety plan. The facility does have a safety officer onsite.

A french drain will be completed today to assist in water collection and pumping out of the water/product mixture from the soil near the leaking tank. The facility did take the soil samples yesterday and should have sample results by late tomorrow.

WV DEP water samples are being taken twice a day at two locations. One location is 2.1 miles upstream from the facility in the Elk River. The second location is 10 miles downstream from the facility in Kanawha River. No results are available currently. WV DEP is also taking some soil samples around the facility. The first zone of the water distribution system may begin flushing today.

Marzulli, Linda

From: Burns, Francis
Sent: Monday, January 13, 2014 12:24 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV
Attachments: OPS Briefing 1-13-14.pptx

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Marzulli, Linda

From: Ferrell, Mark
Sent: Saturday, January 11, 2014 10:09 AM
To: Garvin, Shawn; Linden, melissa; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

Link to video of Friday evening press conference by Freedom Industries president Gary Southern, which has drawn some local criticism.

http://tinyurl.com/kot4zxl

From: Garvin, Shawn
Sent: Friday, January 10, 2014 9:56:20 PM
To: Linden, melissa; Ferrell, Mark; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

Melissa - Thanks. Let me know if you need anything.

Shawn

From: Linden, melissa
Sent: Friday, January 10, 2014 9:54:40 PM
To: Garvin, Shawn; Ferrell, Mark; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

The list of products stored in the tanks at this facility are raw glycerin and finished glycerin (which just has water added); Calcium Chloride at concentrations of 28%, 35%, 38%; Lignin; MCHM (product that leaked); RDC 777 (will find out what is in this product tomorrow) and a tank of weak salt. (taken from the Etowah River Terminal Inventory Status Report dated January 10, 2014 at 08:23, given to me by the facility)

From: Garvin, Shawn
Sent: Friday, January 10, 2014 9:52:50 PM
To: Ferrell, Mark; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

Thx. Do we have information on what are in the 14 tanks?

From: Ferrell, Mark
Sent: Friday, January 10, 2014 9:31:19 PM
To: Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

Late this evening (Friday) West Virginia DEP ordered Freedom Enterprises Inc to begin removing all the chemicals in the 14 above-ground storage tanks at the Elk River spill site within 24 hours. Materials in 3 tanks have already been removed. Freedom must submit a plan to clean up contaminated soil and groundwater before the weekend is over.

From: Burns, Francis
Sent: Thursday, January 09, 2014 8:54:42 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Freedom Industries, Charleston, WV

This afternoon there was a chemical spill from Freedom Industries, which is the old Pennzoil Refinery. The spilled chemical was methylcyclohexane, which is used in coal preparation and processing. Spill into the ELK River occurred sometime earlier in the day and there was an early report of an odor. The Gov of WV declared a state of emergency for at least five counties. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort.

WV issued an order to not drink cook or bathe in the water, which affects approximately 100,000 people. WV is conducting additional water sampling. The Civil Support Team is also deployed to the WVEOC to assist in supplying water to residents. The WV EOC is operational but have not requested EPA assistance. OSC Dennis Matlock has contacted WV DEP Mike Dorsey and offered EPA assistance.

Marzulli, Linda

From: Matlock, Dennis
Sent: Thursday, January 09, 2014 10:07 PM
To: Ferrell, Mark; Garvin, Shawn; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

Mark thx
I will be going down. I will keep you posted when I learn anything new.
Cell 304 280 7500

From: Ferrell, Mark
Sent: Thursday, January 09, 2014 10:02:10 PM
To: Garvin, Shawn; Burns, Francis; R3 HOTSITES
Subject: RE: HOTSITE REPORT: Freedom Industries, Charleston, WV

County Health departments are closing down restaurants, bars, etc. At least one large grocery store here in Charleston had to close its doors due to inability to control flood of customers. Sam's Club here says they sold 3,100 cases of bottled water in 4 hours. Social networks buzzing with people asking if/when potable water will be trucked in. Schools in all 8 counties are closing. Nursing homes, hospitals engaging with NGOs to source potable water supplies. Neither American Water Company or Freedom Industries has stated plainly that the leak has actually been stopped. Some first responders syaing to the press that very little is known about the chemical. The water system's intake is approx. 1/2 mile downstream from the leak site.

The state's legislature is in session here in Charleston and so is safe to assume that every West Virginia legislator is being directly impacted in some way (hotels, restaurants, and the prevailing licorice-like odor). It will be interesting to see tomorrow how many decided to go back to their home districts tonight.

Mark Ferrell

EPA Region 3

Office of State and Congressional Relations

West Virginia Liaison

Charleston, W.Va.

(304) 542-0231

From: Garvin, Shawn
Sent: Thursday, January 09, 2014 9:20 PM
To: Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

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To: R3 HOTSITES

Subject: HOTSITE REPORT: Freedom Industries, Charleston, WV

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Marzulli, Linda

From: Burns, Francis
Sent: Sunday, January 12, 2014 5:08 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Vicky Binetti of Region 3's Water Division had a long conversation with the director of the drinking water program for the WV Department of Health and Human Resources (WVDHHR). He provided the following information.

- WVDHHR has been extremely busy getting lab support established for both WV American and the State. DuPont has been especially helpful in preparing labs and getting analysts trained. Labs now include: State lab (DHHR and possibly DEP); DuPont; WV American (Huntington); two National Guard Civil Support Teams (Canton, OH and DC). WV American in process of getting two contractor labs on board (Matrix and Test America), who have either multiple GC units or several laboratories. All of this should create lots of capacity. National Guard transporting samples to its facilities in DC and OH.
- The labs will enable the State to process the huge number of samples involved in the distribution system testing.
- The latest sample results indicate that the treated water has been consistently less than 1 ppm MCHM over 24 hours, so the water company may now be ready to move to distribution system (DS) sampling. Recent intake (raw river water) samples were very low or non-detect. The recent rain may have helped by diluting the chemical, but the rain may have washed more chemical through the soil into river. Nevertheless, optimism is that contaminant is declining in river.
- Have begun DS sampling in the zone nearest the plant; preliminary indications good (all of 20 samples < /=1ppm).
- There is no specific flushing plan for the system yet. The plan will depend on sampling results.
- Key will be flushing in individual homes/buildings; now developing procedures for residents to follow.
- The water company will not flush entire system or resume unrestricted use all at once, because draw on system would be too severe (esp. in combination with broken lines owing to cold weather).
- There is no specific timeline for lifting restrictions, sampling results will dictate. Even if results show concentrations < 1 ppm MCHM, there may be residual odor at 0.1 ppm. Customers would be reluctant to use water, even if level is protective of health.
- Will likely relieve restrictions by zone, as results and flushing allow.
- May not remove restrictions in stages of stringency (e.g., "Do Not Use" to "Do Not Drink" to no restriction) as previously contemplated, as may cause too much confusion for customers, particularly if done by zones. This is not yet decided.
- Working on getting drinking water data into organized electronic format, which will be shared with ATSDR (Larry Cseh) and EPA (Vicky Binetti).
- Will also share other drinking water information and any articulated plans, as developed, with EPA water program.
- EPA will send contact information for EPA OSCs Matlock and Linden to WVDHHR.
- EPA again offered EPA support.

On another note, Vicky contacted Nick Santillo (American Water corporate) who informed me that American Water was about to withdraw its request to WARN for aid (mobile laboratory capability), because the Guard was air-transporting samples to its facilities, which would give them both sufficient capacity and quick turnaround.

OSCs Matlock and Linden reported that the saturated absorbent boom and pads removed from the river was sitting on a tarp along the shoreline, but some water/product mixture was running off. This has now been rectified and there is a roll-off container to store the boom and pads before disposal.

This afternoon the facility reported that a contractor was inside tank #396, cleaning the tank. The manway from a second tank was removed and the removal of the sludge/product mixture has begun. Then the vapors in the tank will be cleared using an air recirculator before entry is made to clean the tank. The facility will continue cleaning of tanks through the night and will have contractors inspecting the boom placed along the river.

EPA's contractor took FID readings using the TVA 1000 this afternoon. The reading outside the property was 0 to 0.5 ppm and along the fenceline the reading was 0.5 to 2.0 ppm. The reading near the edge of the tank farm was 2.0 ppm. At about 10 feet from the pit within the tank farm area the reading was 1.0 to 3.0 ppm.

Freedom_0006121_0059

Marzulli, Linda

From: Burns, Francis
Sent: Sunday, January 12, 2014 1:12 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSCs Linden and Matlock reported on the work at the facility. The OSCs met this morning with the facility, WV DEP, and USCG and agreed upon a command structure. Daily meetings will occur to set the tasks for the next operational period. Work will continue 24 hours a day with WV DEP oversight. Today at 4:00 pm the meeting will document the tasks for the next operation period. The Chemical Safety Board (CSB) will be on-site tomorrow morning (1/13/14) to begin their inspection.

The three tanks that all held the MCHM are still being removed. As of this morning tank #396 (the one that failed) was still leaking a slow drip of product. The tank will be emptied and cleaned by tomorrow morning. The next step would be to empty and clean the other two tanks (tank #397 and #395), which are holding sludge material mixed a small amount of product. These tanks can be removed without cutting them into pieces. The tank that failed will be cut up and removed.

The facility will determine the amount of product in the soil by using a hand auger and geoprobe to collect samples. The facility is attempting to contract a lab for a 24 hour turnaround time for the samples. The cut-off trench below the storm drain will be extended in length and lined with plastic.

The boom is still deployed in the river. The river's current has increased from the rain on 1/11/14, lessening the effectiveness of the boom. Also the higher river level and increased current speed has increased the amount of debris that is collected in the boom. The boom near the water intake has both skirted boom and absorbent boom, as well as absorbent pads. WV DEP directed the facility to regularly change out the water intake's absorbent boom when it is visually saturated. There is also a skimmer deployed where the boom is extended across the entire width of the river. Clean Harbors reported that the sheen is not as visible today because of the speed of the river and that approximately 1000 gallons of the product/water mixture has been recovered in the absorbents, skimmer and by vac truck from the river operations.

Marzulli, Linda

From: Burns, Francis
Sent: Saturday, January 11, 2014 8:45 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

EPA finalized a statement concerning the Freedom Industries incident as follows:

EPA continues to work closely with other Federal and State agencies in West Virginia as they begin implementing a plan for getting the water system back on-line. The State of West Virginia and the West Virginia American Water Company (WVAWC) are developing a plan for flushing the system, along with sampling and analysis, that will allow residents to begin using their water as soon as possible. State and Federal (ATSDR/CDC) health officials have agreed that a level of 1 part per million (ppm) of methylcyclohexanemethanol is protective of public health and the State/WVAWC will use the flushing process to assure that and the 1 ppm level is achieved throughout the system. The EPA supports this approach and has offered sampling and monitoring assistance to the State during the restart efforts.

OSCs Matlock and Linden reported the status of activities at the facility. Throughout the day, the facility continued vacuuming the mixture out of excavated pits in the tank farm area. The facility placed a piece of plastic into the cut-off ditch downhill from the tank farm. The plastic layer should lessen the amount of mixture soaking into the soil. The facility also added a pump to assist the vac truck in pumping the mixture out of the ditch and up the hill.

The smell on the facility property is less than observed yesterday, but could be because of the rain and increased wind speeds. EPA's contractor conducted air monitoring earlier and mapped the air monitoring readings, which are on the site website, www.epaosc.org/CharlestonWVChemicalLeak . The difference today between total VOCs is minimally less than yesterday, but again the higher winds may be dispersing the fumes, which could account for the difference in ppm.

This morning the facility's contractor was using a torch to remove the bolts on the manway cover of the tank. OSHA was on-site and stopped the operation until a wrench could be found to remove the bolts. The tanks will need to be emptied and then cleaned from the inside (permit required confined space entry). This work is currently under way for the failed tank (tank no. 396). The two tanks on either side will undergo a similar process. Once the tanks are cleaned, they will be cut up and removed from the site. After the three tanks are removed, product trapped under tanks' concrete pad can be vacuumed out. The tank removal will take several days.

Region 3 Water Division spoke with Steve Allgeier, team leader for technical support to the Water Security Division, Office of Ground Water and Drinking Water, who reported that EPA is working with the utility to investigate treatment options for the chemical, including additional literature research and bench scale studies at other utilities. In addition, EPA's Ft. Meade lab has started looking into lab support for the chemical analysis or finding labs that can provide support through the laboratory response network.

FEMA is scaling down the Philadelphia RRC and ramping up the FEMA IMAT in the field. EPA OSCs will continue to coordinate with FEMA OPS at the EOC. DHS is bringing in their Office of Health affairs (OHA) to provide technical/scientific support for decision making.

Marzulli, Linda

From: Burns, Francis
Sent: Saturday, January 11, 2014 12:29 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

EPA Region3's Water Division received information from Walt Ivey, Director of the WV Drinking Water Program, yesterday as follows:

- WVDHHR laboratory has been trained by DuPont on analytic method for 4-methylcyclohexane methanol and are running method to ensure it obtains reliable detection at 1 ppm. If all works well, they are ready to begin processing samples.
- WVDHHR has been meeting with WV American to plan sampling to monitor concentrations at intake and post-plant, and throughout distribution system. WV American is using hydraulic model of system to plan sampling.
- Also exploring potential actions to lift "Do Not Use" status in stages, as conditions improve, both in terms of 1) declining stringency (e.g., can go from "Do Not Use" to "Do Not Drink" so customers can use for bathing); and 2) geography of distribution system (e.g., potentially relax advisory differentially, as segments of distribution system are cleared)
- Confirmed that American Water (parent corporation) has been engaged with West Virginia American, WVDHHR, and chemical manufacturer in discussions of toxicity, treatment, etc.
- No new monitoring results to report and it's unclear when more are expected. They may come through the Governor's office, rather than from program folks
- American Water has sent some water tankers in, though size/volume of tankers is unclear.
- Rural Water Associations from Maine and Pennsylvania are reported to be responding to West Virginia Rural Water call for water, supplying some bottled water.
- Flushing will be key to removing contaminant from system, but will take time, longer in some areas than others. Distribution system is up to 50 miles, so age of water (length of time from treatment to distal point) will be likewise lengthy, possibly up to a couple of weeks in the extreme. Again, hydraulic modeling will be greatly beneficial in planning/executing the flushing.
- We advised that it will be important to backflush filters/media, understanding the challenge of water waste when faced with need to get water pumped into distribution system
- No evidence of other environmental harm or fish kill at this point.

OSCs Matlock and Linden reported on the incident at Freedom Industries in Charleston, WV. The WV Department of Environmental Protection (WVDEP) issued to the facility a cease and desist order; issued a notice of violation from their air division; and issued a notice of violation of the facility's NPDES permit.

WVDEP also ordered Freedom Enterprises Inc to begin removing all the chemicals in the 14 above-ground storage tanks at the Elk River spill site within 24 hours. Materials in three tanks (one of which was the leaking tank) have already been removed. Freedom must also submit a plan to clean up contaminated soil and groundwater before the weekend is over.

WV DEP has directed the facility to contract a certified Oil Spill Response Organization (OSRO), the initial response contractor on-site from the facility was not an OSRO. The facility has now contracted with Clean Harbors. WV DEP directed the facility to dig a cut-off ditch because the product had infiltrated through the ground to a storm drain outfall where it continues to enter the river. The ditch initially was not dug deep enough, so the facility made it deeper so it is now collecting product/water mix.

In addition, the facility dug a pit in the tank farm area and lined the pit with plastic to collect the product before it soaks the soil. The collected product, the leachate from the ditch, and the remaining product from the leaking tank are transferred to vac trucks and disposed of. The vac trucks and collection pumps are a 24 hour operation with WV DEP providing oversight in shifts for the 24 hour period.

WV DEP has also directed the facility to deploy hard boom in the river, which was done once Clean Harbors arrived. The initial boom was absorbent boom that was lying on top of the ice that allowed the product to flow under the ice and enter the river. WVDEP called the US Coast Guard from MSU Huntington to assist in a boom strategy for the river. The boom strategy was agreed upon by EPA, USCG, WV DEP and the facility in a meeting this morning. Clean Harbors will then deploy the boom in the river downstream of the facility and place additional hard boom to divert product from the downstream water intake.

This morning the facility estimated the leaked product as 7,500 gallons. This is total product lost but not all has entered the river because some product is still trapped under the cement pad with the three tanks. WVDEP has ordered the three tanks be cut apart and removed so the pad can be inspected.

WV DEP last night was were sampling from boats in the river along the shoreline of the facility.
The EPA OSCs conducted air monitoring using a PID/FID (TVA 1000) that had readings of 0.5ppm about 500 feet off of the property, then 1 to 7 ppm along the fenceline of the facility, then 7 to 9 ppm within the tank farm area, and 49 to 50 ppm directly above the open ditch collecting the product and directly from the tank.

The facility gave the OSCs information taken from the Etowah River Terminal Inventory Status Report dated January 10, 2014. The report listed the following products stored in the tanks are raw glycerin and finished glycerin (which just has water added); Calcium Chloride at concentrations of 28%, 35%, 38%; Lignin; MCHM (product that leaked); RDC 777 (a road dust control substance); and a tank of weak salt.

The Senate Environmental and Public Works Committee requested if the facility had a SPPC plan. There is an SPCC plan on file for previous owner Pennzoil at the site in 2000 (SPCC Plan # WV-2000-00055). The plan on file does not include an updated plan under the name Freedom Industries. Over the weekend, OSC Melissa Linden has offered to double check what is stored on site currently to determine if the facility is required to have an SPCC. EPA will need to give the Senate Environment and Public Works Committee staff a definitive answer as to whether the facility has an SPCC and whether it is required.

EPA Region 3's staff at the FEMA EOC reported that FEMA's delivery of 54 trucks of water arrived early this morning at the Yeager Airport in Charleston, WV. FEMA is planning to deliver 50 trucks per day. The water is distributed by the Army National Guard at 15 points of distribution (PODs) throughout the area. FEMA also reported the water inventory is being restocked at stores in the area.

Concerning the health affect of the chemical, ATSDR has issued the following statement on the product. EPA is drafting a complementary statement.

"The chemical 4-methylcyclohexane methanol is safe for consumption, bathing and washing clothes *if the measured levels are less than 1 parts per million (ppm)*. If the levels of the chemical are less than 1ppm then public health officials do not expect individuals to experience adverse health effects. If a person has questions about their drinking water consumption and other household uses please contact their local public health authority. If there are questions about potential health impact, please contact their healthcare provider."

Marzulli, Linda

From: Garvin, Shawn
Sent: Friday, January 10, 2014 9:56 PM
To: Linden, melissa; Ferrell, Mark; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

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Shawn

From: Linden, melissa
Sent: Friday, January 10, 2014 9:54:40 PM
To: Garvin, Shawn; Ferrell, Mark; Burns, Francis; R3 HOTSITES
Subject: Re: HOTSITE REPORT: Freedom Industries, Charleston, WV

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Subject: HOTSITE REPORT: Freedom Industries, Charleston, WV

This afternoon there was a chemical spill from Freedom Industries, which is the old Pennzoil Refinery. The spilled chemical was methylcyclohexane, which is used in coal preparation and processing. Spill into the ELK River occurred sometime earlier in the day and there was an early report of an odor. The Gov of WV declared a state of emergency for at least five counties. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort.

- WV issued an order to not drink cook or bathe in the water, which affects approximately 100,000 people. WV is conducting additional water sampling. The Civil Support Team is also deployed to the WVEOC to assist in supplying water to residents. The WV EOC is operational but have not requested EPA assistance. OSC Dennis Matlock has contacted WV DEP Mike Dorsey and offered EPA assistance.

Freedom_0006121_0065

Marzulli, Linda

From: Burns, Francis
Sent: Friday, January 10, 2014 5:29 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

OSCs Matlock and Linden are stationed in Charleston, WV and reported on the spill of 4-methylcyclohexane methanol from Freedom Industries into the Elk River. The WV Department of Environmental Resources (WVDEP) is the lead for the incident and has worked with the owner of the facility to establish a more aggressive strategy to control the source of the contamination. The facility has placed boom in the river to collect the material before it moves downstream. Working to interrupt subsurface water flow into the river, the facility has deepened on-site trenches to capture the leachate that is presently in the soil downgradient from the leaking tank. Even with these measures, some leachate continues to enter the river.

Today the facility received a threat that prompted the local/state police and FBI to secure access to the facility. After investigating the threat, the police later this afternoon ramped down their presence.

WVDEP has requested EPA assistance in developing addition air and water monitoring strategies. EPA is working with its contractor to develop the appropriate sampling for the chemical so the sampling can start as soon as possible. The on-site OSCs will also be working with the FEMA IMAT team who are scheduled to arrive today. In addition, EPA Region 3 personnel will be staffing the FEMA response center in Philadelphia through the weekend on a 24 hours basis.

WVDEP reported that the water company, WV American Water Corporation, is collecting samples. DuPont developed a drinking water sample and analytical method for this chemical, which was shared with the WV Department of Health and Human Resources so both labs can run samples simultaneously. The DuPont has a facility ten miles downstream from the leak and has detected the chemical in their water system.

EPA Region 3 convened a meeting of the Regional Incident Coordination Team this morning. The team discussed questions raised by FEMA concerning EPA's authorities and discussed the status of the water treatment plants. The water treatment plants are attempting to eliminate the chemical through systematic flushing. As of early today, the flushing process had not yet begun and there is not an estimate of when the water will be safe.

Marzulli, Linda

From: Burns, Francis
Sent: Thursday, January 09, 2014 8:55 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Freedom Industries, Charleston, WV

This afternoon there was a chemical spill from Freedom Industries, which is the old Pennzoil Refinery. The spilled chemical was methylcyclohexane, which is used in coal preparation and processing. Spill into the ELK River occurred sometime earlier in the day and there was an early report of an odor. The Gov of WV declared a state of emergency for at least five counties. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort.

WV issued an order to not drink cook or bathe in the water, which affects approximately 100,000 people. WV is conducting additional water sampling. The Civil Support Team is also deployed to the WVEOC to assist in supplying water to residents. The WV EOC is operational but have not requested EPA assistance. OSC Dennis Matlock has contacted WV DEP Mike Dorsey and offered EPA assistance.

MSDS

EASTMAN

MATERIAL SAFETY DATA SHEET

Revision Date: 10/19/2005
MSDSUSA/ANSI/EN/15000001^291/Version 5.0
0032691126/0004233552

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name	Crude MCHM
Product Identification Number(s)	P1871700
Manufacturer/Supplier	Eastman Chemical Company 200 South Wilcox Drive Kingsport, TN 37660-5280 US +14232292000
MSDS Prepared by	Eastman Product Safety and Health
Chemical Name	not applicable
Synonym(s)	972790
Molecular Formula	not applicable
Molecular Weight	not applicable
Product Use	industrial chemical, gasoline blending
OSHA Status	*hazardous*

For emergency health, safety & environmental information, call 800-EASTMAN.

For emergency transportation information, call CHEMTREC at 800-424-9300 or call 800-EASTMAN.

2. COMPOSITION INFORMATION ON INGREDIENTS

(Typical composition is given, and it may vary. A certificate of analysis can be provided, if available.)

Weight %	Component	CAS Registry No.
68 - 89%	4-methylcyclohexanemethanol	34885-03-5
4 - 22%	4-(methoxymethyl)cyclohexanemethanol	98955-27-2
4 - 10%	water	7732-18-5
5%	methyl 4-methylcyclohexanecarboxylate	51181-40-9
1%	dimethyl 1,4-cyclohexanedicarboxylate	94-60-0
1%	methanol	67-56-1
1 - 2%	1,4-cyclohexanedimethanol	105-08-8

3. HAZARDS IDENTIFICATION

WARNING!
HARMFUL IF SWALLOWED
CAUSES SKIN AND EYE IRRITATION
AT ELEVATED TEMPERATURES, VAPOR MAY CAUSE IRRITATION OF EYES AND RESPIRATORY TRACT

HMIS® Hazard Ratings: Health - 2, Flammability -1, Chemical Reactivity - 0

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HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

4. FIRST-AID MEASURES

Inhalation: Move to fresh air. Treat symptomatically. Get medical attention if symptoms persist.
Eyes: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.
Skin: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.
Ingestion: Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconsious person.

5. FIRE FIGHTING MEASURES

Extinguishing Media: water spray, dry chemical, carbon dioxide, alcohol foam
Special Fire-Fighting Procedures: Wear self-contained breathing apparatus and protective clothing.
Hazardous Combustion Products: carbon dioxide, carbon monoxide
Unusual Fire and Explosion Hazards: none

6. ACCIDENTAL RELEASE MEASURES

Use personal protective equipment. Absorb spill with vermiculite or other inert material, then place in a container for chemical waste.
For Large Spills: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams.

7. HANDLING AND STORAGE

Personal Precautionary Measures: Avoid breathing vapor from heated material. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.
Prevention of Fire and Explosion: Keep from contact with oxidizing materials.
Storage: Keep container closed. Keep away from food, drink and animal foodstuff.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Country specific exposure limits have not been established or are not applicable unless listed below.

METHANOL

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US. ACGIH Threshold Limit Values
Time Weighted Average (TWA): 200 ppm,
US. ACGIH Threshold Limit Values
Short Term Exposure Limit (STEL): 250 ppm,
US. ACGIH Threshold Limit Values
Skin designation: Can be absorbed through the skin.

METHYL ALCOHOL

US. NIOSH: Pocket Guide to Chemical Hazards
Recommended exposure limit (REL): 200 ppm, 260 mg/m3
US. NIOSH: Pocket Guide to Chemical Hazards
Short Term Exposure Limit (STEL): 250 ppm, 325 mg/m3
US. NIOSH: Pocket Guide to Chemical Hazards
Skin designation: Can be absorbed through the skin.

METHYL ALCOHOL; METHANOL

US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Time Weighted Average (TWA) Permissible Exposure Limit (PEL): 200 ppm, 260 mg/m3
US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Ceiling Limit Value: 1,000 ppm,
US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Short Term Exposure Limit (STEL): 250 ppm, 325 mg/m3
US. California Code of Regulations, Title 8, Sec tion 5155. Airborne Contaminants
Skin designation: Can be absorbed through the skin.

METHYL ALCOHOL

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 200 ppm, 260 mg/m3

Ventilation: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

Eye Protection: Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed.

Skin Protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Recommended Decontamination Facilities: eye bath, safety shower, washing facilities

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical Form: liquid
Color: colorless

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Odor: alcohol
Specific Gravity: < 1estimated
Freezing Point: 0 °C
Boiling Point: 180 °C
Solubility in Water: appreciable
Flash Point: 112.8 °C (Setaflash closed cup)
Thermal Decomposition Temperature: Thermal stability not tested. Low stability hazard expected at normal operating temperatures.

10. STABILITY AND REACTIVITY

Stability:	Not fully evaluated. Materials containing similar structural groups are normally stable.
Incompatibility:	Material reacts with strong oxidizing agents.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.

Oral LD-50:(rat)	825 mg/kg
Dermal LD-50: (rat)	> 2,000 mg/kg (only dose tested)
Skin Irritation (rabbit)	strong
Skin Sensitization: (guinea pig)	none

12. ECOLOGICAL INFORMATION

Acute toxicity data, if available, are listed below. Additional toxicity data may be available on request.
Oxygen Demand Data:
BOD-5: 70 mg/g
BOD-20: 1,300 mg/g

COD: 2,540 mg/g

Acute Aquatic Effects Data:
96 h LC-50 (fathead minnow): 57.4 mg/l NOEC: 25 mg/l
48 h EC-50 (daphnid): 98.1 mg/l NOEC: 40 mg/l

13. DISPOSAL CONSIDERATIONS

Discharge, treatment, or disposal may be subject to national, state, or local laws. Incinerate.

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14. TRANSPORT INFORMATION

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT (USA)

Class not regulated

Sea - IMDG (International Maritime Dangerous Goods)

Class not regulated

Air - ICAO (International Civil Aviation Organization)

Class not regulated

15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.
WHMIS (Canada) Status: controlled

WHMIS (Canada) Hazard Classification: D/2/B

SARA 311-312 Hazard Classification(s):
immediate (acute) health hazard

SARA 313: none, unless listed below
METHANOL

Carcinogenicity Classification (components present at 0.1% or more): none, unless listed below

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TSCA (US Toxic Substances Control Act): All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): One or more components of this product are not listed on the DSL. In Canada, its use is restricted to research and development purposes only.

EINECS (European Inventory of Existing Commercial Chemical Substances): One or more components or reactants of this product are not listed on EINECS. In the European Union, its use is restricted to research and development purposes only.

MITI (Japanese Handbook of Existing and New Chemical Substances): One or more components or reactants of this product are not listed in the Handbook. In Japan, its use is restricted to research and development purposes only.

ECL (Korean Toxic Substances Control Act): One or more components of this product are not listed on the Korean inventory. In Korea, its use is restricted to research and development purposes only.

16. OTHER INFORMATION

Visit our website at www.EASTMAN.com or call 001-423-229-2000.

The information contained herein is based on current knowledge and experience; no responsibility is accepted that the information is sufficient or correct in all cases. Users should consider these data only as a supplement to other information. Users should make independent determinations of suitability and completeness of information from all sources to assure proper use and disposal of these materials, the safety and health of employees and customers, and the protection of the environment.

Highlighted areas indicate new or changed information.

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International Chemical Safety Cards

METHYLCYCLOHEXANE

ICSC: 0923

Hexahydrotoluene
Cyclohexylmethane
C_7H_{14} / $C_6H_{11}CH_3$
Molecular mass: 98.21
ICSC # 0923
CAS # 108-87-2
RTECS # GV6125000
UN # 2296
EC # 601-018-00-7
July 04, 1997 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder , foam , carbon dioxide
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
•INHALATION	Dizziness. Drowsiness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration if indicated. Refer for medical attention.
•SKIN	Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Nausea. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. (Extra personal protection: filter respirator for organic gases and vapours).	Fireproof. Separated from strong oxidants.	F symbol Xn symbol N symbol R: 11-38-51/53-65-67 S: 2-9-16-33-61-62 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0923

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

METHYLCYCLOHEXANE

ICSC: 0923

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts violently with strong oxidants, causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 400 ppm; 1610 mg/m³ (ACGIH 1996).
MAK: 200 ppm, 810 mg/m³;
Peak limitation category: II(2) Pregnancy risk group: D (DFG 2008).
OSHA PEL†: TWA 500 ppm (2000 mg/m³)
NIOSH REL: TWA 400 ppm (1600 mg/m³)
NIOSH IDLH: 1200 ppm LEL See: 108872

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its vapour and by ingestion.

INHALATION RISK:

EFFECTS OF SHORT-TERM EXPOSURE:
The substance irritates the eyes and the skin. Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure could cause lowering of consciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin.

PHYSICAL PROPERTIES

Boiling point: 101°C
Melting point: -126.7°C
Relative density (water = 1): 0.8

Relative vapour density (air = 1): 3.4
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.1
Flash point: -6°C o.c.

	Solubility in water: none Vapour pressure, kPa at 25°C: 5.73	Auto-ignition temperature: 258°C Explosive limits, vol% in air: 1.2-6.7
ENVIRONMENTAL DATA		

NOTES

Transport Emergency Card: TEC (R)-514

NFPA Code: H2; F3; R0;
Card has been partially updated in November 2008: see Occupational Exposure Limits,

ADDITIONAL INFORMATION

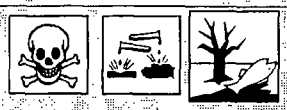
ICSC: 0923 **METHYLCYCLOHEXANE**

(C) IPCS, CEC, 1994

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	**Toxic compound, do not ingest or inhale. Avoid all contact with this material.** ***Corrosive to eyes and skin on contact.*** **Environmental hazard.** **This material is toxic to aquatic organisms and may cause long term adverse effects to the aquatic environment.**	

Section I. Chemical Product and Company Identification

Chemical Name: **4,4'-Methylenebis(2-methylcyclohexylamine)**
(mixture of isomers)

Catalog Number: M1422

Synonym: 4,4'-Diamino-3,3'-dimethyldicyclohexylmethane; 4,4'-Methylenebis(1-amino-2-methylcyclohexane); Bis(4-amino-3-methylcyclohexyl)methane

Chemical Formula: $C_{15}H_{30}N_2$

CAS Number: 6864-37-5

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

In case of Emergency Call: **Chemtrec®**
(800) 424-9300 (U.S.)
(703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
4,4'-Methylenebis(2-methylcyclohexylamine) (mixture of isomers)	6864-37-5	Min. 99.0 (GC)	Not available.	Rat LD_{50} (inhalation) 430 mg/m³/4H

Section III. Hazards Identification

Acute Health Effects

Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested.
Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic Health Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Not available.
Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section IV. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

Inhalation

If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.

Ingestion

DO NOT INDUCE VOMITING. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	275°C (527°F)
Flash Points	173°C (343.4°F)	Flammable Limits	Not available.

Combustion Products: These products are toxic carbon oxides (CO, CO_2), nitrogen oxides (NO, NO_2).

Fire Hazards: Not available.

Explosion Hazards: Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Continued on Next Page ***Emergency phone number (800) 424-9300***

Printed 9/8/2010.

Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet. Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Toxic material. Corrosive material. Environmentally hazardous material. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. DO NOT get water inside container. DO NOT touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Eliminate all sources of ignition. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information	TOXIC. CORROSIVE. ENVIRONMENTAL HAZARD. Keep locked up. Keep container dry. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. DO NOT ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. Wear suitable protective clothing. If ingested, seek medical advice immediately and show the container or the label. Treat symptomatically and supportively. Always store away from incompatible compounds such as oxidizing agents.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Face shield. Lab coat. Vapor respirator. Boots. Gloves. A MSHA/NIOSH approved respirator must be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, light yellow.)	Solubility	Slightly soluble in water.
Specific Gravity	0.95 (water=1)		
Molecular Weight	238.41	Partition Coefficient	LOG K_{ow}: 2.51
Boiling Point	93 to 100°C (199.4 to 212°F)	Vapor Pressure	0.0003 hPa (@ 30°C)
Melting Point	-7 to -1°C (19.4 to 30.2°F)	Vapor Density	Not available.
Refractive Index	1.50	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents.

Section XI. Toxicological Information

RTECS Number	GU5980000
Routes of Exposure	Eye Contact. Ingestion. Inhalation. Skin contact.
Toxicity Data	Rat LD_{50} (inhalation) 430 mg/m³/4H
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Not available. **MUTAGENIC EFFECTS** : Not available. **TERATOGENIC EFFECTS** : Not available. **DEVELOPMENTAL TOXICITY**: Not available. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to an highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.
Acute Toxic Effects	Toxic if ingested or inhaled. Avoid prolonged contact with this material. Overexposure may result in serious illness or death. Corrosive to skin, eyes, and respiratory system. Liquid or spray mist may produce tissue damage, particularly in mucous membranes of the eyes, mouth and respiratory tract. Skin contact may produce burns. Eye contact can result in corneal damage or blindness. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Corrosive materials may cause serious injury if ingested. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Continued on Next Page Emergency phone number (800) 424-9300

Freedom_0006121_0079

TCI AMERICA
SAFETY DATA SHEET

Revision number: 1
Revision date: 11/19/2013

1. IDENTIFICATION

Product name: 4-Methyl-1-cyclohexanemethanol (cis- and trans- mixture)
Product code: M1412

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
TCI America
9211 N. Harborgate Street
Portland, OR 97203 U.S.A.
Telephone:
+1-800-423-8616 / +1-503-283-1681
Fax:
+1-888-520-1075 / +1-503-283-1987
e-mail:
sales@tciamerica.com
www.TCIchemicals.com

Emergency telephone number:
Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
+1-503-286-7624
Transportation Emergencies:
Chemtrec 24-Hour
+1-800-424-9300 (U.S.A.)
+1-703-527-3887 (International)
Responsible department:
TCI America
Environmental Health Safety and Security
+1- 503-286-7624

2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200: Flammable Liquids [Category 4]

Signal word: Warning!

Hazard Statement(s): Combustible liquid

Pictogram(s) or Symbol(s): None

Precautionary Statement(s):
[Prevention] Keep away from heat, sparks, open flames or other hot surfaces. - No smoking. Wear protective gloves, eye protection and face protection.
[Response] In case of fire: Use dry chemical, CO2, water spray or alcohol-resistant foam to extinguish.
[Storage] Store in well-ventilated place. Keep cool.
[Disposal] Dispose of contents and container in accordance with US EPA guidelines for the classification and determination of hazardous waste listed in 40 CFR 261.3. (See Section 13)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Substance
Components: 4-Methyl-1-cyclohexanemethanol (cis- and trans- mixture)
Percent: >98.0%(GC)
CAS Number: 34885-03-5
Molecular Weight: 128.22
Chemical Formula: $C_8H_{16}O$
Synonyms: 1-(Hydroxymethyl)-4-methylcyclohexane

4. FIRST-AID MEASURES

Inhalation: Call emergency medical service. Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

4. FIRST-AID MEASURES

Skin contact: Call a poison center or doctor if you feel unwell. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye contact: In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists get medical advice/attention. Move victim to fresh air. Check for and remove any contact lenses. Keep victim warm and quiet. Treat symptomatically and supportively. Effects of exposure to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Ingestion: If swallowed, seek medical advice immediately and show the container or label. Loosen tight clothing such as a collar, tie, belt or waistband. If a person vomits place them in the recovery position so that vomit will not reenter the mouth and throat. Rinse mouth. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms/effects:

Acute: No data available
Delayed: No data available

Immediate medical attention: If breathing has stopped, perform artificial respiration. Use first aid treatment according to the nature of the injury. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical, CO_2, water spray, or alcohol-resistant foam. Consult with local fire authorities before attempting large scale fire fighting operations.

Specific hazards arising from the chemical

Hazardous combustion products: These products include: Carbon oxides
Other specific hazards: Closed containers may explode from heat of a fire.

Special precautions for fire-fighters:
CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. Use water spray or fog; do not use straight streams. Do not use straight streams. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Move containers from fire area if you can do it without risk.
Special protective equipment for fire-fighters:
Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations. Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use spark-proof tools and explosion-proof equipment. Remove all sources of ignition. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (Section 8). Warn unnecessary personnel to move away. Stop leak if you can do it without risk. Ensure adequate ventilation. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Personal protective equipment: Splash goggles. Lab coat. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear protective gloves (nitrile).

Emergency procedures: Isolate area until gas has dispersed. In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and excercise caution. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Warn personnel to move away. Prevent entry into sewers, basements or confined areas; dike if needed.

Methods and materials for containment and cleaning up:
ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area). All equipment used when handling the product must be grounded. Stop leak if without risk. Ventilate the area. Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Use clean non-sparking tools to collect absorbed material.
Environmental precautions:
Prevent further leakage or spillage if safe to do so. Water runoff can cause environmental damage. Prevent entry into sewers, basements or confined areas; dike if needed.

7. HANDLING AND STORAGE

Precautions for safe handling: Do NOT breath gas, fumes, vapor, or spray. Avoid contact with skin and eyes. Keep away from heat and sources of ignition. Use explosion-proof equipment. Use only non-sparking hand tool when handling this product. Ground all equipment containing material. Take measures to prevent build up of electrostatic charge. Good general ventilation should be sufficient to control airborne levels. Keep container dry. Handle and open container with care. Wear suitable protective clothing, gloves and eye/face protection. When using do not eat, drink, or smoke. Keep away from sources of ignition.

7. HANDLING AND STORAGE

Conditions for safe storage: Keep only in the original container in a cool well-ventilated place. Keep away from sources of ignition. Store and use away from heat, sparks, open flame, or any other ignition source. Keep away from incompatibles. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Avoid prolonged storage periods.

Storage incompatibilities: Store away from oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No data available

Appropriate engineering controls:
Good general ventilation should be sufficient to control airborne levels. Ventilation is normally required when handling or using this product. Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance. Follow safe industrial engineering/laboratory practices when handling any chemical.

Personal protective equipment

Respiratory protection: Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
Hand protection: Wear protective gloves.
Eye protection: Splash goggles.
Skin and body protection: Lab coat.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Color: Colorless - Almost colorless
Odor: No data available
Odor threshold: No data available

Melting point/freezing point:	No data available	**pH:**	No data available
Boiling point/range:	No data available	**Vapor pressure:**	No data available
Decomposition temperature:	No data available	**Vapor density:**	No data available
Relative density:	No data available	**Dynamic Viscosity:**	No data available
Kinematic viscosity:	No data available		
Partition coefficient: n-octanol/water (log P_{ow})	No data available	**Evaporation rate:** (Butyl Acetate = 1)	No data available
Flash point:	No data available	**Autoignition temperature:**	No data available
Flammability (solid, gas):	No data available	**Flammability or explosive limits:**	
		Lower:	No data available
		Upper:	No data available

Solubility(ies):

10. STABILITY AND REACTIVITY

Reactivity: Not Available.
Chemical Stability: Stable under recommended storage conditions. (See Section 7)
Possibility of Hazardous Reactions: In use, may form flammable/explosive vapor-air mixture.
Conditions to avoid: Avoid excessive heat and light.
Incompatible materials: Oxidizing agents
Hazardous Decomposition Products: No data available

11. TOXICOLOGICAL INFORMATION

RTECS Number: No data available

Acute Toxicity:
No data available

Skin corrosion/irritation:
No data available

Serious eye damage/irritation:
No data available

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
No data available

Carcinogenicity:

No data available

IARC: No data available **NTP:** No data available **OSHA:** No data available

Reproductive toxicity:
No data available

Routes of Exposure: Inhalation, Eye contact, Ingestion.
Symptoms related to exposure:
No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.
Potential Health Effects:
No specific information available; skin and eye contact may result in irriatation. May be harmful if inhaled or ingested.
Target organ(s): No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity
Fish: No data available
Crustacea: No data available
Algae: No data available

Persistence and degradability: No data available
Bioaccumulative potential (BCF): No data available
Mobillity in soil: No data available
Partition coefficient: n-octanol/water (log P_{ow}) No data available
Soil adsorption (Koc): No data available
Henry's Law: constant (PaM^3/mol) No data available

13. DISPOSAL CONSIDERATIONS

Disposal of product: Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.
Disposal of container: Dispose of as unused product. Do not re-use empty containers.
Other considerations: Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

DOT (US) Non-hazardous for transportation.

IATA Non-hazardous for transportation.

IMDG Non-hazardous for transportation.

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:

SARA 313:	Not Listed
SARA 302:	Not Listed

State Regulations

State Right-to-Know

Massachusetts	Not Listed
New Jersey	Not Listed
Pennsylvania	Not Listed
California Proposition 65:	Not Listed

Other Information

NFPA Rating:

Health:	0
Flammability:	0
Instability:	0

HMIS Classification:

Health:	0
Flammability:	0
Physical:	0

International Inventories

WHMIS hazard class:	B3: Combustible Liquid.
Notice Through Official Gazettes Reference Number: (Japan)	
ENCS:	Not Listed

16. OTHER INFORMATION

Revision date: 11/19/2013
Revision number: 1
TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name: Crude MCHM

Product No.: EAN 972790. 18717-00, P1871700, P18717EA, P18717ET, P18717YZ

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Industrial chemical. gasoline blending
Uses advised against: None known.

1.3 Details of the supplier of the safety data sheet
Manufacturer / Supplier

Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

1.4 Emergency telephone number:
For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

SECTION 2: Hazards identification

WARNING!
HARMFUL IF SWALLOWED
CAUSES SKIN AND EYE IRRITATION
AT ELEVATED TEMPERATURES, VAPOR MAY CAUSE IRRITATION OF EYES AND RESPIRATORY TRACT

SECTION 3: Composition/information on ingredients

3.1 / 3.2 Substances / Mixtures

General information:

Chemical name	Concentration	Additional identification	Notes
4-methylcyclohexanemethanol	68 - 89%	CAS-No.: 34885-03-5 EC No.: 609-038-8	
4-(methoxymethyl)cyclohexanemethanol	4 - 22%	CAS-No.: 98955-27-2	

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Freedom_0006121_0085

water	4 - 10%	CAS-No.: 7732-18-5 EC No.: 231-791-2	
methyl 4-methylcyclohexanecarboxylate	5%	CAS-No.: 51181-40-9	
dimethyl 1,4-cyclohexanedicarboxylate	1%	CAS-No.: 94-60-0 EC No.: 202-347-5	
methanol	1%	CAS-No.: 67-56-1 EC No.: 200-659-6 INDEX No.: 603-001-00-X	#
1,4-cyclohexanedimethanol	1 - 2%	CAS-No.: 105-08-8 REACH Registration No.: 01-2119448337-34-0000 01-2119448337-34-0002	#

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
# This substance has workplace exposure limit(s).
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation: Treat symptomatically. Move to fresh air. Get medical attention if symptoms persist.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

Skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion: Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. Not relevant, due to the form of the product.

4.2 Most important symptoms and effects, both acute and delayed: No data available.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: No data available.

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards: None known.

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5.1 Extinguishing media

Suitable extingishing media: Water spray. Dry chemical. Carbon Dioxide. Alcohol foam.

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture: None known.

5.3 Advice for firefighters

Special Fire Fighting Procedures: Fight fire from a protected location.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: Wear appropriate personal protective equipment.

6.2 Environmental precautions: Avoid release to the environment.

6.3 Methods and material for containment and cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

Notification Procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling: Avoid breathing vapor from heated material. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities: Keep container closed. Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s): Industrial chemical. gasoline blending

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

If exposure limits have not been established, maintain airborne levels to an acceptable level.

Chemical name	Type	Exposure Limit values	Source
methanol	TWA	200 ppm	US. ACGIH Threshold Limit Values (01 2010)
	STEL	250 ppm	US. ACGIH Threshold Limit Values (01 2010)
	PEL	200 ppm 260 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

Biological limit values

Chemical name	Exposure Limit values	Source
methanol (methanol: Sampling time: End of shift.)	15 mg/l (Urine)	ACGIH BEL (01 2010)

8.2 Exposure controls

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information: Eye bath. Safety shower. Washing facilities.

Eye/face protection: Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed.

Skin protection

Hand protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Other: No data available.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

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Hygiene measures:	Observe good industrial hygiene practices.
Environmental Controls:	No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical State:	Liquid
Form:	Liquid
Color:	Colorless
Odor:	Alcohol
Odor Threshold:	No data available.
pH:	No data available.
Freezing Point:	0 °C
Boiling Point:	180 °C
Flash Point:	112.8 °C (Setaflash Closed Cup)
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Flammability Limit - Upper (%)–:	No data available.
Flammability Limit - Lower (%)–:	No data available.
Vapor pressure:	No data available.
Vapor density (air=1):	No data available.
Relative density:	< 1 (estimated)
Solubility(ies)	
Solubility in Water:	Appreciable
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	Thermal stability not tested. Low stability hazard expected at normal operating temperatures.
Viscosity:	No data available.
Explosive properties:	No data available.
Oxidizing properties:	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Materials containing similar structural groups are normally stable.
10.2 Chemical stability:	Not fully evaluated.
10.3 Possibility of hazardous reactions:	None known.
10.4 Conditions to avoid:	Excessive heat.

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10.5 Incompatible materials: Strong oxidizing agents.

10.6 Hazardous decomposition products: Carbon Dioxide. Carbon Monoxide.

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation: At elevated temperatures, vapor may cause irritation of eyes and respiratory tract.

Ingestion: Harmful if swallowed.

Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation.

11.1 Information on toxicological effects

Acute Toxicity

Oral

Product: Oral LD-50: (Rat): 825 mg/kg

Dermal

Product: Dermal LD-50: (Rat): > 2,000 mg/kg

Inhalation

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	LC50 (Rat, 6 h): > 3 mg/l (highest concentration tested)

Repeated dose toxicity

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-	No data available.

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(methoxymethyl)cyclohexanemethanol	
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	NOEL - No Observable Effect Level (Rat, in drinking water, 90 d): 8000 mg/l

Skin corrosion/irritation:

Product: (Rabbit, 24 h): strong

Serious eye damage/eye irritation:

Product: (Rabbit): moderate

Respiratory or skin sensitization:

Product: Skin Sensitization:, (Guinea Pig) - Not a skin sensitizer.

Germ cell mutagenicity

In vitro

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	Mutagenicity - Bacterial, : negative +/- activation Mutagenicity - Mammalian, : negative +/- activation Chromosomal abberation, : negative +/- activation

In vivo

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.

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methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Carcinogenicity

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Reproductive toxicity

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Specific target organ toxicity - single exposure

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.

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water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Specific target organ toxicity - repeated exposure

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Aspiration hazard

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Other adverse effects: No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

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Fish

Product:	LC-50 (Fathead Minnow, 96 h): 57.4 mg/l NOEC: (Fathead Minnow, 96 h): 25 mg/l

Aquatic invertebrates

Product:	EC-50 (daphnid, 48 h): 98.1 mg/l NOEC: (daphnid, 48 h): 40 mg/l

Chronic Toxicity

Fish

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Aquatic invertebrates

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Toxicity to Aquatic Plants

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexan	No data available.

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emethanol	
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	EC-50 (Alga, 72 h): > 122.9 mg/l (only concentration tested) NOEC: (Alga, 72 h): >= 122.9 mg/l (only concentration tested)

12.2 Persistence and degradability

Biodegradation

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	99.2 % (28 d, Ready Biodegradability: DOC Die Away Test) Readily biodegradable

Biological Oxygen Demand:

Product	BOD-5: 70 mg/g BOD-20: 1,300 mg/g

Chemical Oxygen Demand:

Product	2,450 mg/g

BOD/COD ratio

Product	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.

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1,4-cyclohexanedimethanol	No data available.

12.3 Bioaccumulative potential

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

12.4 Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	0.499 - 1.6 (QSAR model)

12.5 Results of PBT and vPvB assessment: No data available.

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria

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Freedom_0006121_0096

12.6 Other adverse effects: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: No data available.

Disposal Methods: Dispose of waste and residues in accordance with local authority requirements. Mix with compatible chemical which is less flammable and incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.

SECTION 14: Transport information

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT

Class not regulated

IMDG - International Maritime Dangerous Goods Code

Class not regulated

IATA

Class not regulated

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.
WHMIS (Canada) Status: controlled
WHMIS (Canada) Hazard Classification: D/2/B

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SARA 311-312 Hazard Classification(s):
immediate (acute) health hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List
METHANOL

OSHA: hazardous

TSCA (US Toxic Substances Control Act): All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): One or more components of this product are not listed on the DSL. In Canada, its use is restricted to research and development purposes only.

MITI (Japanese Handbook of Existing and New Chemical Substances): One or more components or reactants of this product are not listed in the Handbook. In Japan, its use is restricted to research and development purposes only.

ECL (Korean Toxic Substances Control Act): One or more components of this product are not listed on the Korean inventory. In Korea, its use is restricted to research and development purposes only.

SECTION 16: Other information

HMIS® Hazard Ratings: Health - 2, Flammability - 1, Chemical Reactivity - 0

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information:	Not relevant.
Key literature references and sources for data:	No data available.
Training information:	No data available.
Issue Date:	08/18/2011
SDS No:	
Disclaimer:	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

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MATERIAL SAFETY DATA SHEET

Chevron Phillips Chemical Company LP

Methylcyclohexane

Version 1.4 | Revision Date 2012-03-05

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Trade name	:	Methylcyclohexane
Material	:	1098852, 1021714, 1021712, 1028351, 1021711, 1024851, 1028352, 1024850, 1021713
Use	:	Chemical intermediate
Company	:	Specialty Chemicals 10001 Six Pines Drive The Woodlands, TX 77380

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887
Asia: +800 CHEMCALL (+800 2436 2255) China: 0532.8388.9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Chemcare Asia: Tel: +65 6848 9048 - Mob: +65 8382 9188 - Fax: +65 6848
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	MSDS@CPChem.com
Website	:	www.CPChem.com

2. HAZARDS IDENTIFICATION

Emergency Overview

Danger

Form: Liquid **Physical state**: Liquid **Color**: Colorless **Odor**: Mild

OSHA Hazards : Flammable Liquid, Moderate skin irritant, Moderate eye irritant

GHS-Classification

: Flammable liquids, Category 2
Reproductive toxicity, Category 2
Acute toxicity, Category 5, Oral
Skin irritation, Category 2
Eye irritation, Category 2B
Specific target organ systemic toxicity - single exposure, Category 3
Aspiration hazard, Category 1
Acute aquatic toxicity, Category 2
Chronic aquatic toxicity, Category 2

Freedom_0006121_0099

GHS-Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements : H225: Highly flammable liquid and vapor.
H303: May be harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H320: Causes eye irritation.
H336: May cause drowsiness or dizziness.
H361: Suspected of damaging fertility or the unborn child.
H411: Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Evacuate area. Use manufacturer/supplier or the competent authority to specify appropriate media for extinction.

Carcinogenicity:

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Cyclohexylmethane
Hexahydrotoluene
MCH
Methylcyclohexane (Pure Grade)

Molecular formula : C7H14

Component	CAS-No.	Weight %
Methylcyclohexane	108-87-2	95 - 100
Toluene	108-88-3	0.1 - 1

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4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Symptoms of poisoning may only appear several hours later. Do not leave the victim unattended.
If inhaled	:	Move to fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

5. FIRE-FIGHTING MEASURES

Flash point	:	-5.5 °C (22.1 °F) Method: Tagliabue Open Cup
Autoignition temperature	:	285 °C (545 °F)
Suitable extinguishing media	:	Dry chemical. Carbon dioxide (CO2). Alcohol-resistant foam.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Use only explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

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Hazardous decomposition products	:	Hydrocarbons. Carbon oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Handling

Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Do not spray on an open flame or any other incandescent material. Use only explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers	:	No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

US

Ingredients	Basis	Value	Control parameters	Note
Methylcyclohexane	ACGIH	TWA	400 ppm,	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	(b),
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	

NIOSH REL	TWA	400 ppm, 1,600 mg/m3

(b) The value in mg/m3 is approximate.

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection	:	Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.
Hand protection	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Eye protection	:	Eye wash bottle with pure water. Tightly fitting safety goggles.
Skin and body protection	:	Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant protective clothing. Footwear protecting against chemicals.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Form	:	Liquid
Physical state	:	Liquid
Color	:	Colorless
Odor	:	Mild

Safety data

Flash point	:	-5.5 °C (22.1 °F) Method: Tagliabue Open Cup
Lower explosion limit	:	1.2 %(V)

Freedom_0006121_0103

Upper explosion limit	:	6.7 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	285 °C (545 °F)
Molecular formula	:	C7H14
Molecular Weight	:	98.21 g/mol
pH	:	No data available
Freezing point	:	-127 °C (-197 °F)
Boiling point/boiling range	:	100.4 °C (212.7 °F)
Vapor pressure	:	1.60 PSI at 37.8 °C (100.0 °F)
Relative density	:	0.774, 15.6 °C(60.1 °F)
Density	:	771.7 g/l
Water solubility	:	Negligible
Viscosity, dynamic	:	0.732 cP
Relative vapor density	:	3 (Air = 1.0)
Evaporation rate	:	1
Percent volatile	:	> 99 %

10. STABILITY AND REACTIVITY

Chemical stability	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Other data	:	No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

Freedom_0006121_0104

Acute oral toxicity

Methylcyclohexane	: LD50: > 5,000 mg/kg Species: rat Information given is based on data obtained from similar substances.
Toluene	LD50: 6,500 mg/kg Species: rat Sex: Not Specified

Acute inhalation toxicity

Methylcyclohexane	: LC50: > 23.3 mg/l Exposure time: 4 h Species: rat Test atmosphere: vapor Information given is based on data obtained from similar substances.
Toluene	LC50: 25.7 - 30 mg/l Exposure time: 4 h Species: rat Test atmosphere: vapor

Acute dermal toxicity

Methylcyclohexane	: LD50: > 2,000 mg/kg Species: rabbit Information given is based on data obtained from similar substances.
Toluene	LD50: 12,400 mg/kg Species: rabbit Sex: Not Specified

Methylcyclohexane
Skin irritation : May cause skin irritation in susceptible persons.

Methylcyclohexane
Eye irritation : May cause eye irritation.
Vapors may cause irritation to the eyes, respiratory system and the skin.
Vapors may cause irritation to the eyes, respiratory system and the skin.

Sensitization

Toluene : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Methylcyclohexane : Species: rabbit
Application Route: Inhalation
Dose: 0, 1160, 3330 ppm
Exposure time: 10 wk
NOEL: 1160 ppm
Lowest observable effect level: 3330 ppm

Freedom_0006121_0105

Toluene

Species: rat
Application Route: Inhalation
Dose: 0, 100, 625, 1250, 3000 ppm
Exposure time: 15 wk
Number of exposures: 6.5 h/d, 5 d/wk
NOEL: 625 ppm

Species: mouse
Application Route: Inhalation
Dose: 0, 100, 625, 1250, 3000 ppm
Exposure time: 14 wk
Number of exposures: 6.5 h/d, 5 d/wk
NOEL: 100 ppm

Carcinogenicity

Toluene : Species: rat
Dose: 0, 600, 1200 ppm
Exposure time: 2 yrs
Number of exposures: 6.5 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Species: mouse
Dose: 0, 600, 1200 ppm
Exposure time: 2 yrs
Number of exposures: 6.5 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Reproductive toxicity

Toluene : Species: rat
Application Route: Inhalation
Dose: 0, 100, 500, 2000 ppm
Test period: 95 d
NOAEL Parent: 2000 ppm

Teratogenicity

Toluene : Species: rat
Application Route: Inhalation
Dose: 0, 100, 500, 2000 ppm
Test period: 95 d
NOAEL Teratogenicity: 400-750 ppm

Methylcyclohexane
Aspiration toxicity : May be fatal if swallowed and enters airways.
Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

Methylcyclohexane
Further information : Concentrations substantially above the TLV value may cause narcotic effects. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Solvents may degrease the skin.

Freedom_0006121_0106

12. ECOLOGICAL INFORMATION

Toxicity to fish

Methylcyclohexane	: LC50: 72 mg/l Exposure time: 96 h Species: Fish
Toluene	LC50: 18 - 36 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates.

Toluene	: EC50: 3.78 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)

Toxicity to algae

Toluene	: EC50: 134 mg/l Exposure time: 72 h Species: Chlamydomonas angulosa (Green algae)

Elimination information (persistence and degradability)

Biodegradability	: Expected to be biodegradable
Additional ecological information	: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

The information in this MSDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

Freedom_0006121_0107

14. TRANSPORT INFORMATION

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the MSDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN2296, METHYLCYCLOHEXANE, 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN2296, METHYLCYCLOHEXANE, 3, II, (-5.5 °C), MARINE POLLUTANT, (METHYLCYCLOHEXANE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN2296, METHYLCYCLOHEXANE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. REGULATORY INFORMATION

National legislation

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO – KNOW

CERCLA Reportable Quantity	:	Toluene
SARA 302 Threshold Planning Quantity	:	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Ingredients	:	SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

Ozone-Depletion Potential	:	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

US State Regulations

Pennsylvania Right To Know			
	:	Methylcyclohexane	108-87-2
	:	Toluene	108-88-3
New Jersey Right To Know			
	:	Methylcyclohexane	108-87-2
	:	Toluene	108-88-3
California Prop. 65 Ingredients	:	WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.	

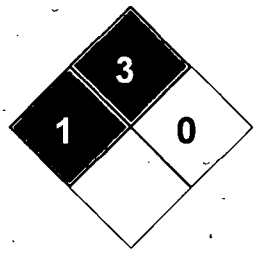
Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America US.TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

Freedom_0006121_0109

16. OTHER INFORMATION

NFPA Classification : Health Hazard: 1
Fire Hazard: 3
Reactivity Hazard: 0



Further information

Legacy MSDS Number : 34310

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this MSDS pertains only to the product as shipped.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philipines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical	TWA	Time Weighted Average

	Substances in China		
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Compositon, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Freedom_0006121_0111

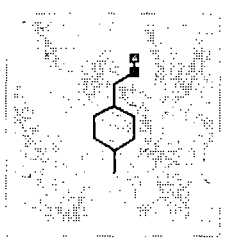
NCBI

PubChem BioAssay

PubChem BioAssay
Limits Advanced search

SHARE

4-Methylcyclohexanemethanol (CID 118193) - Compound BioActivity Data



BioActivity Outcomes:
Inactive(78)
Inconclusive(8)

Top Targets:
NR LBD PPAR(8)
NR LBD AR(7)
NR LBD ER(7)
NR LBD Fxr(4)
NR LBD VDR(4)

BioAssay Type
Confirmatory(62)
Summary(24)

Chemical Probe Active Inactive Inconclusive Unspecified

Total Bioassays: 86 Data Row: 86 Total Pages: 2 Display: 50 Go To Page 1

Sort: *[Click the result table header to sort]*

#	Substance	Activity Outcome	Activity Type	Activity Value [µM]	BioAssay	Target
1	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1	28.2808	qHTS assay to identify small molecule agonists of the estrogen receptor alpha (ER-alpha) signaling pathway using the BG1 cell line [AID743079, Type: confirmatory]	estrogen nuclear receptor alpha [Hon sapiens] [gi:3480196
2	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the estrogen receptor alpha (ER-alpha) signaling pathway using the BG1 cell line [AID743080, Type: confirmatory]	estrogen nuclear receptor alpha [Hon sapiens] [gi:3480196
3	Cyclohexanemethanol, 4-methyl- [SID144211845]		ER Potency (uM)		qHTS assay to identify small molecule antagonists of the estrogen receptor alpha (ER-alpha) signaling pathway using the BG1 cell line: Summary [AID743091, Type: summary]	estrogen nuclear receptor alpha [Hon sapiens] [gi:3480196
4	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the thyroid receptor (TR) signaling pathway [AID743065, Type: confirmatory]	thyroid hormone receptor beta isoform [Rattus norvegicus [gi:399498506]
5	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule agonists of the thyroid receptor (TR) signaling pathway [AID743066, Type: confirmatory]	thyroid hormone receptor beta isoform [Rattus norvegicus [gi:399498506]

Freedom_0006121_0112

#	Substance	Activity			BioAssay	Target
		Outcome	Type	Value [µM]		
6	Cyclohexanemethanol, 4-methyl- [SID144211845]		TR Potency (uM)		qHTS assay to identify small molecule antagonists of the thyroid receptor (TR) signaling pathway: Summary [AID743067, Type: summary]	thyroid hormone receptor beta isoform [Rattus norvegicus [gi:399498506]
7	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecule agonists of the p53 signaling pathway - cell viability [AID651633, Type: confirmatory]	
8	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecules that induce genotoxicity in human embryonic kidney cells expressing luciferase-tagged ATAD5 - cell viability [AID651634, Type: confirmatory]	
9	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecule disruptors of the mitochondrial membrane potential - cell viability [AID720634, Type: confirmatory]	
10	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecule disruptors of the mitochondrial membrane potential [AID720635, Type: confirmatory]	
11	Cyclohexanemethanol, 4-methyl- [SID144211845]		Ratio Potency (uM)		qHTS assay for small molecule disruptors of the mitochondrial membrane potential: Summary [AID720637, Type: summary]	
12	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 590 nm (red) in HepG2 cells [AID720674, Type: confirmatory]	
13	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 535 nm (green) in HepG2 cells [AID720675, Type: confirmatory]	
14	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 460 nm (blue) in HEK293 cells [AID720678, Type: confirmatory]	
15	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 590 nm (red) in HEK293 cells [AID720679, Type: confirmatory]	
16	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 535 nm (green) in HEK293 cells [AID720680, Type: confirmatory]	
17	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 460 nm (blue) in HEK293 cell free culture [AID720681, Type: confirmatory]	

Freedom_0006121_0113

#	Substance	Activity			BioAssay	Target
		Outcome	Type	Value [µM]		
18	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 535 nm (green) in HEK293 cell free culture [AID720682, Type: confirmatory]	
19	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 590 nm (red) in HEK293 cell free culture [AID720683, Type: confirmatory]	
20	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 590 nm (red) in HepG2 cell free culture [AID720684, Type: confirmatory]	
21	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 460 nm (blue) in HepG2 cell free culture [AID720685, Type: confirmatory]	
22	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 535 nm (green) in HepG2 cell free culture [AID720686, Type: confirmatory]	
23	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to test for compound auto fluorescence at 460 nm (blue) in HepG2 cells [AID720687, Type: confirmatory]	
24	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the glucocorticoid receptor (GR) signaling pathway - cell viability counter screen [AID720693, Type: confirmatory]	
25	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for identifying genotoxic compounds that show differential cytotoxicity against isogenic chicken DT40 cell lines with known DNA damage response pathways - wild type cell line [AID743012, Type: confirmatory]	
26	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for identifying genotoxic compounds that show differential cytotoxicity against isogenic chicken DT40 cell lines with known DNA damage response pathways - Rev3 mutant cell line [AID743014, Type: confirmatory]	
27	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for identifying genotoxic compounds that show differential cytotoxicity against isogenic chicken DT40 cell lines with known DNA damage response pathways - Rad54/Ku70 mutant cell line [AID743015, Type: confirmatory]	

Freedom_0006121_0114

#	Substance	Activity			BioAssay	Target
		Outcome	Type	Value [µM]		
28	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the androgen receptor (AR) signaling pathway - cell viability counter screen [AID743033, Type: confirmatory]	
29	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the androgen receptor (AR) signaling pathway using the MDA cell line - cell viability counter screen [AID743041, Type: confirmatory]	
30	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the thyroid receptor (TR) signaling pathway - cell viability counter screen [AID743064, Type: confirmatory]	
31	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the estrogen receptor alpha (ER-alpha) signaling pathway - cell viability counter screen [AID743074, Type: confirmatory]	
32	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the estrogen receptor alpha (ER-alpha) signaling pathway using the BG1 cell line - cell viability counter screen [AID743081, Type: confirmatory]	
33	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify aromatase inhibitors - cell viability counter screen [AID743084, Type: confirmatory]	
34	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule that activate the aryl hydrocarbon receptor (AhR) signaling pathway - cell viability counter screen [AID743086, Type: confirmatory]	
35	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the peroxisome proliferator-activated receptor gamma (PPARg) signaling pathway - cell viability counter screen [AID743194, Type: confirmatory]	
36	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecule agonists of the antioxidant response element (ARE) signaling pathway - cell viability counter screen [AID743203, Type: confirmatory]	
37	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecule activators of the heat shock response signaling pathway - cell viability counter screen [AID743209, Type: confirmatory]	

Freedom_0006121_0115

#	Substance	Activity Outcome	Activity Type	Activity Value [µM]	BioAssay	Target
38	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the peroxisome proliferator-activated receptor delta (PPARd) signaling pathway - cell viability counter screen [AID743213, Type: confirmatory]	
39	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule agonists of the farnesoid-X-receptor (FXR) signaling pathway - cell viability counter screen [AID743218, Type: confirmatory]	
40	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the farnesoid-X-receptor (FXR) signaling pathway - cell viability counter screen [AID743221, Type: confirmatory]	
41	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule agonists of the vitamin D receptor (VDR) signaling pathway - cell viability counter screen [AID743224, Type: confirmatory]	
42	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule antagonists of the vitamin D receptor (VDR) signaling pathway - cell viability counter screen [AID743225, Type: confirmatory]	
43	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecule activators of the heat shock response signaling pathway [AID743210, Type: confirmatory]	heat shock protein be 1 [Homo sapiens] [gi:4504517]
44	Cyclohexanemethanol, 4-methyl- [SID144211845]		Ratio Potency (uM)		qHTS assay for small molecule activators of the heat shock response signaling pathway: Summary [AID743228, Type: summary]	heat shock protein be 1 [Homo sapiens] [gi:4504517]
45	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay for small molecule agonists of the antioxidant response element (ARE) signaling pathway [AID743202, Type: confirmatory]	nuclear factor erythro -related factor 2 isofc 1 [Homo sapiens] [gi:20149576]
46	Cyclohexanemethanol, 4-methyl- [SID144211845]		Ratio Potency (uM)		qHTS assay for small molecule agonists of the antioxidant response element (ARE) signaling pathway: Summary [AID743219, Type: summary]	nuclear factor erythro -related factor 2 isofc 1 [Homo sapiens] [gi:20149576]
47	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify small molecule that activate the aryl hydrocarbon receptor (AhR) signaling pathway [AID743085, Type: confirmatory]	aryl hydrocarbon receptor [Homo sapie [gi:51095037]
48	Cyclohexanemethanol, 4-methyl- [SID144211845]		AhR Potency (uM)		qHTS assay to identify small molecule that activate the aryl hydrocarbon receptor (AhR) signaling pathway:	aryl hydrocarbon receptor [Homo sapie [gi:51095037]

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#	Substance	Activity Outcome	Activity Type	Activity Value [µM]	BioAssay	Target
					Summary [AID743122, Type: summary]	
49	Cyclohexanemethanol, 4-methyl- [SID144211845]		Potency-Replicate_1		qHTS assay to identify aromatase inhibitors [AID743083, Type: confirmatory]	cytochrome P450, fa 19, subfamily A, polypeptide 1, isofo CRA_a [Homo sapie [gi:119597822]
50	Cyclohexanemethanol, 4-methyl- [SID144211845]				qHTS assay to identify aromatase inhibitors: Summary [AID743139, Type: summary]	cytochrome P450, fa 19, subfamily A, polypeptide 1, isofo CRA_a [Homo sapie [gi:119597822]

You are here: NCBI > Chemicals & Bioassays > PubChem > Bioassay Data

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Methylcyclohexane

Synonyms & Trade Names Cyclohexylmethane, Hexahydrotoluene

CAS No. 108-87-2	RTECS No. GV6125000 (/niosh-rtecs/GV5D75C8.html)	DOT ID & Guide 2296 128 (http://wwwapps.tc.gc.ca/saf-sec-sur/gmu/erg/guidepage.aspx?guide=128) (http://www.cdc.gov/Other/disclaimer.html)
Formula $CH_3C_6H_{11}$	Conversion 1 ppm = 4.02 mg/m3	IDLH 1200 ppm [LEL] See: 108872 (/niosh/idlh/108872.html)
Exposure Limits NIOSH REL : TWA 400 ppm (1600 mg/m3) OSHA PEL † (nengapdxg.html) : TWA 500 ppm (2000 mg/m3)		Measurement Methods **NIOSH** 1500 (/niosh/docs/2003-154/pdfs/1500.pdf) ; **OSHA** 7 (http://www.osha.gov/dts/sltc/methods/organic/org001/org00 (http://www.cdc.gov/Other/disclaimer.html) See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description Colorless liquid with a faint, benzene-like odor.

MW: 98.2	BP: 214° F	FRZ: -196°F	Sol: Insoluble	VP: 37 mmHg	IP: 9.85 eV
Sp.Gr: 0.77	Fl.P: 25° F	UEL: 6.7%	LEL: 1.2%		

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities Strong oxidizers

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms irritation eyes, skin, nose, throat; dizziness, drowsiness; in animals: narcosis

Target Organs Eyes, skin, respiratory system, central nervous system

Personal Protection/Sanitation (See protection codes (protect.html))	First Aid (See procedures (firstaid.html))
Skin: Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contaminated **Remove:** When wet (flammable) **Change:** No recommendation	**Eye:** Irrigate immediately **Skin:** Soap wash promptly **Breathing:** Respiratory support **Swallow:** Medical attention immediately

Respirator Recommendations

NIOSH

Up to 1200 ppm:
(APF = 10) Any supplied-air respirator
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressur demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatu

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 0923 (/niosh/ipcsneng/neng0923.html

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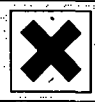
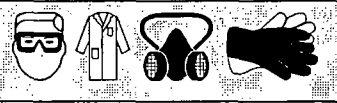
Content source: National Institute for Occupational Safety and Health (NIOSH) Education and Information Division

Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 - Contact CDC–INFO

TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Stench – do not inhale, use under a fume hood. Combustible material; avoid heat and sources of ignition. Harmful compound, minimize exposure. Irritating to skin, eyes, and the respiratory system.	

Section I. Chemical Product and Company Identification

Chemical Name: **Methanethiosulfonic Acid S-Methyl Ester**

Catalog Number	M1382
Synonym	S-Methyl Methanethiosulfonate
Chemical Formula	$CH_3SO_2SCH_3$
CAS Number	2949-92-0

Supplier: TCI America, 9211 N. Harborgate St., Portland OR, 1-800-423-8616

In case of Emergency Call: **Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)**

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Methanethiosulfonic Acid S-Methyl Ester	2949-92-0	Min. 95.0 (GC)	Not available.	Mouse LD_{50} (intraperitoneal) 9110 ug/kg

Section III. Hazards Identification

Acute Health Effects

This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material.

Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Chronic Health Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Not available.
Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact: Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact: In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Inhalation: If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.

Ingestion: INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	Combustible.	Auto-Ignition	Not available.
Flash Points	87°C (188.6°F).	Flammable Limits	Not available.

Combustion Products: These products are toxic carbon oxides (CO, CO_2), sulfur oxides (SO_2, SO_3...).

Fire Hazards: Not available.

Explosion Hazards: Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions:

Continued on Next Page

Emergency phone number (800) 424-9300

Printed 7/5/2007.

Combustible liquid.
SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.
Consult with local fire authorities before attempting large scale fire-fighting operations.

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Stench. Combustible material. Harmful material. Irritating material. Keep away from heat. Mechanical exhaust required. Stop leak if without risk. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information	STENCH. COMBUSTIBLE. HARMFUL. IRRITANT. Keep away from heat. Mechanical exhaust required. Avoid excessive heat and light. Do not breathe gas/fumes/ vapor/spray. Always store away from incompatible compounds such as oxidizing agents, acids, alkalis (bases).

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash station and safety shower is proximal to the work-station location.
Personal Protection	Splash goggles. Lab coat. Vapor respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Liquid. (Clear, Light Yellow.)	Solubility	Not available.
Specific Gravity	1.35 (water=1)		
Molecular Weight	126.2	Partition Coefficient	Not available.
Boiling Point	49 to 51°C (120.2 to 123.8°F) @ 0.05 mmHg	Vapor Pressure	Not available.
Melting Point	Not available.	Vapor Density	Not available.
Refractive Index	1.513	Volatility	Not available.
Critical Temperature	Not available.	Odor	Stench.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with strong oxidizing agents, strong acids, strong alkalis (bases).

Section XI. Toxicological Information

RTECS Number	PB2765000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Mouse LD_{50} (intraperitoneal) 9110 ug/kg
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Not available. **MUTAGENIC EFFECTS** : Not available. **TERATOGENIC EFFECTS** : Not available. **DEVELOPMENTAL TOXICITY**: Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
Acute Toxic Effects	This material produces an irritating stench. Do not inhale and always use under a fume hood. Inhalation can result in inflammation of the respiratory system, headaches, nausea, and vomiting. Always cover all exposed skin with an impermeable layer and use proper eye protection. A OSHA/MSHA approved dust and vapor respirator is required when working with this material. Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death. Irritating to eyes and skin on contact. Inhalation causes irritation of the lungs and respiratory system. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Follow safe industrial hygiene practices and always wear proper protective equipment when handling this compound.

Continued on Next Page Emergency phone number (800) 424-9300

Freedom_0006121_0121

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Not available.

Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification	DOT Class 9: Miscellaneous hazardous material.
PIN Number	UN3334
Proper Shipping Name	Aviation regulated liquid, n.o.s.
Packing Group (PG)	Not available.
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This compound is **ON** the EPA Toxic Substances Control Act (TSCA) inventory list.
WHMIS Classification (Canada)	CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). On NDSL
EINECS Number (EEC)	220-970-0
EEC Risk Statements	R20/21/22- Harmful by inhalation, in contact with skin and if swallowed. R36/37/38- Irritating to eyes, respiratory system and skin.
Japanese Regulatory Data	Not available.

Section XVI. Other Information

Version 1.0
Validated on 7/5/2007.
Printed 7/5/2007.

Notice to Reader

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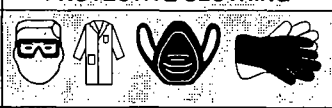
Freedom_0006121_0122

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Light sensitive material. **The health risks of this compound have not been fully determined.** **Exposure may cause irritation of the skin, eyes, and respiratory system.**	

Section I. Chemical Product and Company Identification

Chemical Name: **Nomega-Monomethyl-L-arginine Acetate**

Catalog Number	M1365
Synonym	L-Ornithine, N5-[imino(methylamino)methyl]- (CA INDEX NAME); Nomega-Methyl-L-arginine Acetate
Chemical Formula	$C_7H_{16}N_4O_2 \cdot C_2H_4O_2$
CAS Number	53308-83-1

Supplier: TCI America
9211 N. Harborgate St.
Portland OR
1-800-423-8616

In case of Emergency Call: **Chemtrec®**
(800) 424-9300 (U.S.)
(703) 527-3887 (International)

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Nomega-Monomethyl-L-arginine Acetate	53308-83-1	Min. 98.0 (HPLC, T)	Not available.	Not available.

Section III. Hazards Identification

Acute Health Effects

No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Skin and eye contact may result in irritation. May be harmful if inhaled or ingested. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.

Chronic Health Effects

CARCINOGENIC EFFECTS : Not available.
MUTAGENIC EFFECTS : Not available.
TERATOGENIC EFFECTS : Not available.
DEVELOPMENTAL TOXICITY: Not available.
Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.

Section IV. First Aid Measures

Eye Contact

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention.

Skin Contact

In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Inhalation

If the victim is not breathing, perform mouth-to-mouth resuscitation. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, oxygen can be administered. Seek medical attention if respiration problems do not improve.

Ingestion

INDUCE VOMITING by sticking finger in throat. Lower the head so that the vomit will not reenter the mouth and throat. Loosen tight clothing such as a collar, tie, belt or waistband. If the victim is not breathing, perform mouth-to-mouth resuscitation. Examine the lips and mouth to ascertain whether the tissues are damaged, a possible indication that the toxic material was ingested; the absence of such signs, however, is not conclusive.

Section V. Fire and Explosion Data

Flammability	May be combustible at high temperature.	Auto-Ignition	Not available.
Flash Points	Not available.	Flammable Limits	Not available.

Combustion Products

These products are toxic carbon oxides (CO, CO_2), nitrogen oxides (NO, NO_2).

Fire Hazards

Not available.

Explosion Hazards

Risks of explosion of the product in presence of mechanical impact: Not available.
Risks of explosion of the product in presence of static discharge: Not available.

Fire Fighting Media and Instructions

SMALL FIRE: Use DRY chemical powder.
LARGE FIRE: Use water spray, fog or foam. DO NOT use water jet.
Consult with local fire authorities before attempting large scale fire-fighting operations.

Continued on Next Page *Emergency phone number (800) 424-9300*

Printed 10/11/2011.

Section VI. Accidental Release Measures

Spill Cleanup Instructions	Light sensitive material. Use a shovel to put the material into a convenient waste disposal container. Finish cleaning the spill by rinsing any contaminated surfaces with copious amounts of water. Consult federal, state, and/or local authorities for assistance on disposal.

Section VII. Handling and Storage

Handling and Storage Information	LIGHT SENSITIVE. Keep away from heat. Mechanical exhaust required. When not in use, tightly seal the container and store in a dry, cool place. Avoid excessive heat and light. Do not breathe dust. Always store away from incompatible compounds such as oxidizing agents.

Section VIII. Exposure Controls/Personal Protection

Engineering Controls	Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.
Personal Protection	Splash goggles. Lab coat. Dust respirator. Boots. Gloves. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
Exposure Limits	Not available.

Section IX. Physical and Chemical Properties

Physical state @ 20°C	Solid. (Crystal, powder. White - almost white.)	Solubility	Soluble in water.
Specific Gravity	Not available.		
Molecular Weight	248.28	Partition Coefficient	Not available.
Boiling Point	Not available.	Vapor Pressure	Not applicable.
Melting Point	Not available.	Vapor Density	Not available.
Refractive Index	Not available.	Volatility	Not available.
Critical Temperature	Not available.	Odor	Not available.
Viscosity	Not available.	Taste	Not available.

Section X. Stability and Reactivity Data

Stability	This material is stable if stored under proper conditions. (See Section VII for instructions)
Conditions of Instability	Avoid excessive heat and light.
Incompatibilities	Reactive with oxidizing agents.

Section XI. Toxicological Information

RTECS Number	RM2982000
Routes of Exposure	Eye Contact. Ingestion. Inhalation.
Toxicity Data	Not available.
Chronic Toxic Effects	**CARCINOGENIC EFFECTS** : Not available. **MUTAGENIC EFFECTS** : Not available. **TERATOGENIC EFFECTS** : Not available. **DEVELOPMENTAL TOXICITY**: Not available. Repeated or prolonged exposure to this compound is not known to aggravate existing medical conditions.
Acute Toxic Effects	No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Skin and eye contact may result in irritation. May be harmful if inhaled or ingested. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.

Section XII. Ecological Information

Ecotoxicity	Not available.
Environmental Fate	Not available.

Continued on Next Page Emergency phone number (800) 424-9300

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Section XIII. Disposal Considerations

Waste Disposal	Recycle to process, if possible. Consult your local regional authorities. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. Observe all federal, state and local regulations when disposing of the substance.

Section XIV. Transport Information

DOT Classification	Not a DOT controlled material (United States).
PIN Number	Not applicable.
Proper Shipping Name	Not applicable.
Packing Group (PG)	Not applicable.
DOT Pictograms	

Section XV. Other Regulatory Information and Pictograms

TSCA Chemical Inventory (EPA)	This product is **NOT** on the EPA Toxic Substances Control Act (TSCA) inventory. The following notices are required by 40 CFR 720.36 (C) for those products not on the inventory list: (i) These products are supplied solely for use in research and development by or under the supervision of a technically qualified individual as defined in 40 CFR 720.0 et sec. (ii) The health risks of these products have not been fully determined. Any information that is or becomes available will be supplied on an MSDS sheet.
WHMIS Classification (Canada)	Not controlled under WHMIS (Canada).
EINECS Number (EEC)	(703) 527-3887
EEC Risk Statements	Not available.
Japanese Regulatory Data	Not available.

Section XVI. Other Information

Version 1.0
Validated on 9/29/2011.
Printed 10/11/2011.

Notice to Reader

TCI laboratory chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our MSDS sheets are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated MSDS sheets for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, facial mask, fume hood). For proper handling and disposal, always comply with federal, state, and local regulations.

M1389

TCI AMERICA

Material Safety Data Sheet

HAZARD WARNINGS	RISK PHRASES	PROTECTIVE CLOTHING
	Harmful compound, minimize exposure. **Irritating to skin, eyes, and the respiratory system.**	

Section I. Chemical Product and Company Identification

Chemical Name	**Minoxidil**
Catalog Number	M1389
Synonym	2,4-Diamino-6-piperidinopyrimidine 3-Oxide
Chemical Formula	$C_9H_{15}N_5O$
CAS Number	38304-91-5

Supplier: TCI America, 9211 N. Harborgate St., Portland OR, 1-800-423-8616

In case of Emergency Call: **Chemtrec® (800) 424-9300 (U.S.) (703) 527-3887 (International)**

Section II. Composition and Information on Ingredients

Chemical Name	CAS Number	Percent (%)	TLV/PEL	Toxicology Data
Minoxidil	38304-91-5	Min. 98.0 (HPLC,T)	Not available.	Rat LD_{50} (oral) 1321 mg/kg Mouse LD_{50} (oral) >1000 mg/kg Rat LD_{50} (intravenous) 49 mg/kg Rat LD_{50} (intraperitoneal) 759 mg/kg

Section III. Hazards Identification

Acute Health Effects: Harmful if ingested or inhaled. Minimize exposure to this material. Severe overexposure can result in injury or death.

TCI AMERICA
SAFETY DATA SHEET

Revision number: 1
Revision date: 11/19/2013

1. IDENTIFICATION

Product name: 4-Methyl-1-cyclohexanemethanol (cis- and trans- mixture)
Product code: M1412

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
TCI America
9211 N. Harborgate Street
Portland, OR 97203 U.S.A.
Telephone:
+1-800-423-8616 / +1-503-283-1681
Fax:
+1-888-520-1075 / +1-503-283-1987
e-mail:
sales@tciamerica.com
www.TCIchemicals.com

Emergency telephone number:
Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
+1-503-286-7624
Transportation Emergencies:
Chemtrec 24-Hour
+1-800-424-9300 (U.S.A.)
+1-703-527-3887 (International)
Responsible department:
TCI America
Environmental Health Safety and Security
+1- 503-286-7624

2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200: Flammable Liquids [Category 4]

Signal word: Warning!

Hazard Statement(s): Combustible liquid

Pictogram(s) or Symbol(s): None

Precautionary Statement(s):
[Prevention] Keep away from heat, sparks, open flames or other hot surfaces. - No smoking. Wear protective gloves, eye protection and face protection.
[Response] In case of fire: Use dry chemical, CO2, water spray or alcohol-resistant foam to extinguish.
[Storage] Store in well-ventilated place. Keep cool.
[Disposal] Dispose of contents and container in accordance with US EPA guidelines for the classification and determination of hazardous waste listed in 40 CFR 261.3. (See Section 13)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Substance
Components: 4-Methyl-1-cyclohexanemethanol (cis- and trans- mixture)
Percent: >98.0%(GC)
CAS Number: 34885-03-5
Molecular Weight: 128.22
Chemical Formula: $C_8H_{16}O$
Synonyms: 1-(Hydroxymethyl)-4-methylcyclohexane

4. FIRST-AID MEASURES

Inhalation: Call emergency medical service. Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

4. FIRST-AID MEASURES

Skin contact: Call a poison center or doctor if you feel unwell. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye contact: In case of contact with substance, immediately flush eyes with running water for at least 20 minutes. If eye irritation persists get medical advice/attention. Move victim to fresh air. Check for and remove any contact lenses. Keep victim warm and quiet. Treat symptomatically and supportively. Effects of exposure to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Ingestion: If swallowed, seek medical advice immediately and show the container or label. Loosen tight clothing such as a collar, tie, belt or waistband. If a person vomits place them in the recovery position so that vomit will not reenter the mouth and throat. Rinse mouth. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms/effects:

Acute: No data available
Delayed: No data available

Immediate medical attention: If breathing has stopped, perform artificial respiration. Use first aid treatment according to the nature of the injury. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical, CO_2, water spray, or alcohol-resistant foam. Consult with local fire authorities before attempting large scale fire fighting operations.

Specific hazards arising from the chemical
Hazardous combustion products: These products include: Carbon oxides
Other specific hazards: Closed containers may explode from heat of a fire.

Special precautions for fire-fighters:
CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. Use water spray or fog; do not use straight streams. Do not use straight streams. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Move containers from fire area if you can do it without risk.
Special protective equipment for fire-fighters:
Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations. Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use spark-proof tools and explosion-proof equipment. Remove all sources of ignition. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (Section 8). Warn unnecessary personnel to move away. Stop leak if you can do it without risk. Ensure adequate ventilation. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Personal protective equipment: Splash goggles. Lab coat. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear protective gloves (nitrile).

Emergency procedures: Isolate area until gas has dispersed. In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and excercise caution. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Warn personnel to move away. Prevent entry into sewers, basements or confined areas; dike if needed.

Methods and materials for containment and cleaning up:
ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area). All equipment used when handling the product must be grounded. Stop leak if without risk. Ventilate the area. Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Use clean non-sparking tools to collect absorbed material.
Environmental precautions:
Prevent further leakage or spillage if safe to do so. Water runoff can cause environmental damage. Prevent entry into sewers, basements or confined areas; dike if needed.

7. HANDLING AND STORAGE

Precautions for safe handling: Do NOT breath gas, fumes, vapor, or spray. Avoid contact with skin and eyes. Keep away from heat and sources of ignition. Use explosion-proof equipment. Use only non-sparking hand tool when handling this product. Ground all equipment containing material. Take measures to prevent build up of electrostatic charge. Good general ventilation should be sufficient to control airborne levels. Keep container dry. Handle and open container with care. Wear suitable protective clothing, gloves and eye/face protection. When using do not eat, drink, or smoke. Keep away from sources of ignition.

7. HANDLING AND STORAGE

Conditions for safe storage: Keep only in the original container in a cool well-ventilated place. Keep away from sources of ignition. Store and use away from heat, sparks, open flame, or any other ignition source. Keep away from incompatibles. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Avoid prolonged storage periods.

Storage incompatibilities: Store away from oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No data available

Appropriate engineering controls:
Good general ventilation should be sufficient to control airborne levels. Ventilation is normally required when handling or using this product. Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance. Follow safe industrial engineering/laboratory practices when handling any chemical.

Personal protective equipment

Respiratory protection: Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
Hand protection: Wear protective gloves.
Eye protection: Splash goggles.
Skin and body protection: Lab coat.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Color: Colorless - Almost colorless
Odor: No data available
Odor threshold: No data available

Melting point/freezing point:	No data available	**pH:**	No data available
Boiling point/range:	No data available	**Vapor pressure:**	No data available
Decomposition temperature:	No data available	**Vapor density:**	No data available
Relative density:	No data available	**Dynamic Viscosity:**	No data available
Kinematic viscosity:	No data available		
Partition coefficient: n-octanol/water (log P_{ow})	No data available	**Evaporation rate:** (Butyl Acetate = 1)	No data available
Flash point:	No data available	**Autoignition temperature:**	No data available
Flammability (solid, gas):	No data available	**Flammability or explosive limits:**	
		Lower:	No data available
		Upper:	No data available

Solubility(ies):

10. STABILITY AND REACTIVITY

Reactivity: Not Available.
Chemical Stability: Stable under recommended storage conditions. (See Section 7)
Possibility of Hazardous Reactions: In use, may form flammable/explosive vapor-air mixture.
Conditions to avoid: Avoid excessive heat and light.
Incompatible materials: Oxidizing agents
Hazardous Decomposition Products: No data available

11. TOXICOLOGICAL INFORMATION

RTECS Number: No data available

Acute Toxicity:
No data available

Skin corrosion/irritation:
No data available

Serious eye damage/irritation:
No data available

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
No data available

Carcinogenicity:

No data available

IARC: No data available **NTP:** No data available **OSHA:** No data available

Reproductive toxicity:
No data available

Routes of Exposure: Inhalation, Eye contact, Ingestion.
Symptoms related to exposure:
No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.
Potential Health Effects:
No specific information available; skin and eye contact may result in irriatation. May be harmful if inhaled or ingested.
Target organ(s): No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Fish:	No data available
Crustacea:	No data available
Algae:	No data available

Persistence and degradability:	No data available
Bioaccumulative potential (BCF):	No data available
Mobillity in soil:	No data available
Partition coefficient: n-octanol/water (log P_{ow})	No data available
Soil adsorption (Koc):	No data available
Henry's Law: constant (PaM^3/mol)	No data available

13. DISPOSAL CONSIDERATIONS

Disposal of product: Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.
Disposal of container: Dispose of as unused product. Do not re-use empty containers.
Other considerations: Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

DOT (US)	Non-hazardous for transportation.
IATA	Non-hazardous for transportation.
IMDG	Non-hazardous for transportation.

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:

SARA 313:	Not Listed
SARA 302:	Not Listed

State Regulations

State Right-to-Know

Massachusetts	Not Listed
New Jersey	Not Listed
Pennsylvania	Not Listed
California Proposition 65:	Not Listed

Other Information

NFPA Rating:

Health:	0
Flammability:	0
Instability:	0

HMIS Classification:

Health:	0
Flammability:	0
Physical:	0

International Inventories

WHMIS hazard class:	B3: Combustible Liquid.
Notice Through Official Gazettes Reference Number: (Japan)	
ENCS:	Not Listed

16. OTHER INFORMATION

Revision date: 11/19/2013
Revision number: 1
TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.

TCI AMERICA
SAFETY DATA SHEET

Revision number: 1
Revision date: 11/19/2013

1. IDENTIFICATION

Product name: 4-Methyl-1-cyclohexanemethanol (cis- and trans- mixture)
Product code: M1412

Product use: For laboratory research purposes.
Restrictions on use: Not for drug or household use.

Company:
TCI America
9211 N. Harborgate Street
Portland, OR 97203 U.S.A.
Telephone:
+1-800-423-8616 / +1-503-283-1681
Fax:
+1-888-520-1075 / +1-503-283-1987
e-mail:
sales@tciamerica.com
www.TCIchemicals.com

Emergency telephone number:
Chemical Emergencies:
TCI America (8:00am - 5:00pm) PST
+1-503-286-7624
Transportation Emergencies:
Chemtrec 24-Hour
+1-800-424-9300 (U.S.A.)
+1-703-527-3887 (International)
Responsible department:
TCI America
Environmental Health Safety and Security
+1- 503-286-7624

2. HAZARD(S) IDENTIFICATION

OSHA Haz Com: CFR 1910.1200: Flammable Liquids [Category 4]

Signal word: Warning!

Hazard Statement(s): Combustible liquid

Pictogram(s) or Symbol(s): None

Precautionary Statement(s):
[Prevention] Keep away from heat, sparks, open flames or other hot surfaces. - No smoking. Wear protective gloves, eye protection and face protection.
[Response] In case of fire: Use dry chemical, CO2, water spray or alcohol-resistant foam to extinguish.
[Storage] Store in well-ventilated place. Keep cool.
[Disposal] Dispose of contents and container in accordance with US EPA guidelines for the classification and determination of hazardous waste listed in 40 CFR 261.3. (See Section 13)

3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance/Mixture: Substance
Components: *4-Methyl-1-cyclohexanemethanol (cis- and trans- mixture)*
Percent: >98.0%(GC)
CAS Number: 34885-03-5
Molecular Weight: 128.22
Chemical Formula: $C_8H_{16}O$
Synonyms: 1-(Hydroxymethyl)-4-methylcyclohexane

4. FIRST-AID MEASURES

Inhalation: Call emergency medical service. Move victim to fresh air. Give artificial respiration if victim is not breathing. Administer oxygen if breathing is difficult. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

4. FIRST-AID MEASURES

Skin contact: Call a poison center or doctor if you feel unwell. In case of contact with substance, immediately flush skin with running water for at least 20 minutes. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Eye contact: *In case of contact with substance, immediately flush eyes with running water for at least 20 minutes.* If eye irritation persists get medical advice/attention. Move victim to fresh air. Check for and remove any contact lenses. Keep victim warm and quiet. Treat symptomatically and supportively. Effects of exposure to substance may be delayed. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Ingestion: If swallowed, seek medical advice immediately and show the container or label. Loosen tight clothing such as a collar, tie, belt or waistband. If a person vomits place them in the recovery position so that vomit will not reenter the mouth and throat. Rinse mouth. Keep victim warm and quiet. Treat symptomatically and supportively. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

Symptoms/effects:

Acute: No data available
Delayed: No data available

Immediate medical attention: If breathing has stopped, perform artificial respiration. Use first aid treatment according to the nature of the injury. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves.

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media: Dry chemical, CO_2, water spray, or alcohol-resistant foam. Consult with local fire authorities before attempting large scale fire fighting operations.

Specific hazards arising from the chemical

Hazardous combustion products: These products include: Carbon oxides
Other specific hazards: Closed containers may explode from heat of a fire.

Special precautions for fire-fighters:
CAUTION: All these products have a very low flash point: Use of water spray when fighting fire may be inefficient. Use water spray or fog; do not use straight streams. Do not use straight streams. Runoff to sewer may create fire or explosion hazard. Containers may explode when heated. Move containers from fire area if you can do it without risk.
Special protective equipment for fire-fighters:
Wear positive pressure self-contained breathing apparatus (SCBA). Structural fire fighters' protective clothing provides limited protection in fire situations ONLY; it may not be effective in spill situations. Wear chemical protective clothing which is specifically recommended by the manufacturer. It may provide little or no thermal protection.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions: Use spark-proof tools and explosion-proof equipment. Remove all sources of ignition. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing (Section 8). Warn unnecessary personnel to move away. Stop leak if you can do it without risk. Ensure adequate ventilation. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Personal protective equipment: Splash goggles. Lab coat. Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent. Wear protective gloves (nitrile).

Emergency procedures: Isolate area until gas has dispersed. In case of a spill and/or a leak, always shut off any sources of ignition, ventilate the area, and excercise caution. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Warn personnel to move away. Prevent entry into sewers, basements or confined areas; dike if needed.

Methods and materials for containment and cleaning up:
ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area). All equipment used when handling the product must be grounded. Stop leak if without risk. Ventilate the area. Absorb with an inert material and put the spilled material in an appropriate waste disposal container. Use clean non-sparking tools to collect absorbed material.
Environmental precautions:
Prevent further leakage or spillage if safe to do so. Water runoff can cause environmental damage. Prevent entry into sewers, basements or confined areas; dike if needed.

7. HANDLING AND STORAGE

Precautions for safe handling: Do NOT breath gas, fumes, vapor, or spray. Avoid contact with skin and eyes. Keep away from heat and sources of ignition. Use explosion-proof equipment. Use only non-sparking hand tool when handling this product. Ground all equipment containing material. Take measures to prevent build up of electrostatic charge. Good general ventilation should be sufficient to control airborne levels. Keep container dry. Handle and open container with care. Wear suitable protective clothing, gloves and eye/face protection. When using do not eat, drink, or smoke. Keep away from sources of ignition.

7. HANDLING AND STORAGE

Conditions for safe storage: Keep only in the original container in a cool well-ventilated place. Keep away from sources of ignition. Store and use away from heat, sparks, open flame, or any other ignition source. Keep away from incompatibles. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Avoid prolonged storage periods.

Storage incompatibilities: Store away from oxidizing agents

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure limits: No data available

Appropriate engineering controls:
Good general ventilation should be sufficient to control airborne levels. Ventilation is normally required when handling or using this product. Eyewash fountains should be provided in areas where there is any possibility that workers could be exposed to the substance. Follow safe industrial engineering/laboratory practices when handling any chemical.

Personal protective equipment

Respiratory protection: Vapor respirator. Be sure to use a MSHA/NIOSH approved respirator or equivalent.
Hand protection: Wear protective gloves.
Eye protection: Splash goggles.
Skin and body protection: Lab coat.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state (20°C): Liquid
Form: Clear
Color: Colorless - Almost colorless
Odor: No data available
Odor threshold: No data available

Melting point/freezing point:	No data available	**pH:**	No data available
Boiling point/range:	No data available	**Vapor pressure:**	No data available
Decomposition temperature:	No data available	**Vapor density:**	No data available
Relative density:	No data available	**Dynamic Viscosity:**	No data available
Kinematic viscosity:	No data available		
Partition coefficient: n-octanol/water (log P_{ow})	No data available	**Evaporation rate:** (Butyl Acetate = 1)	No data available
Flash point:	No data available	**Autoignition temperature:**	No data available
Flammability (solid, gas):	No data available	**Flammability or explosive limits:**	
		Lower:	No data available
		Upper:	No data available

Solubility(ies):

10. STABILITY AND REACTIVITY

Reactivity: Not Available.
Chemical Stability: Stable under recommended storage conditions. (See Section 7)
Possibility of Hazardous Reactions: In use, may form flammable/explosive vapor-air mixture.
Conditions to avoid: Avoid excessive heat and light.
Incompatible materials: Oxidizing agents
Hazardous Decomposition Products: No data available

11. TOXICOLOGICAL INFORMATION

RTECS Number: No data available

Acute Toxicity:
No data available

Skin corrosion/irritation:
No data available

Serious eye damage/irritation:
No data available

Respiratory or skin sensitization:
No data available

Germ cell mutagenicity:
No data available

Carcinogenicity:

No data available

IARC: No data available **NTP:** No data available **OSHA:** No data available

Reproductive toxicity:
No data available

Routes of Exposure: Inhalation, Eye contact, Ingestion.
Symptoms related to exposure:
No specific information is available in our data base regarding the toxic effects of this material for humans. However, exposure to any chemical should be kept to a minimum. Always follow safe industrial hygiene practices and wear proper protective equipment when handling this compound.
Potential Health Effects:
No specific information available; skin and eye contact may result in irriatation. May be harmful if inhaled or ingested.
Target organ(s): No data available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Fish:	No data available
Crustacea:	No data available
Algae:	No data available

Persistence and degradability:	No data available
Bioaccumulative potential (BCF):	No data available
Mobillity in soil:	No data available
Partition coefficient: n-octanol/water (log P_{ow})	No data available
Soil adsorption (Koc):	No data available
Henry's Law: constant (PaM^3/mol)	No data available

13. DISPOSAL CONSIDERATIONS

Disposal of product: Recycle to process if possible. It is the generator's responsibility to comply with Federal, State and Local rules and regulations. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber system. This section is intended to provide assistance but does not replace these laws, nor does compliance in accordance with this section ensure regulatory compliance according to the law. US EPA guidelines for Identification and Listing of Hazardous Waste are listed in 40 CFR Parts 261. The product should not be allowed to enter the environment, drains, water ways, or the soil.
Disposal of container: Dispose of as unused product. Do not re-use empty containers.
Other considerations: Observe all federal, state and local regulations when disposing of the substance.

14. TRANSPORT INFORMATION

DOT (US)	Non-hazardous for transportation.
IATA	Non-hazardous for transportation.
IMDG	Non-hazardous for transportation.

15. REGULATORY INFORMATION

Toxic Substance Control Act (TSCA 8b.):
This product is ON the EPA Toxic Substances Control Act (TSCA) inventory.

US Federal Regulations

CERCLA Hazardous substance and Reportable Quantity:

SARA 313:	Not Listed
SARA 302:	Not Listed

State Regulations

State Right-to-Know

Massachusetts	Not Listed
New Jersey	Not Listed
Pennsylvania	Not Listed
California Proposition 65:	Not Listed

Other Information

NFPA Rating:

Health:	0
Flammability:	0
Instability:	0

HMIS Classification:

Health:	0
Flammability:	0
Physical:	0

International Inventories

WHMIS hazard class:	B3: Combustible Liquid.
Notice Through Official Gazettes Reference Number: (Japan)	
ENCS:	Not Listed

16. OTHER INFORMATION

Revision date: 11/19/2013
Revision number: 1
TCI chemicals are for research purposes only and are NOT intended for use as drugs, food additives, households, or pesticides. The information herein is believed to be correct, but does not claim to be all inclusive and should be used only as a guide. Neither the above named supplier nor any of its affiliates or subsidiaries assumes any liability whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability of any material is the sole responsibility of the user. All chemical reagents must be handled with the recognition that their chemical, physiological, toxicological, and hazardous properties have not been fully investigated or determined. All chemical reagents should be handled only by individuals who are familiar with their potential hazards and who have been fully trained in proper safety, laboratory, and chemical handling procedures. Although certain hazards are described herein, we can not guarantee that these are the only hazards which exist. Our SDS are based only on data available at the time of shipping and are subject to change without notice as new information is obtained. Avoid long storage periods since the product is subject to degradation with age and may become more dangerous or hazardous. It is the responsibility of the user to request updated SDS for products that are stored for extended periods. Disposal of unused product must be undertaken by qualified personnel who are knowledgeable in all applicable regulations and follow all pertinent safety precautions including the use of appropriate protective equipment (e.g. protective goggles, protective clothing, breathing equipment, face mask, fume hood). For proper handling and disposal, always comply with federal, state and local regulations.

Centers for Disease Control and Prevention
CDC 24/7: Saving Lives. Protecting People.™

Search the Pocket Guide

SEARCH

Enter search terms separated by spaces.

Methylcyclohexane

Synonyms & Trade Names Cyclohexylmethane, Hexahydrotoluene

CAS No. 108-87-2	RTECS No. GV6125000 (/niosh-rtecs/GV5D75C8.html)	DOT ID & Guide 2296 128 (http://wwwapps.tc.gc.ca/saf-sec-sur/gmu/erg/guidepage.aspx?guide=128) (http://www.cdc.gov/Other/disclaimer.html)
Formula $CH_3C_6H_{11}$	Conversion 1 ppm = 4.02 mg/m3	IDLH 1200 ppm [LEL] See: 108872 (/niosh/idlh/108872.html)
Exposure Limits NIOSH REL : TWA 400 ppm (1600 mg/m3) OSHA PEL † (nengapdxg.html) : TWA 500 ppm (2000 mg/m3)		Measurement Methods **NIOSH** 1500 (/niosh/docs/2003-154/pdfs/1500.pdf) ; **OSHA** 7 (http://www.osha.gov/dts/sltc/methods/organic/org001/org00 (http://www.cdc.gov/Other/disclaimer.html) See: NMAM (/niosh/docs/2003-154/) or OSHA Methods (http://www.osha.gov/dts/sltc/methods/index.html) (http://www.cdc.gov/Other/disclaimer.html)

Physical Description Colorless liquid with a faint, benzene-like odor.

MW: 98.2	BP: 214° F	FRZ: -196°F	Sol: Insoluble	VP: 37 mmHg	IP: 9.85 eV
Sp.Gr: 0.77	Fl.P: 25° F	UEL: 6.7%	LEL: 1.2%		

Class IB Flammable Liquid: Fl.P. below 73°F and BP at or above 100°F.

Incompatibilities & Reactivities Strong oxidizers

Exposure Routes inhalation, ingestion, skin and/or eye contact

Symptoms irritation eyes, skin, nose, throat; dizziness, drowsiness; in animals: narcosis

Target Organs Eyes, skin, respiratory system, central nervous system

Personal Protection/Sanitation (See protection codes (protect.html))	First Aid (See procedures (firstaid.html))
Skin: Prevent skin contact **Eyes:** Prevent eye contact **Wash skin:** When contaminated **Remove:** When wet (flammable) **Change:** No recommendation	**Eye:** Irrigate immediately **Skin:** Soap wash promptly **Breathing:** Respiratory support **Swallow:** Medical attention immediately

Respirator Recommendations

NIOSH

Up to 1200 ppm:
(APF = 10) Any supplied-air respirator
(APF = 50) Any self-contained breathing apparatus with a full facepiece

Emergency or planned entry into unknown concentrations or IDLH conditions:
(APF = 10,000) Any self-contained breathing apparatus that has a full facepiece and is operated in a pressur demand or other positive-pressure mode
(APF = 10,000) Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparat

Escape:
(APF = 50) Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted organic vapor canister
Any appropriate escape-type, self-contained breathing apparatus

Important additional information about respirator selection (pgintrod.html#mustread)

See also: INTRODUCTION (/niosh/npg/pgintrod.html) See ICSC CARD: 0923 (/niosh/ipcsneng/neng0923.html

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Centers for Disease Control and Prevention 1600 Clifton Rd. Atlanta, GA 30333, USA
800-CDC-INFO (800-232-4636) TTY: (888) 232-6348 - Contact CDC–INFO

International Chemical Safety Cards

METHYLCYCLOHEXANE

ICSC: 0923

UNEP

National Institute for Occupational Safety and Health NIOSH

Hexahydrotoluene
Cyclohexylmethane
C_7H_{14} / $C_6H_{11}CH_3$
Molecular mass: 98.21

ICSC # 0923
CAS # 108-87-2
RTECS # GV6125000
UN # 2296
EC # 601-018-00-7
July 04, 1997 Validated

TYPES OF HAZARD/ EXPOSURE	ACUTE HAZARDS/ SYMPTOMS	PREVENTION	FIRST AID/ FIRE FIGHTING
FIRE	Highly flammable.	NO open flames, NO sparks, and NO smoking.	Powder , foam , carbon dioxide
EXPLOSION	Vapour/air mixtures are explosive.	Closed system, ventilation, explosion-proof electrical equipment and lighting. Prevent build-up of electrostatic charges (e.g., by grounding). Do NOT use compressed air for filling, discharging, or handling. Use non-sparking handtools.	In case of fire: keep drums, etc., cool by spraying with water.
EXPOSURE		PREVENT GENERATION OF MISTS!	
•INHALATION	Dizziness. Drowsiness.	Ventilation, local exhaust, or breathing protection.	Fresh air, rest. Artificial respiration if indicated. Refer for medical attention.
•SKIN	Dry skin.	Protective gloves.	Remove contaminated clothes. Rinse skin with plenty of water or shower.
•EYES	Redness.	Safety spectacles.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Nausea. (Further see Inhalation).	Do not eat, drink, or smoke during work.	Rinse mouth. Rest. Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Ventilation. Collect leaking and spilled liquid in sealable containers as far as possible. Absorb remaining liquid in dry sand or inert absorbent and remove to safe place. Do NOT wash away into sewer. (Extra personal protection: filter respirator for organic gases and vapours).	Fireproof. Separated from strong oxidants.	F symbol Xn symbol N symbol R: 11-38-51/53-65-67 S: 2-9-16-33-61-62 UN Hazard Class: 3 UN Packing Group: II

SEE IMPORTANT INFORMATION ON BACK

ICSC: 0923

Prepared in the context of cooperation between the International Programme on Chemical Safety & the Commission of the European Communities (C) IPCS CEC 1994. No modifications to the International version have been made except to add the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

International Chemical Safety Cards

METHYLCYCLOHEXANE

ICSC: 0923

IMPORTANT DATA

PHYSICAL STATE; APPEARANCE:
COLOURLESS LIQUID , WITH CHARACTERISTIC ODOUR.

PHYSICAL DANGERS:
The vapour is heavier than air and may travel along the ground; distant ignition possible. As a result of flow, agitation, etc., electrostatic charges can be generated.

CHEMICAL DANGERS:
Reacts violently with strong oxidants, causing fire and explosion hazard.

OCCUPATIONAL EXPOSURE LIMITS:
TLV: 400 ppm; 1610 mg/m³ (ACGIH 1996).
MAK: 200 ppm, 810 mg/m³;
Peak limitation category: II(2) Pregnancy risk group: D (DFG 2008).
OSHA PEL†: TWA 500 ppm (2000 mg/m^3)
NIOSH REL: TWA 400 ppm (1600 mg/m^3)
NIOSH IDLH: 1200 ppm LEL See: 108872

ROUTES OF EXPOSURE:
The substance can be absorbed into the body by inhalation of its vapour and by ingestion.

INHALATION RISK:

EFFECTS OF SHORT-TERM EXPOSURE:
The substance irritates the eyes and the skin. Swallowing the liquid may cause aspiration into the lungs with the risk of chemical pneumonitis. The substance may cause effects on the central nervous system. Exposure could cause lowering of consciousness.

EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
The liquid defats the skin.

PHYSICAL PROPERTIES

Boiling point: 101°C
Melting point: -126.7°C
Relative density (water = 1): 0.8

Relative vapour density (air = 1): 3.4
Relative density of the vapour/air-mixture at 20°C (air = 1): 1.1
Flash point: -6°C o.c.

	Solubility in water: none Vapour pressure, kPa at 25°C: 5.73	Auto-ignition temperature: 258°C Explosive limits, vol% in air: 1.2-6.7
ENVIRONMENTAL DATA		

NOTES

Transport Emergency Card: TEC (R)-514

NFPA Code: H2; F3; R0;
Card has been partially updated in November 2008: see Occupational Exposure Limits,

ADDITIONAL INFORMATION

ICSC: 0923 **METHYLCYCLOHEXANE**

(C) IPCS, CEC, 1994

IMPORTANT LEGAL NOTICE:	Neither NIOSH, the CEC or the IPCS nor any person acting on behalf of NIOSH, the CEC or the IPCS is responsible for the use which might be made of this information. This card contains the collective views of the IPCS Peer Review Committee and may not reflect in all cases all the detailed requirements included in national legislation on the subject. The user should verify compliance of the cards with the relevant legislation in the country of use. The only modifications made to produce the U.S. version is inclusion of the OSHA PELs, NIOSH RELs and NIOSH IDLH values.

SAFETY DATA SHEET

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier
Product name: Crude MCHM

Product No.: EAN 972790. 18717-00, P1871700, P18717EA, P18717ET, P18717YZ

1.2 Relevant identified uses of the substance or mixture and uses advised against
Identified uses: Industrial chemical. gasoline blending
Uses advised against: None known.

1.3 Details of the supplier of the safety data sheet
Manufacturer / Supplier

Eastman Chemical Company
200 South Wilcox Drive
Kingsport, TN 37660-5280 US
+14232292000

Visit our website at www.EASTMAN.com or email emnmsds@eastman.com

1.4 Emergency telephone number:
For emergency health, safety, and environmental information, call 1-423-229-4511 or 1-423-229-2000.

For emergency transportation information, in the United States: call CHEMTREC at 800-424-9300 or call 423-229-2000.

SECTION 2: Hazards identification

WARNING!
HARMFUL IF SWALLOWED
CAUSES SKIN AND EYE IRRITATION
AT ELEVATED TEMPERATURES, VAPOR MAY CAUSE IRRITATION OF EYES AND RESPIRATORY TRACT

SECTION 3: Composition/information on ingredients

3.1 / 3.2 Substances / Mixtures

General information:

Chemical name	Concentration	Additional identification	Notes
4-methylcyclohexanemethanol	68 - 89%	CAS-No.: 34885-03-5 EC No.: 609-038-8	
4-(methoxymethyl)cyclohexanemethanol	4 - 22%	CAS-No.: 98955-27-2	

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water	4 - 10%	CAS-No.: 7732-18-5 EC No.: 231-791-2	
methyl 4-methylcyclohexanecarboxylate	5%	CAS-No.: 51181-40-9	
dimethyl 1,4-cyclohexanedicarboxylate	1%	CAS-No.: 94-60-0 EC No.: 202-347-5	
methanol	1%	CAS-No.: 67-56-1 EC No.: 200-659-6 INDEX No.: 603-001-00-X	#
1,4-cyclohexanedimethanol	1 - 2%	CAS-No.: 105-08-8 REACH Registration No.: 01-2119448337-34-0000 01-2119448337-34-0002	#

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.
# This substance has workplace exposure limit(s).
PBT: persistent, bioaccumulative and toxic substance.
vPvB: very persistent and very bioaccumulative substance.

SECTION 4: First aid measures

4.1 Description of first aid measures

Inhalation: Treat symptomatically. Move to fresh air. Get medical attention if symptoms persist.

Eye contact: Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention. In case of irritation from airborne exposure, move to fresh air. Get medical attention if symptoms persist.

Skin contact: Immediately flush with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention immediately. Wash contaminated clothing before reuse. Destroy or thoroughly clean contaminated shoes.

Ingestion: Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person. Not relevant, due to the form of the product.

4.2 Most important symptoms and effects, both acute and delayed: No data available.

4.3 Indication of any immediate medical attention and special treatment needed

Hazards: No data available.

Treatment: Treat symptomatically.

SECTION 5: Firefighting measures

General fire hazards: None known.

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5.1 Extinguishing media

Suitable extingishing media: Water spray. Dry chemical. Carbon Dioxide. Alcohol foam.

Unsuitable extinguishing media: None known.

5.2 Special hazards arising from the substance or mixture: None known.

5.3 Advice for firefighters

Special Fire Fighting Procedures: Fight fire from a protected location.

Special protective equipment for fire-fighters: Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures: Wear appropriate personal protective equipment.

6.2 Environmental precautions: Avoid release to the environment.

6.3 Methods and material for containment and cleaning up: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Large Spillages: Flush spill area with water spray. Prevent runoff from entering drains, sewers, or streams. Dike for later disposal.

Notification Procedures: In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

SECTION 7: Handling and storage:

7.1 Precautions for safe handling: Avoid breathing vapor from heated material. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Use only with adequate ventilation. Wash thoroughly after handling.

7.2 Conditions for safe storage, including any incompatibilities: Keep container closed. Keep away from food, drink and animal feedingstuffs.

7.3 Specific end use(s): Industrial chemical. gasoline blending

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SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Occupational exposure limits

If exposure limits have not been established, maintain airborne levels to an acceptable level.

Chemical name	Type	Exposure Limit values	Source
methanol	TWA	200 ppm	US. ACGIH Threshold Limit Values (01 2010)
	STEL	250 ppm	US. ACGIH Threshold Limit Values (01 2010)
	PEL	200 ppm 260 mg/m3	US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000) (02 2006)

Biological limit values

Chemical name	Exposure Limit values	Source
methanol (methanol: Sampling time: End of shift.)	15 mg/l (Urine)	ACGIH BEL (01 2010)

8.2 Exposure controls

Appropriate engineering controls: Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

General information: Eye bath. Safety shower. Washing facilities.

Eye/face protection: Wear safety glasses with side shields (or goggles). Wear a full-face respirator, if needed.

Skin protection

Hand protection: Wear chemical-resistant gloves, footwear, and protective clothing appropriate for the risk of exposure. Contact health and safety professional or manufacturer for specific information.

Other: No data available.

Respiratory Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 63 FR 1152, January 8, 1998. Respirator type: Air-purifying respirator with an appropriate, government approved (where applicable), air-purifying filter, cartridge or canister. Contact health and safety professional or manufacturer for specific information.

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Hygiene measures:	Observe good industrial hygiene practices.
Environmental Controls:	No data available.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance	
Physical State:	Liquid
Form:	Liquid
Color:	Colorless
Odor:	Alcohol
Odor Threshold:	No data available.
pH:	No data available.
Freezing Point:	0 °C
Boiling Point:	180 °C
Flash Point:	112.8 °C (Setaflash Closed Cup)
Evaporation Rate:	No data available.
Flammability (solid, gas):	No data available.
Flammability Limit - Upper (%)–:	No data available.
Flammability Limit - Lower (%)–:	No data available.
Vapor pressure:	No data available.
Vapor density (air=1):	No data available.
Relative density:	< 1 (estimated)
Solubility(ies)	
Solubility in Water:	Appreciable
Solubility (other):	No data available.
Partition coefficient (n-octanol/water):	No data available.
Autoignition Temperature:	No data available.
Decomposition Temperature:	Thermal stability not tested. Low stability hazard expected at normal operating temperatures.
Viscosity:	No data available.
Explosive properties:	No data available.
Oxidizing properties:	No data available.

SECTION 10: Stability and reactivity

10.1 Reactivity:	Materials containing similar structural groups are normally stable.
10.2 Chemical stability:	Not fully evaluated.
10.3 Possibility of hazardous reactions:	None known.
10.4 Conditions to avoid:	Excessive heat.

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10.5 Incompatible materials: Strong oxidizing agents.

10.6 Hazardous decomposition products: Carbon Dioxide. Carbon Monoxide.

SECTION 11: Toxicological information

Information on likely routes of exposure

Inhalation: At elevated temperatures, vapor may cause irritation of eyes and respiratory tract.

Ingestion: Harmful if swallowed.

Skin contact: Causes skin irritation.

Eye contact: Causes serious eye irritation.

11.1 Information on toxicological effects

Acute Toxicity

Oral

Product: Oral LD-50: (Rat): 825 mg/kg

Dermal

Product: Dermal LD-50: (Rat): > 2,000 mg/kg

Inhalation

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	LC50 (Rat, 6 h): > 3 mg/l (highest concentration tested)

Repeated dose toxicity

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-	No data available.

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(methoxymethyl)cyclohexanemethanol	
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	NOEL - No Observable Effect Level (Rat, in drinking water, 90 d): 8000 mg/l

Skin corrosion/irritation:

Product: (Rabbit, 24 h): strong

Serious eye damage/eye irritation:

Product: (Rabbit): moderate

Respiratory or skin sensitization:

Product: Skin Sensitization:, (Guinea Pig) - Not a skin sensitizer.

Germ cell mutagenicity

In vitro

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	Mutagenicity - Bacterial, : negative +/- activation Mutagenicity - Mammalian, : negative +/- activation Chromosomal abberation, : negative +/- activation

In vivo

Product: No data available.

Specified substance(s)

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.

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methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Carcinogenicity

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Reproductive toxicity

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Specific target organ toxicity - single exposure

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.

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water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Specific target organ toxicity - repeated exposure

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Aspiration hazard

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Other adverse effects: No data available.

SECTION 12: Ecological information

12.1 Toxicity

Acute toxicity

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Freedom_0006121_0150

Fish

Product:	LC-50 (Fathead Minnow, 96 h): 57.4 mg/l NOEC: (Fathead Minnow, 96 h): 25 mg/l

Aquatic invertebrates

Product:	EC-50 (daphnid, 48 h): 98.1 mg/l NOEC: (daphnid, 48 h): 40 mg/l

Chronic Toxicity

Fish

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Aquatic invertebrates

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

Toxicity to Aquatic Plants

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexan	No data available.

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emethanol	
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	EC-50 (Alga, 72 h): > 122.9 mg/l (only concentration tested) NOEC: (Alga, 72 h): >= 122.9 mg/l (only concentration tested)

12.2 Persistence and degradability

Biodegradation

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	99.2 % (28 d, Ready Biodegradability: DOC Die Away Test) Readily biodegradable

Biological Oxygen Demand:

Product	BOD-5: 70 mg/g BOD-20: 1,300 mg/g

Chemical Oxygen Demand:

Product	2,450 mg/g

BOD/COD ratio

Product	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.

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1,4-cyclohexanedimethanol	No data available.

12.3 Bioaccumulative potential

Product:	No data available.
Specified substance(s)	
4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	No data available.

12.4 Mobility in soil: No data available.

Known or predicted distribution to environmental compartments

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	0.499 - 1.6 (QSAR model)

12.5 Results of PBT and vPvB assessment: No data available.

4-methylcyclohexanemethanol	No data available.
4-(methoxymethyl)cyclohexanemethanol	No data available.
water	No data available.
methyl 4-methylcyclohexanecarboxylate	No data available.
dimethyl 1,4-cyclohexanedicarboxylate	No data available.
methanol	No data available.
1,4-cyclohexanedimethanol	Not fulfilling PBT (persistent/bioaccumulative/toxic) criteria

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Freedom_0006121_0153

12.6 Other adverse effects: No data available.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

General information: No data available.

Disposal Methods: Dispose of waste and residues in accordance with local authority requirements. Mix with compatible chemical which is less flammable and incinerate. Since emptied containers retain product residue, follow label warnings even after container is emptied. Residual vapors may explode on ignition; do not cut, drill, grind, or weld on or near this container.

SECTION 14: Transport information

Important Note: Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

DOT

Class not regulated

IMDG - International Maritime Dangerous Goods Code

Class not regulated

IATA

Class not regulated

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture:

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.
WHMIS (Canada) Status: controlled
WHMIS (Canada) Hazard Classification: D/2/B

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SARA 311-312 Hazard Classification(s):
immediate (acute) health hazard

US EPCRA (SARA Title III) Section 313 - Toxic Chemical List
METHANOL

OSHA: hazardous

TSCA (US Toxic Substances Control Act): All components of this product are listed on the TSCA inventory. Any impurities present in this product are exempt from listing.

DSL (Canadian Domestic Substances List) and CEPA (Canadian Environmental Protection Act): One or more components of this product are not listed on the DSL. In Canada, its use is restricted to research and development purposes only.

MITI (Japanese Handbook of Existing and New Chemical Substances): One or more components or reactants of this product are not listed in the Handbook. In Japan, its use is restricted to research and development purposes only.

ECL (Korean Toxic Substances Control Act): One or more components of this product are not listed on the Korean inventory. In Korea, its use is restricted to research and development purposes only.

SECTION 16: Other information

HMIS® Hazard Ratings: Health - 2, Flammability - 1, Chemical Reactivity - 0

HMIS® rating involves data interpretations that may vary from company to company. They are intended only for rapid, general identification of the magnitude of the specific hazard. To deal adequately with the safe handling of this material, all the information contained in this MSDS must be considered.

Revision Information:	Not relevant.
Key literature references and sources for data:	No data available.
Training information:	No data available.
Issue Date:	08/18/2011
SDS No:	
Disclaimer:	This information is provided without warranty. The information is believed to be correct. This information should be used to make an independent determination of the methods to safeguard workers and the environment.

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MATERIAL SAFETY DATA SHEET

Chevron Phillips Chemical Company LP

Methylcyclohexane

Version 1.4 | Revision Date 2012-03-05

1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

Product information

Trade name	:	Methylcyclohexane
Material	:	1098852, 1021714, 1021712, 1028351, 1021711, 1024851, 1028352, 1024850, 1021713
Use	:	Chemical intermediate
Company	:	Specialty Chemicals 10001 Six Pines Drive The Woodlands, TX 77380

Emergency telephone:

Health:
866.442.9628 (North America)
1.832.813.4984 (International)
Transport:
North America: CHEMTREC 800.424.9300 or 703.527.3887
Asia: +800 CHEMCALL (+800 2436 2255) China: 0532.8388.9090
EUROPE: BIG +32.14.584545 (phone) or +32.14583516 (telefax)
Chemcare Asia: Tel: +65 6848 9048 - Mob: +65 8382 9188 - Fax: +65 6848
South America SOS-Cotec Inside Brazil: 0800.111.767 Outside Brazil: +55.19.3467.1600

Responsible Department	:	Product Safety and Toxicology Group
E-mail address	:	MSDS@CPChem.com
Website	:	www.CPChem.com

2. HAZARDS IDENTIFICATION

Emergency Overview

Danger

Form: Liquid **Physical state**: Liquid **Color**: Colorless **Odor**: Mild

OSHA Hazards : Flammable Liquid, Moderate skin irritant, Moderate eye irritant

GHS-Classification

: Flammable liquids, Category 2
Reproductive toxicity, Category 2
Acute toxicity, Category 5, Oral
Skin irritation, Category 2
Eye irritation, Category 2B
Specific target organ systemic toxicity - single exposure, Category 3
Aspiration hazard, Category 1
Acute aquatic toxicity, Category 2
Chronic aquatic toxicity, Category 2

Freedom_0006121_0156

GHS-Labeling

Symbol(s) :

Signal Word : Danger

Hazard Statements : H225: Highly flammable liquid and vapor.
H303: May be harmful if swallowed.
H304: May be fatal if swallowed and enters airways.
H315: Causes skin irritation.
H320: Causes eye irritation.
H336: May cause drowsiness or dizziness.
H361: Suspected of damaging fertility or the unborn child.
H411: Toxic to aquatic life with long lasting effects.

Precautionary Statements : **Prevention:**
P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
P243 Take precautionary measures against static discharge.
P261 Avoid breathing dust/fume/gas/mist/vapors/spray.
Response:
P301 + P310 IF SWALLOWED: Immediately call a POISON CENTER or doctor/ physician.
P331 Do NOT induce vomiting.
P370 + P378 In case of fire: Evacuate area. Use manufacturer/supplier or the competent authority to specify appropriate media for extinction.

Carcinogenicity:

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms : Cyclohexylmethane
Hexahydrotoluene
MCH
Methylcyclohexane (Pure Grade)

Molecular formula : C7H14

Component	CAS-No.	Weight %
Methylcyclohexane	108-87-2	95 - 100
Toluene	108-88-3	0.1 - 1

4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this material safety data sheet to the doctor in attendance. Symptoms of poisoning may only appear several hours later. Do not leave the victim unattended.
If inhaled	:	Move to fresh air. If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Immediately flush eye(s) with plenty of water. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Keep respiratory tract clear. Do NOT induce vomiting. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. Take victim immediately to hospital.

5. FIRE-FIGHTING MEASURES

Flash point	:	-5.5 °C (22.1 °F) Method: Tagliabue Open Cup
Autoignition temperature	:	285 °C (545 °F)
Suitable extinguishing media	:	Dry chemical. Carbon dioxide (CO2). Alcohol-resistant foam.
Unsuitable extinguishing media	:	High volume water jet.
Specific hazards during fire fighting	:	Do not allow run-off from fire fighting to enter drains or water courses.
Special protective equipment for fire-fighters	:	Wear self contained breathing apparatus for fire fighting if necessary.
Further information	:	Collect contaminated fire extinguishing water separately. This must not be discharged into drains. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. For safety reasons in case of fire, cans should be stored separately in closed containments. Use a water spray to cool fully closed containers.
Fire and explosion protection	:	Do not spray on an open flame or any other incandescent material. Use only explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

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Hazardous decomposition products	:	Hydrocarbons. Carbon oxides.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	:	Use personal protective equipment. Ensure adequate ventilation. Remove all sources of ignition. Evacuate personnel to safe areas. Beware of vapors accumulating to form explosive concentrations. Vapors can accumulate in low areas.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods for cleaning up	:	Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

7. HANDLING AND STORAGE

Handling

Advice on safe handling	:	Avoid formation of aerosol. Do not breathe vapors/dust. Avoid exposure - obtain special instructions before use. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Take precautionary measures against static discharges. Provide sufficient air exchange and/or exhaust in work rooms. Open drum carefully as content may be under pressure. Dispose of rinse water in accordance with local and national regulations.
Advice on protection against fire and explosion	:	Do not spray on an open flame or any other incandescent material. Use only explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Keep away from open flames, hot surfaces and sources of ignition.

Storage

Requirements for storage areas and containers	:	No smoking. Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Observe label precautions. Electrical installations / working materials must comply with the technological safety standards.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

US

Ingredients	Basis	Value	Control parameters	Note
Methylcyclohexane	ACGIH	TWA	400 ppm.	
	OSHA Z-1	TWA	500 ppm, 2,000 mg/m3	(b).
	OSHA Z-1-A	TWA	400 ppm, 1,600 mg/m3	

NIOSH REL	TWA	400 ppm, 1,600 mg/m3

(b) The value in mg/m3 is approximate.

Engineering measures

Adequate ventilation to control airborned concentrations below the exposure guidelines/limits. Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

Personal protective equipment

Respiratory protection : Wear a supplied-air NIOSH approved respirator unless ventilation or other engineering controls are adequate to maintain minimal oxygen content of 19.5% by volume under normal atmospheric pressure. Wear a NIOSH approved respirator that provides protection when working with this material if exposure to harmful levels of airborne material may occur, such as:. Air-Purifying Respirator for Organic Vapors. Use a positive pressure, air-supplying respirator if there is potential for uncontrolled release, exposure levels are not known, or other circumstances where air-purifying respirators may not provide adequate protection.

Hand protection : The suitability for a specific workplace should be discussed with the producers of the protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion, and the contact time. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Eye protection : Eye wash bottle with pure water. Tightly fitting safety goggles.

Skin and body protection : Choose body protection in relation to its type, to the concentration and amount of dangerous substances, and to the specific work-place. Wear as appropriate:. Flame retardant protective clothing. Footwear protecting against chemicals.

Hygiene measures : When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance

Form : Liquid
Physical state : Liquid
Color : Colorless
Odor : Mild

Safety data

Flash point : -5.5 °C (22.1 °F)
Method: Tagliabue Open Cup
Lower explosion limit : 1.2 %(V)

Freedom_0006121_0160

Upper explosion limit	:	6.7 %(V)
Oxidizing properties	:	no
Autoignition temperature	:	285 °C (545 °F)
Molecular formula	:	C7H14
Molecular Weight	:	98.21 g/mol
pH	:	No data available
Freezing point	:	-127 °C (-197 °F)
Boiling point/boiling range	:	100.4 °C (212.7 °F)
Vapor pressure	:	1.60 PSI at 37.8 °C (100.0 °F)
Relative density	:	0.774, 15.6 °C(60.1 °F)
Density	:	771.7 g/l
Water solubility	:	Negligible
Viscosity, dynamic	:	0.732 cP
Relative vapor density	:	3 (Air = 1.0)
Evaporation rate	:	1
Percent volatile	:	> 99 %

10. STABILITY AND REACTIVITY

Chemical stability	:	This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

Possibility of hazardous reactions

Conditions to avoid	:	Heat, flames and sparks.
Materials to avoid	:	May react with oxygen and strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Other data	:	No decomposition if stored and applied as directed.

11. TOXICOLOGICAL INFORMATION

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Acute oral toxicity

Methylcyclohexane	: LD50: > 5,000 mg/kg Species: rat Information given is based on data obtained from similar substances.
Toluene	LD50: 6,500 mg/kg Species: rat Sex: Not Specified

Acute inhalation toxicity

Methylcyclohexane	: LC50: > 23.3 mg/l Exposure time: 4 h Species: rat Test atmosphere: vapor Information given is based on data obtained from similar substances.
Toluene	LC50: 25.7 - 30 mg/l Exposure time: 4 h Species: rat Test atmosphere: vapor

Acute dermal toxicity

Methylcyclohexane	: LD50: > 2,000 mg/kg Species: rabbit Information given is based on data obtained from similar substances.
Toluene	LD50: 12,400 mg/kg Species: rabbit Sex: Not Specified

Methylcyclohexane
Skin irritation : May cause skin irritation in susceptible persons.

Methylcyclohexane
Eye irritation : May cause eye irritation.
Vapors may cause irritation to the eyes, respiratory system and the skin.
Vapors may cause irritation to the eyes, respiratory system and the skin.

Sensitization

Toluene : Did not cause sensitization on laboratory animals.

Repeated dose toxicity

Methylcyclohexane : Species: rabbit
Application Route: Inhalation
Dose: 0, 1160, 3330 ppm
Exposure time: 10 wk
NOEL: 1160 ppm
Lowest observable effect level: 3330 ppm

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Toluene

Species: rat
Application Route: Inhalation
Dose: 0, 100, 625, 1250, 3000 ppm
Exposure time: 15 wk
Number of exposures: 6.5 h/d, 5 d/wk
NOEL: 625 ppm

Species: mouse
Application Route: Inhalation
Dose: 0, 100, 625, 1250, 3000 ppm
Exposure time: 14 wk
Number of exposures: 6.5 h/d, 5 d/wk
NOEL: 100 ppm

Carcinogenicity

Toluene : Species: rat
Dose: 0, 600, 1200 ppm
Exposure time: 2 yrs
Number of exposures: 6.5 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Species: mouse
Dose: 0, 600, 1200 ppm
Exposure time: 2 yrs
Number of exposures: 6.5 h/d, 5 d/wk
Remarks: No evidence of carcinogenicity

Reproductive toxicity

Toluene : Species: rat
Application Route: Inhalation
Dose: 0, 100, 500, 2000 ppm
Test period: 95 d
NOAEL Parent: 2000 ppm

Teratogenicity

Toluene : Species: rat
Application Route: Inhalation
Dose: 0, 100, 500, 2000 ppm
Test period: 95 d
NOAEL Teratogenicity: 400-750 ppm

Methylcyclohexane
Aspiration toxicity : May be fatal if swallowed and enters airways.
Substances known to cause human aspiration toxicity hazards or to be regarded as if they cause human aspiration toxicity hazard.

Methylcyclohexane
Further information : Concentrations substantially above the TLV value may cause narcotic effects. Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting.
Solvents may degrease the skin.

Freedom_0006121_0163

12. ECOLOGICAL INFORMATION

Toxicity to fish

Methylcyclohexane	: LC50: 72 mg/l Exposure time: 96 h Species: Fish
Toluene	LC50: 18 - 36 mg/l Exposure time: 96 h Species: Pimephales promelas (fathead minnow)

Toxicity to daphnia and other aquatic invertebrates.

Toluene	: EC50: 3.78 mg/l Exposure time: 48 h Species: Daphnia magna (Water flea)

Toxicity to algae

Toluene	: EC50: 134 mg/l Exposure time: 72 h Species: Chlamydomonas angulosa (Green algae)

Elimination information (persistence and degradability)

Biodegradability	: Expected to be biodegradable
Additional ecological information	: An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS

The information in this MSDS pertains only to the product as shipped.

Use material for its intended purpose or recycle if possible. This material, if it must be discarded, may meet the criteria of a hazardous waste as defined by US EPA under RCRA (40 CFR 261) or other State and local regulations. Measurement of certain physical properties and analysis for regulated components may be necessary to make a correct determination. If this material is classified as a hazardous waste, federal law requires disposal at a licensed hazardous waste disposal facility.

Product	: The product should not be allowed to enter drains, water courses or the soil. Do not contaminate ponds, waterways or ditches with chemical or used container. Send to a licensed waste management company.
Contaminated packaging	: Empty remaining contents. Dispose of as unused product. Do not re-use empty containers. Do not burn, or use a cutting torch on, the empty drum.

Freedom_0006121_0164

14. TRANSPORT INFORMATION

The shipping descriptions shown here are for bulk shipments only, and may not apply to shipments in non-bulk packages (see regulatory definition).

Consult the appropriate domestic or international mode-specific and quantity-specific Dangerous Goods Regulations for additional shipping description requirements (e.g., technical name or names, etc.) Therefore, the information shown here, may not always agree with the bill of lading shipping description for the material. Flashpoints for the material may vary slightly between the MSDS and the bill of lading.

US DOT (UNITED STATES DEPARTMENT OF TRANSPORTATION)
UN2296, METHYLCYCLOHEXANE, 3, II

IMO / IMDG (INTERNATIONAL MARITIME DANGEROUS GOODS)
UN2296, METHYLCYCLOHEXANE, 3, II, (-5.5 °C), MARINE POLLUTANT, (METHYLCYCLOHEXANE)

IATA (INTERNATIONAL AIR TRANSPORT ASSOCIATION)
UN2296, METHYLCYCLOHEXANE, 3, II

ADR (AGREEMENT ON DANGEROUS GOODS BY ROAD (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, (D/E), ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

RID (REGULATIONS CONCERNING THE INTERNATIONAL TRANSPORT OF DANGEROUS GOODS (EUROPE))
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

ADN (EUROPEAN AGREEMENT CONCERNING THE INTERNATIONAL CARRIAGE OF DANGEROUS GOODS BY INLAND WATERWAYS)
UN2296, METHYLCYCLOHEXANE, 3, II, ENVIRONMENTALLY HAZARDOUS, (METHYLCYCLOHEXANE)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. REGULATORY INFORMATION

National legislation

SARA 311/312 Hazards : Fire Hazard
Acute Health Hazard

EPCRA - EMERGENCY PLANNING COMMUNITY RIGHT - TO – KNOW

CERCLA Reportable Quantity	:	Toluene
SARA 302 Threshold Planning Quantity	:	SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
SARA 313 Ingredients	:	SARA 313: This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

Ozone-Depletion Potential	:	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

US State Regulations

Pennsylvania Right To Know

:	Methylcyclohexane	108-87-2
:	Toluene	108-88-3

New Jersey Right To Know

:	Methylcyclohexane	108-87-2
:	Toluene	108-88-3

California Prop. 65 Ingredients	:	WARNING! This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

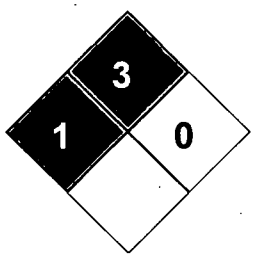
Notification status

Europe REACH	:	On the inventory, or in compliance with the inventory
United States of America US.TSCA	:	On the inventory, or in compliance with the inventory
Canada DSL	:	On the inventory, or in compliance with the inventory
Australia AICS	:	On the inventory, or in compliance with the inventory
New Zealand NZIoC	:	On the inventory, or in compliance with the inventory
Japan ENCS	:	On the inventory, or in compliance with the inventory
Korea KECI	:	On the inventory, or in compliance with the inventory
Philippines PICCS	:	On the inventory, or in compliance with the inventory
China IECSC	:	On the inventory, or in compliance with the inventory

Freedom_0006121_0166

16. OTHER INFORMATION

NFPA Classification : Health Hazard: 1
Fire Hazard: 3
Reactivity Hazard: 0



Further information

Legacy MSDS Number : 34310

Significant changes since the last version are highlighted in the margin. This version replaces all previous versions.

The information in this MSDS pertains only to the product as shipped.

The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philipines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical	TWA	Time Weighted Average

	Substances in China		
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Compositon, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		

Freedom_0006121_0168

Press Releases

Marzulli, Linda

From: Ferrell, Mark
Sent: Monday, January 27, 2014 6:31 PM
To: Burns, Francis; R3 HOTSITES
Subject: HOTSITE REPORT:BREAKING Freedom Est Amount of leak increased to 10,000

http://charlestondailymail.com/rssFeeds/201401270107

Estimated amount of spill goes up, public trust declines again.

From: Burns, Francis
Sent: Monday, January 27, 2014 3:13:45 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

Patti-Kay Wisniewski of Region 3's Water Division reported that the West Virginia Department of Homeland Security and Emergency Management has posted drinking water sampling results for MCHM as of January 26. Detectable levels continue to be seen. PPH results of earlier sampling are also posted. These samples were reported as non-detectable. See the website for results -http://www.dhsem.wv.gov/Pages/WV-American-Water-Emergency.aspx.

OSCs Matlock and Linden reported that the facility is continuing to pump water upgradient of the secondary containment area. The majority of the site is frozen and most of the holes/sumps dug inside the tank containment are frozen and cannot be pumped.

The facility's contractor broke the surface ice on the containment trench at the base of the hill and added salt to help melt the ice. The liner was pulled back and water, above and below the liner, was pumped out and into a tank for temporary storage. The facility reported that there was no sheen or smell of MCHM in either the water.

Ice in the river continues to disrupt the river booms. The facility contractor is attempting to break ice and to properly position the booms. Because of the ice, the boom is repositioned further from the river bank, which will require a plan for proper maintenance. To research options, the USCG will contact USCG personnel experienced with deploying boom in icy conditions.

The facility and its remediation consultant, CEC, met with WVDEP, EPA, and USCG today, to discuss the remediation plan. Based upon the meeting discussions WVDEP, EPA, and USCG gave verbal approval to begin sampling. The site team will further evaluate the plan, which will be approved later in writing.

In an effort to strengthen laboratory analysis of MCHM and PPH, chemists and lab managers from nine organizations including EPA, are working collaboratively to share information and analytical data about the mixture. Participants include the National Guard, WV American Water, American Water Research, REI Consulting, DuPont Inc., Dow Inc., Matric Inc., ATSDR, and EPA. The group is looking to identify analytical techniques that will allow for lower detection limits for the single compounds, MCHM and PPH, in water. The lower detection limits will increase the capacity of laboratories to detect MCHM and PPH in water at orders of magnitude below the health risk levels.

Marzulli, Linda

From: Burns, Francis
Sent: Monday, January 27, 2014 3:14 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

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Marzulli, Linda

From: Werner, Lora
Sent: Wednesday, January 22, 2014 9:06 AM
To: Casillas, Laura; Matlock, Dennis; Ventura, Dominic; Burns, Francis; Williams, Jacqueline; Smith, Bonnie; Kelly, Jack (R3 Phila.); Ferrell, Mark; Wisniewski, Patti-Kay; binetti, victoria; Daniel, Kevin; Wright, Dave; Santiago, Cindy; Matsinger, Josie; Markiewicz, Karl; Steuteville, William; Armstrong, Joan; Welsh, Mike; Rose, Kenneth; Taylor, Trish; Marzulli, Linda; Miller, Linda; Price-Fay, Michelle; Helverson, Robert; Ioven, Dawn
Subject: Charleston Chemical Leak General Brief

Hi guys

Maybe no update call today? I think this was mentioned yesterday, but I forgot.

Anyway, for your info, CDC posted info about PPH on our website (Thanks a million to Dawn and Fran and any others involved in coordinating on this last night). Lora

http://emergency.cdc.gov/chemical/MCHM/westvirginia2014/index.asp
Information about PPH
On January 21, 2014, the manufacturer reported that another material was part of the chemical release that occurred on January 9, 2014. This material has been identified as a proprietary mixture of polyglycol ethers (PPH). It was in the same tank and entered the water system at the same time as the MCHM. PPH represented a relatively small percentage (approximately 5%) of the total volume in the tank.

Toxicologic information on PPH is limited. Based on the Material Safety Data Sheets (MSDS) provided by the manufacturer, the reported toxicity of this material appears to be lower than the toxicity of MCHM (LD50 > 2000 mg/kg for the primary component of PPH vs. 825 mg/kg for MCHM). Given the small percentage of PPH in the tank and information suggesting similar water solubility as MCHM, it is likely that any amount of PPH currently in the water system would be extremely low. However, the water system has not been tested for this material.

An initial review of the currently available toxicologic information does not suggest any new health concerns associated with the release of PPH. At this point, toxicologic information about PPH is limited; however, CDC/ATSDR will continue to work closely with the State of West Virginia and its Federal partner agencies to search for additional relevant information.

Freedom_0006121_0172

American Association of Poison Control Centers

NEWS RELEASE

For Immediate Release
Jan. 10, 2014

For More Information, Contact:
Brett Schuster, communications associate
schuster@aapcc.org; 703-894-1859

Poison Centers Issue Safety Alert for Contaminated Water in West Virginia

ALEXANDRIA, VA – America's poison centers are warning residents in the areas surrounding Charleston, W.V., about a hazardous chemical leak in to the water supply. According to Kanawha County Emergency Management Office, a chemical named 4-methylcyclohexane methanol that is used in coal washing and preparation leaked from a containment area into the Elk River, an intake area that serves 300,000 people in nine counties. West Virginia Governor Earl Ray Tomblin issued a State of Emergency for West Virginia American Water customers in Boone, Cabell, Clay, Jackson, Kanawha, Lincoln, Logan, Putnam and Roane counties. Just after 7 a.m. on Jan. 10, President Obama signed a West Virginia Emergency Declaration, which authorizes the Department of Homeland Security and Federal Emergency Management Agency (FEMA) to coordinate all disaster relief efforts.

"I don't know if the water is not safe," American Water Co. President Jeff McIntyre said. "Until we get out and flush the actual system and do more testing, we can't say how long this will last at this time." McIntyre said the chemical is NOT lethal in its strongest form and according to a fact sheet from Fisher Scientific, the chemical is harmful if swallowed and causes eye and skin irritation and could be harmful if inhaled.

According to West Virginia Poison Center Director, Dr. Elizabeth Scharman, Pharm.D., DABAT, BCPS,FACCT, the W.V. Poison Center (WVPC) received its first call from the general public at 5:53 p.m. on Jan. 9. "We have brought in two epidemiologists from the W.V. Department of Health & Human Resources to assist with answering calls as well as activating four WVPC staff members who were off duty to assist. Shifts are running longer than 16 hours each," said Dr. Scharman. "As of 9 a.m. on Jan. 10, the WVPC has received 526 calls from individuals reporting concerns or symptoms, including from physicians calling about patients they are evaluating."

West Virginia American Water Spokesperson Laura Jordan said just after 5 a.m. on Jan. 10, the company does not have conclusive results yet from any water quality testing. Jordan said there is no way

– more –

Freedom_0006121_0173

to treat water at this point, and the chemicals need to be eliminated through systematic flushing. As of 5:30 a.m. on Jan. 10, Jordan said the flushing process had not yet begun, and the water was still being tested and there is no timeline yet to estimate when the water will be safe.

Symptoms of 4-methylcyclohexane methanol include:

- Nausea
- Vomiting
- Dizziness
- Headaches (ranging in severity)
- Diarrhea
- Reddened skin
- Itching
- Rashes

A list of water filling or distribution centers can be found here.

For more information, the media may contact Brett Schuster, AAPCC communications associate, at 703.894.1859 or schuster@aapcc.org.

About the American Association of Poison Control Centers:
The AAPCC supports the nation's 56 poison centers in their efforts to treat and prevent drug, consumer product, animal, environmental and food poisoning. Members staff the Poison Help hotline at 1-800-222-1222 that provides free, confidential, expert medical advice 24 hours a day, seven days a week, 365 days a year from toxicology specialists, including nurses, pharmacists, physicians and poison information providers. In addition, the AAPCC maintains the only poison information and surveillance database in the United States, providing real-time monitoring of unusual poisoning patterns, chemical exposures and other emerging public health hazards. The AAPCC partners with federal agencies such as EPA, HRSA and the CDC, as well as private industry.

To learn more, visit www.aapcc.org, like us on Facebook, follow us on Twitter, or read our blog at aapcc.wordpress.com. To join your voice with other poison center supporters, register for the AAPCC advocacy network at www.capwiz.com/aapcc – click on "Action E-List."

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Marzulli, Linda

From: Ferrell, Mark
Sent: Wednesday, January 22, 2014 8:58 PM
To: R3 HOTSITES
Subject: WV Chemcial CLIPS UPDATE

Thursday marks 13 days since the chemical spill in Charleston, WVa. 300,000 West Virginia American Water customers still do not have a concise, unified public message that their water is safe to drink. It is estimated that fewer than 20% of WVAW customers are actually drinking tap water. The vast majority only bath and do laundry with it. Many restaurants are advertising they are using only bottled water for cooking in order to stimulate business. Public confidence in state and federal agencies involved remains low. FEMA-provided bottled water distribution ended Wednesday night.

Governor stops short of saying water is safe to drink
http://www.charlestondailymail.com/News/201401200060
http://www.wvgazette.com/News/201401200041

CDC now says pregnant women should have been warned sooner
http://www.wvgazette.com/News/201401220039

Everyone asking for answers about PPH
http://www.wvgazette.com/News/201401220031

Frustrated, state tells Freedom Inc it has until 4pm to come clean
http://www.charlestondailymail.com/News/201401220033
http://tinyurl.com/ktknpxn

Mark Ferrell
EPA Region 3
Office of State and Congressional Relations
West Virginia Liaison
Charleston, W.Va.

(304) 542-0231

Freedom_0006121_0175

Marzulli, Linda

From: Ferrell, Mark
Sent: Tuesday, January 21, 2014 5:55 PM
To: R3 HOTSITES
Subject: Freedom Industries reveals another chemcial present

Freedom Industries revealed today that as much as 300 gals of a chemcial listed on the MSDS as PPH was also present in their tank that leaked Crude MCHM into the Elk River on January 9.
http://www.wvgazette.com/News/201401210072

Also, Freedom Industries bankruptcy hearing today stalled
http://www.wvgazette.com/News/201401210034

Mark Ferrell
EPA Region 3
Office of State and Congressional Relations
West Virginia Liaison
Charleston, W.Va.

(304) 542-0231

Marzulli, Linda

From: Ferrell, Mark
Sent: Tuesday, January 21, 2014 8:23 AM
To: R3 HOTSITES
Cc: Arguto, William; Miller, Linda; White, Terri-A; Seneca, Roy; R3 C2s; R3 DIRECTORS; R3 Deputies; Graff, Jeannine; Storch, Debbie; BORSUK, FRANK; Nelson, Mark; Passmore, Margaret
Subject: WV CHEMICAL UPDATE in clips

Here in West Virginia, a water crisis and a study in mixed messages.

***Despite assurances from various sources, most West Virginia American Water customers continue to refuse to drink or cook with tap water.**

http://www.wvgazette.com/News/201401200080

http://www.wvgazette.com/News/201401180078

http://www.wvgazette.com/News/201401180078

http://www.wvgazette.com/News/201401170026

***Washington, Obama, EPA silent on water problems in West Virginia**

http://www.washingtonpost.com/opinions/eugene-robinson-washington-is-silent-on-wvas-chemical-spill/2014/01/20/cd567804-8220-11e3-8099-9181471f7aaf_story.html?hpid=z2

***Skepticism business and political leaders will act to help/prevent**

http://www.wvgazette.com/Opinion/OpEdCommentaries/201401170149

http://www.wvgazette.com/Opinion/Editorials/201401160060

http://www.wvgazette.com/Opinion/OpEdCommentaries/201401170147

***Legislative action**

http://www.wvgazette.com/News/201401200020

http://www.charlestondailymail.com/News/201401200125

http://www.wvgazette.com/News/politics/201401170105

***West Virginia American Water**

http://www.charlestondailymail.com/News/201401200069

Freedom_0006121_0177

http://www.wvgazette.com/News/201401200026

http://www.wvgazette.com/News/201401190049

***Gov. Tomblin wont say water is safe**

http://www.wvgazette.com/News/201401200041

http://www.charlestondailymail.com/News/201401200060

Sen. Jay Rockefeller

This time, something has to change (op-ed)
http://www.wvgazette.com/Opinion/OpEdCommentaries/201401190020

http://www.rockefeller.senate.gov/public/index.cfm/press-releases?ID=fe0360ce-6040-4347-96dc-51b8031c3864

http://www.rockefeller.senate.gov/public/index.cfm/press-releases?ID=b6641d27-4f4b-4b47-a7d9-d975f62bac8d

http://www.rockefeller.senate.gov/public/index.cfm/press-releases?ID=99e92c49-4c6e-420b-b654-5957ff331cf1

***Sen. Joe Manchin says he can fight EPA while working with them**

http://www.wvgazette.com/News/201401200030

***Federal lawsuit filed**

http://www.statejournal.com/story/24482398/federal-lawsuit-filed-over-wv-chemical-leak

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Freedom_0006121_0178

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NEWS RELEASE

For Immediate Release
Jan. 10, 2014

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West Virginia American Water Spokesperson Laura Jordan said just after 5 a.m. on Jan. 10, the company does not have conclusive results yet from any water quality testing. Jordan said there is no way

– more –

Freedom_0006121_0179

to treat water at this point, and the chemicals need to be eliminated through systematic flushing. As of 5:30 a.m. on Jan. 10, Jordan said the flushing process had not yet begun, and the water was still being tested and there is no timeline yet to estimate when the water will be safe.

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– 30 –

Marzulli, Linda

From: Ferrell, Mark
Sent: Monday, January 13, 2014 9:02 PM
To: R3 HOTSITES
Subject: WV Chemical Spill - clip

An important story from the forensic angle:

http://www.wvgazette.com/News/201401130118

Freedom_0006121_0181

January 13, 2014

DEP inspectors describe early scene at Freedom leak site

by **Ken Ward Jr.**
Staff writer

CHARLESTON, W.Va. -- When state inspectors arrived at the Freedom Industries tank farm late last Thursday morning, they found a 400-square-foot pool of clear liquid had collected outside a white tank marked as number 396.

A 4-foot wide stream of the liquid -- thicker than water, but not as heavy as syrup -- was flowing across the bottom of a containment dike. The flow disappeared right at the joint where the dike's wall connected to its floor.

Frontier Industries had set up one cinder block and used one 50-pound bag of some sort of safety absorbent powder to try to block the chemical flow, state Department of Environmental Protection inspectors say.

"This was a Band-Aid approach," said DEP air quality inspector Mike Kolb. "It was apparent that this was not an event that had just happened."

In an interview Monday with The Charleston Gazette, Kolb and DEP air quality engineer Dan Bauerle described discovering the leak of "Crude MCHM" that fouled the drinking water supply that serves hundreds of thousands of West Virginians.

Kolb and Bauerle provided new details of what they found at the site, and also revealed that the facility had been the subject of at least one odor complaint "several years ago" that DEP officials determined at the time was unfounded.

In public briefings so far, DEP officials have explained that the Elk River leak last week was identified only after they received odor complaints from area residents at about 8:15 a.m. Thursday.

When those complaints -- and notice of the odor from two different DEP employees -- came in to the agency's Kanawha City headquarters, Kolb and Bauerle were dispatched to investigate. They discovered odors that rated as "objectionable" under state standards at spots where Bigley Avenue intersects Westmoreland Drive and Pennsylvania Avenue.

Based on the smell, the pair say, they suspected something had happened at Freedom Industries.

While DEP has said it hasn't inspected the site since 1991, when it was owned by Pennzoil, Kolb and Bauerle said Monday that the agency had looked into a previous odor complaint at the site and another odor complaint in St. Albans related to a company called Diversified Services, which handles shipping of materials for Freedom Industries.

Kolb and Bauerle arrived at the operation shortly after 11 a.m. In the parking lot, they met Kanawha County fire coordinator C.W. Sigman, whose office was also looking into residents' odor complaints.

The DEP officials went to the office, where Dennis P. Farrell, who identified himself as president of the company, greeted them. They told Farrell about the odors and asked if the facility was having any problems.

"He said as far as he knew this was a busy time of year. They were just handling a lot of trailers," Kolb said. "As far as he knew, there weren't any problems."

The DEP officials asked Kolb to show them around the facility. When they went outside, an employee asked to speak to Farrell. After that conversation, Farrell told the DEP officials there was a problem, and led them to tank 396.

There, the DEP officials said, they found a 400-square-foot pool of chemical that had leaked from the tank into a block containment area. Pressure from the material leaking out of the tank created what DEP officials called an "up-swelling," or an artesian well, like a fountain of chemical coming up from the pool.

They saw a 4-foot-wide stream of chemicals heading for the containment area's wall, and disappearing into the joint between the dike's wall and floor.

Freedom_0006121_0182

Initially, no one saw the chemical pouring into the Elk River. DEP officials say that part of the river still had a layer of ice on top, which made the spill difficult to notice.

Once the DEP officials saw the leak though, they called their superiors and got DEP's emergency response, water pollution and hazardous materials crews headed to the site.

In one enforcement order, DEP officials allege that the company had taken "no spill containment measures" prior to agency staffers arriving at the site and discovering the leak.

"The facility did not give any real attention to containment," Bauerle said.

State and county officials have described the Freedom facility's spill containment dike as full of cracks and holes.

"It's a very old dike," Sigman said. "If it had been my home's foundation, I would be concerned."

DEP emergency response director Mike Dorsey has said he learned the company at some point had put $1 million into an escrow account for repairs. It's not clear when that account was created or what -- if any -- timeline Freedom officials had for the fixes.

But questions continue about how Freedom's problems received no attention from regulators prior to the leak.

DEP Secretary Randy Huffman has said that the facility fell through the cracks. It made no chemicals on site, Huffman said, and was not regularly inspected because it only stored and shipped products.

But DEP officials have given the facility a storm water plan, under a "general permit" program that is less rigorous than obtaining a site-specific pollution permit.

Under the permit, the company was required to have a spill prevention plan and to immediately report potentially dangerous spills to the state. DEP had authority to inspect the site to ensure compliance with the period.

DEP officials, though, say that Freedom Industries didn't report the leak to them until 12:05 p.m. Thursday, and even then did so only because DEP officials told them they had to do so.

"Freedom Industries was explicitly required to report the spill immediately to DEP," said Jennifer Chavez, a lawyer with the group Earthjustice. "The company's failure to do so was a violation of its storm water permit."

At the federal government's National Response Center, which takes reports of hazardous material spills around the country, a report is on file about the incident. But officials there say it didn't come from Freedom Industries or from West Virginia American Water. Instead, National Response Center staff typed up the report based on local media reports pulled from the Internet.

On Monday, U.S. Attorney Booth Goodwin issued a second statement, repeating his promise of a criminal investigation, and said the probe would include issues about the company's compliance with chemical accident reporting laws.

"As the immediate water crisis begins to ease and West Virginians regain access to drinkable water, I want to make three things clear," Goodwin said.

"One, my office will continue working as quickly as possible to find out exactly what happened here, including the complete timeline of the release and what was done -- or not done -- before and after it," he said. "Two, if our investigation reveals that federal criminal laws were violated, we will move rapidly to hold the wrongdoers accountable. And three, companies whose facilities could affect the public water supply should be on notice: If you break federal environmental laws, you will be prosecuted. Our drinking water is not something you can take chances with, and this mess can never be allowed to happen again."

Reach Ken Ward Jr. at kw...@wvgazette.com or 304-348-1702.

Marzulli, Linda

From: Ferrell, Mark
Sent: Monday, January 13, 2014 5:00 PM
To: R3 HOTSITES
Cc: R3 C2s
Subject: LIVE VIDEO 7:00PM- Town Hall meeting in West Virginia CHEMICAL SPILL UPDATES

WOWK-TV (CBS) will stream live coverage of a "town hall" meeting at the studio updating on the Freedom Industries chemcial spill in Charleston, West Virginia.

http://www.statejournal.com/category/277155/wv-water-contamination-live-stream-update

Participants to include Governor Earl Ray Tomblin, Mike Doresy (DEP) Karen Bowling (DHHR), Jeff McIntyre (WVAMC) and other officials.

Mark Ferrell
EPA Region 3
Office of State and Congressional Relations
West Virginia Liaison
Charleston, W.Va.

(304) 542-0231

Marzulli, Linda

From: Ioven, Dawn
Sent: Monday, January 13, 2014 8:50 AM
To: Johnson, KarenD; Johnson, Eric; Werner, Lora
Cc: Marzulli, Linda
Subject: RE: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL

Hi, Karen. I was off on Friday, so I'm just catching up on the incident in WV last week. As you're aware, not much info is available for the compound that was released. However, based on tox data in the literature, assumptions regarding toxicity can be inferred. From the LD50 for this compound, it would not be expected to be highly toxic. Rather than reiterate the prior comments from ATSDR, I agree with their conclusion that 1 mg/L would be an appropriate (and adequately conservative) screening level for this compound, particularly under conditions of acute exposure. If you have any questions, please let me know. Thanks.

Dawn

Dawn A. Ioven, toxicologist
U.S. EPA - Region III
(3HS41)
1650 Arch Street
Philadelphia, PA 19103
215.814.3320

From: Johnson, KarenD
Sent: Friday, January 10, 2014 6:30 AM
To: Johnson, Eric; Werner, Lora; Ioven, Dawn
Cc: Marzulli, Linda
Subject: FW: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL
Importance: High

Can you tell us anything about this chemical?? Risks, clean up concentrations, etc.? Has the response center assisted WV at this point?

From: Capacasa, Jon
Sent: Thursday, January 09, 2014 8:27 PM
To: Vicky Binetti; binetti, victoria; Wisniewski, Patti-Kay; Arguto, William; Johnson, KarenD
Cc: McGuigan, David; Price-Fay, Michelle
Subject: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL
Importance: High

This appears to be a very significant event. Could you work thru your contacts in HSCD and the state to see what is know about the chemical risk and proper decontamination of the system.

Copying NPDES for spill related followup when appropriate.

Freedom_0006121_0185

From: Ferrell, Mark
Sent: Thursday, January 09, 2014 7:54:14 PM
To: Garvin, Shawn
Cc: Early, William; Ryan, Daniel; R3 DIRECTORS; R3 Deputies; R3 C2s; Colip, Matthew; Crane, Rebecca
Subject: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL

The chemical that leaked into the river from Freedom Industries was 4-methylcyclohexane methanol, DEP spokesman Tom Aluise said.
Freedom Industries produces "freeze conditioning agents, dust control palliatives, flotation reagents [and] water treatment polymers," among other chemicals, according to its website.

http://www.wvgazette.com/News/201401090044

CHARLESTON, W.Va. -- Residents in Charleston and surrounding counties were told Thursday evening not to drink, cook with or wash with water supplied by West Virginia American Water, following a leak earlier in the day at a chemical facility along the Elk River.
Any water supplied by West Virginia American Water in Kanawha, Putnam, Boone, Jackson and Lincoln counties was to be used only for flushing toilets and putting out fires.
Hours after water company officials said their treatment facility - which is near the leak site on the Elk River - could handle the leak from Freedom Industries on Barlow Drive, Gov. Earl Ray Tomblin declared a state of emergency in the The ban could affect as many as 100,000 West Virginia American Water customers, including restaurants, businesses and hospitals.five counties.
Residents swarmed grocery stores, convenience stores and anywhere else with bottled water on Thursday evening, and shelves were quickly depleted.
State and water company officials did not give an estimate on when the water might be safe to drink or use.
"The state of emergency will be in place until we are cleared by the Department of Health and Human Resources, DEP and the company say that the water is safe," Tomblin said.
Places that don't use water from West Virginia American Water are not affected. That includes St. Albans, where Mayor Dick Calloway, whose city gets its water directly from the Coal River, said his town's residents would not fall under the "do not use" order.
West Virginia American Water President Jeff McIntyre said at Thursday's news conference that the company was "fairly confident" earlier in the day that its plant could handle the treatment of the chemical.
"It's clear the chemical has infiltrated the water," McIntyre said. "In an abundance of caution, we are taking these steps today."
He said the water company said is testing the water to better understand the concentration that entered its treatment system.
When asked what might happen if a person consumed the chemical, McIntyre didn't get specific, only saying "it's not particularly lethal in its usage form" and the effects of the chemical would depend on its concentration.
Dr. Rahul Gupta, health officer for the Kanawha-Charleston Health Department, said restaurants, bars, day-care centers and other businesses with a health permit in Kanawha and Putnam counties would be sent a message to "cease operations immediately."
Gupta said there are about 1,200 health department permits issued in Kanawha County and about 300 in Putnam County, where the Kanawha department has temporarily taken over health enforcement duties.
The health department is also working on getting information to people concerned about drinking the water, Gupta said.
"There is very limited information on this particular chemical," he said.

Kanawha County Commission President Kent Carper said the county emergency operations center has been opened and emergency crews are assessing their response.
"Earlier today we were assured there was no harm to the public," Carper said. "We'll do blame assignment later. Now we have to deal with it."
Carper said the do-not-use order would effectively shut down restaurants, nursing homes and any other establishment that relies on water. He did not know how long the emergency would last.
"I have been promised by the governor himself that we'll have any resources we need," he said. "I predict it's going to be a long night."
The chemical that leaked into the river from Freedom Industries was 4-methylcyclohexane methanol, DEP spokesman Tom Aluise said.
Freedom Industries produces "freeze conditioning agents, dust control palliatives, flotation reagents [and] water treatment polymers," among other chemicals, according to its website.
Freedom Industries officials, including the company's president, Dennis Farrell, did not return repeated phone calls on Thursday.
Earlier Thursday, some emergency officials were saying they had found little information about potential toxic effects of the substance.
One material safety data sheet, or MSDS, said that, "no specific information is available ... regarding the toxic effects of this material for humans.
"However, exposure to any chemical should be kept to a minimum," the MSDS said. "Skin and eye contact may result in irritation. May be harmful if inhaled or ingested."
Less than three hours before the state of emergency was declared, an official statement from West Virginia American Water was issued assuring the public and media that the spill "does not present a health risk to customers."
The water company announced an emergency press conference regarding the spill at 5:09 p.m. and Tomblin officially announced the state of emergency around 6 p.m.
"This is not a chemical that we deal with every day. It's not the type of thing we would see in dealing with a water treatment plant," McIntyre said. "We took some time to understand even what we were dealing with at the time."
McIntyre said the company will have to do "extensive flushing" to make sure the contaminant is out of its system. He couldn't say how long the process will take.
There were no reports of illness as a result of contaminated water consumption as of Thursday evening, according to McIntyre.
Gianato advised those customers with concerns of exposure or consumption of the chemical can call the Poison Control Center at 1-800-222-1222. If someone is obviously sick, they should go to the hospital or call 911, Gianato said.
At the Charleston Town Center Mall, marketing director Lisa McCracken said Thursday evening, "We've closed our restaurants and we closed our treateries<co >. We've turned off all the public restroom faucets, and we have issued an advisory mall-wide to the tenants telling them not to use the faucets in their establishments."
Crystal Del Giudice, a supervisor at the Starbucks coffee shop in the mall, said employees ran out to buy hand sanitizer so they could clean themselves up after they closed the store.
"It's like the apocalypse," she said, half-jokingly.
Several mall restaurants had signs posted informing customers that they were closed because of the water emergency.
But some restaurants in downtown Charleston were unaware of the order to shut down.
Staff at Jimmy John's and Adelphia on Capitol Street were still serving Thursday evening, although other restaurants on the street were shutting down. Adelphia workers said they were trying to contact the restaurant's owners before shutting down.

At the Kroger in Kanawha City, shelves in the bottled-water aisle were nearly bare. Charleston Police officers kept an eye on the crowd that came to buy water.

Kerstin Halstead of Campbells Creek loaded two cases of bottled water into her SUV in the parking lot. "People have been grabbing it like crazy ... and some people were getting - well, they could have shared more," she said.

Halstead was doing her regular grocery shopping when her husband called and told her the news and asked her to pick up a case of water.

It was a similar story at the Rite-Aid on Charleston's East End, which ran out of water just after 6:30 p.m., according to a store employee. Customers were buying ice instead.

Ruby Piscopo, 28, of Charleston, and Christi Pritt, 29, of Belle, were having an after-work drink when they heard about the chemical leak.

"We started getting texts and changed the TV to the news," Piscopo said. "I wasn't concerned until someone said it could go on for days."

The two bought $30 worth of water between them. They had other friends buying water throughout the city with the intention of splitting it up later.

Philip Toliver of Charleston came to the East End Rite-Aid because the one on Bridge Road had already sold out of bottled water, he said. He bought six cases.

"[I thought] 'I think I need to get some water,'" Toliver said upon learning of the chemical leak. He added that if the state of emergency stretched on for more than a few days, he would consider leaving town for a while.

Mark Ferrell
EPA Region 3
Office of State and Congressional Relations
West Virginia Liaison
Charleston, W.Va.

(304) 542-0231

Freedom_0006121_0188

Marzulli, Linda

From: Seneca, Roy
Sent: Friday, January 10, 2014 7:55 AM
To: Garvin, Shawn; Ryan, Daniel; D'Andrea, Michael; Early, William; Heron, Donna; duteau, helen; White, Terri-A; Sternberg, David; Smith, Bonnie; Hodgkiss, Kathy; Rose, Kenneth; Wright, Dave; Matlock, Dennis; Matsinger, Josie; Marzulli, Linda; Heston, Gerald; Burns, Francis; Heron, Donna; damm, thomas; Capacasa, Jon; Ferrell, Mark; Miller, Linda
Subject: USA Today (1-10) Obama sends disaster aid to West Virginia

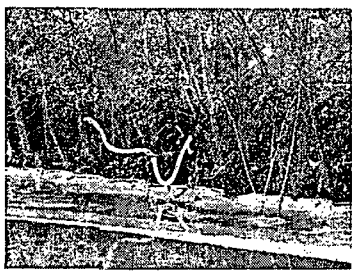
Obama sends disaster aid to West Virginia President Obama is sending federal assistance to West Virginia, where schools and businesses are closed after a chemical spill Thursday into a Charleston river. "The President today declared an emergency exists in the State of West Virginia and ordered federal aid to supplement state and local response efforts," said an administration statement on Friday morning. Under the order, the Department of Homeland Security and Federal Emergency Management Agency will coordinate efforts with local officials....

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

Freedom_0006121_0189

Obama sends disaster aid to West Virginia

THE OVAL (/BLOG/THEOVAL/) David Jackson, USA TODAY (/staff/1849/david-jackson) *8:33 a.m. EST*



(Photo: Chris Dorst, AP)

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1002 CONNECT (https://twitter.com/intent/tweet?url=http://usat.ly/1eKnBdS&text=Obama TWE

President Obama is sending federal assistance to West Virginia, where schools and businesses are closed after a chemical spill Thursday into a Charleston river.

"The President today declared an emergency exists in the State of West Virginia and ordered federal aid to supplement state and local response efforts," said an administration statement on Friday morning.

Under the order, the Department of Homeland Security and Federal Emergency Management Agency will coordinate efforts with local officials.

From the Associated Press (http://www.usatoday.com/story/news/nation/2014/01/09/wva-chemical-spill/4399265/):

"Schools and restaurants closed, grocery stores sold out of bottled water, and state legislators who had just started their session canceled the day's business after a chemical spill in the Elk River in Charleston shut down much of the city and surrounding counties even as the cause and extent of the incident remained unclear.

"The federal government joined the state early Friday in declaring a disaster, and the West Virginia National Guard planned to distribute bottled drinking water to emergency services agencies in the nine affected counties.

"Shortly after the Thursday night spill from a Freedom Industries hit the river and a nearby treatment plant, a licorice-like smell enveloped parts of the city, and Gov. Earl Ray Tomblin issued an order to customer of West Virginia American Water: Do not drink, bathe, cook or wash clothes with tap water.

"The chemical, a foaming agent used in the coal preparation process, leaked from a tank at Freedom Industries, overran a containment area."

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1002 CONNECT | (https://twitter.com/intent/tweet?url=http://usat.ly/1eKnBdS&text=Obama TWE

+(

b

Marzulli, Linda

From: Ferrell, Mark
Sent: Sunday, January 12, 2014 8:18 PM
To: R3 HOTSITES
Subject: WV spill site : 5PM govs press conference UPDATE
Attachments: photo.JPG

Governor Earl Ray Tomblin hosted a press conference at 5pm today (Sunday) at the state capitol and was joined by officials from National Guard, WVDHHR, West Virginia American Water, WVDEP and Office of Emergency Servcies. (Freedom Industries no longer attends these pressers.)

Officials confirmed that a 1ppm mesurement or less had been recorded over a 24 hour period, setting the stage for moving next to the flushing stage. WVAM displayed a digital map of the affected area and explained their intent to roll out the flushing program by zones starting on Monday. The zones will be mapped at this site - http://www.amwater.com/wvaw/ Residents will be told to watch for their address to enter a "green zone" before beginning the flushing process.

WVAW said 10 labs around the state plus Ohio and Pittsburgh are currently testing samples. The Governor reiterated that a declared State of Emergency is still in place. WVAW said there are 16 sampling teams working, and over 100 smaples have been taken and tested.

The DEP said no fish kills have been reporterd and there has been no evidence of impact on fowl or other wildlife.

Schools in teh affected counties will remain closed Monday, as will most businesses, including restaurants, bars and hospitals are operating at reduced capacity.

The West Virginia Legislature, which began its annual 60-day session last week, will likely gavel in and gavel out on Monday, according to House Speaker Tim Miley, and send members back to their districts until the water issues are resolved.

Below are links to evening local clips:

Light at the end of the tunnel?
http://www.wvgazette.com/News/201401120043

Safe levels attained for 24 hours
http://www.statejournal.com/story/24428958/officials-testing-showing-positive-trends

State ignored plan for tougher chemical inspections
http://www.wvgazette.com/News/201401120021

Crisis exposes many problems
http://www.wvgazette.com/News/201401120021

Freedom Industries official had felonies, took stimulus money
http://www.wvgazette.com/News/201401120056

Lawyers seek to consolidate law suits
http://www.wvgazette.com/News/201401120046

VIDEO: WV life during a water crisis
http://www.charlestondailymail.com/News/201401110002

Mark Ferrell

EPA Region 3

Office of State and Congressional Relations

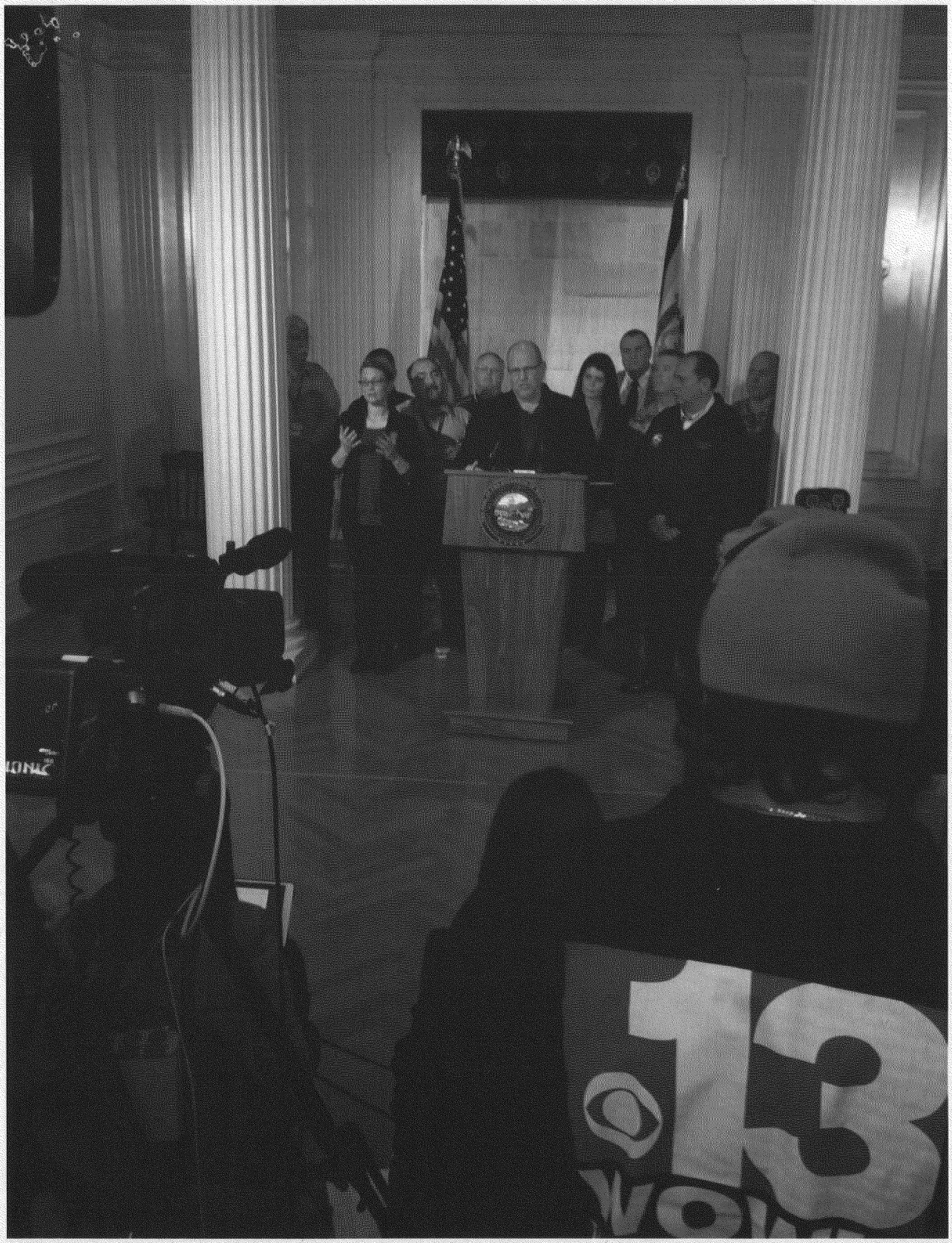
West Virginia Liaison

Charleston, W.Va.

(304) 542-0231

From: Mark Ferrell <ferrell@newwave.net>
Sent: Sunday, January 12, 2014 7:25 PM
To: Ferrell, Mark
Subject: Photo

Freedom_0006121_0193


13

Williams, Jacqueline

From: CNN Breaking News [BreakingNews@mail.cnn.com]
Sent: Friday, January 10, 2014 12:43 PM
To: textbreakingnews@ema3lsv06.turner.com
Subject: CNN Breaking News

A U.S. attorney has opened an investigation looking into the release of a potentially dangerous chemical into parts of West Virginia's water supply.

Nearly 200,000 residents in nine counties have been told not to drink the water and avoid cooking with it, brushing their teeth or even taking a shower.

The spill of 4-methylcyclohexane methanol was found coming from a 48,000-gallon tank at a chemical storage facility about a mile upriver from the West Virginia American Water plant. The chemical is used to wash coal before it goes to market.

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One CNN Center Atlanta, GA 30303
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Marzulli, Linda

From: Ferrell, Mark
Sent: Saturday, January 11, 2014 5:42 PM
To: Burns, Francis; R3 HOTSITES
Subject: EVENING CLIPS : Freedom Industries, Charleston, WV

These are clips from local reporting here in Charleston, WV, this afternoon and reflect new public info from a press conference held in the governor's office at 3:45pm today that included officials from WVDEP, WV American Water, WVDHHR, FEMA and Emergency Services. Another press conference is scheduled for 9pm tonight at the statehouse.

West Virginia American Water says "several more days"
http://www.wvgazette.com/News/201401110063

Scientists cobble together ad-hoc water limit
http://www.wvgazette.com/News/201401110061

Testing, flushing, downstream risks
http://www.statejournal.com/story/24424335/chemical-leak-latest-testing-flushing-continue-low-downstream-risks

Chemical Safety Board to investigate
http://wvmetronews.com/2014/01/11/chemical-safety-board-to-investigate-chemical-spill-that-promoted-water-emergency/

No End in Sight
http://wvmetronews.com/2014/01/11/no-end-in-sight-for-water-emergency/

Freedom Industries execs are longtime friends
http://www.wvgazette.com/News/201401100119

Some restaurants okayed to reopen
http://www.wvgazette.com/News/201401110054

EPA offering assistance
http://www.statejournal.com/story/24417262/epa-sends-coordinators-to-help-with-water-sampling

Mark Ferrell

EPA Region 3

Office of State and Congressional Relations

West Virginia Liaison

harleston, W.Va.

(304) 542-0231

Freedom_0006121_0197

Marzulli, Linda

From: Seneca, Roy
Sent: Friday, January 10, 2014 7:50 AM
To: Garvin, Shawn; Ryan, Daniel; Early, William; D'Andrea, Michael; duteau, helen; Matlock, Dennis; Heston, Gerald; Burns, Francis; Wright, Dave; Ferrell, Mark; Miller, Linda; Capacasa, Jon; damm, thomas; Sternberg, David; Smith, Bonnie; Heron, Donna; White, Terri-A; schafer, joan; Seneca, Roy; Hodgkiss, Kathy; Rose, Kenneth; Matsinger, Josie; Marzulli, Linda; Howell, Amie; Brown-Perry, Kinshasa; Colip, Matthew
Subject: WOWK-TV Charleston (1-10) UPDATED information on WV spill, water emergency...

Importance: High

UPDATE:

Pullman Plaza Hotel in Huntington, WV is opening three or four rooms to the public for showering. They ask that people bring their own towels and bathroom items.

The showers are free but donations are welcome. The hotel will also open its restaurants on Saturday, Jan. 11.

UPDATE:

C. W. Sigman, Kanawha County's deputy emergency management director, said the county is focusing right now to figure out how to keep hospitals and trauma centers running.

Sigman said based on the data he has, the chemical is "not particularly toxic, but you don't want to drink it or have it on your body." Sigman said it's diluted by the time it gets to the plant, but it's still not safe and that can depend on the concentration levels.

Officials stressed that hospitals and nursing homes will be the first priority.

In Putnam County, OES Director Frank Champan said just before 7 a.m. Jan. 10 the county was still waiting on its shipment of water from the state, but distribution sites had been planned from 8 a.m. to 8 p.m. at both the Hurricane Walmart in the back parking lot and the Hurricane Fire Department. People will need to bring their own containers to fill, and there will be a 20-gallon limit per person.

Chapman said more distribution sites could be added throughout the county once the water is received.

A news release from The White House Office of the Press Secretary just after 7 a.m. Jan. 10 stated President Obama signed a West Virginia Emergency Declaration, which authorizes the Department of Homeland Security, Federal Emergency Management Agency to coordinate all disaster relief efforts. The news release states FEMA is authorized to identify, mobilize and provide at its discretion equipment and resources necessary to alleviate the impacts of the emergency. The emergency protective measures, limited to direct federal assistance, will be provided at 75 percent federal funding.

UPDATE:

Freedom_0006121_0198

West Virginia American Water Spokesperson Laura Jordan said just after 5 a.m. Jan. 10 the company does not have conclusive results yet from any water quality testing.

Jordan said there is no way to treat water at this point, and the chemicals need to be eliminated through systematic flushing. As of 5:30 a.m. Jan. 10, Jordan said the flushing process had not yet begun, and the water was still being tested and there is no timeline yet to estimate when the water will be safe.

The company's president said just after 6 a.m. Jan. 10 West Virginia American Water attempted to treat the contamination itself between 1 and 4 p.m. Jan. 9 when the leak was detected, but the system became overwhelmed after that.

A report from Charleston Area Medical Center also indicated Friday morning its emergency room had treated approximately five people who reported symptoms of water contamination related to the chemical spill.

Medical professionals have indicated those people will be fine, but were warned to look out for nausea, skin and eye irritation and vomiting and hospital personnel will keep a close eye on them for the next 24 hours as well.

UPDATE:

According to Greg Lay, Director of Emergency Management of Boone County, water will be brought to the County Maintenance Garage, located at 36 Avenue B. in Mason County, sometime Friday and will then be first taken to hospitals and nursing homes, and will then be taken to all the fire departments and community centers throughout Boone County to be distributed.

Also, the Culloden Volunteer Fire Department in Cabell County is giving out bottled water, and will have a second shipment of water that is scheduled to arrive at 12 p.m. Friday. People who come then to get water are being asked to bring their own containers.

According to the Kanawha County Commission, public distribution points in Kanawha County are supposed to be announced early Friday, Jan. 10.

For a complete listing of water filling stations, click here.

UPDATE:

According to a spokesman for Military Affairs and Public Safety, FEMA will be delivering water to the Charleston Air National Guard Base sometime Friday morning. It will then be distributed to the county emergency services offices and those agencies will distribute water to those communities affected.

UPDATE:

According to the CAMC Health System Twitter page, all scheduled procedures for Friday at CAMC General, Memorial, and Women and Children's Hospital are canceled. Also, they say they have not had to move any patients, but are on trauma diversion.

Freedom_0006121_0199

CAMC is saying that outpatient imaging procedures and appointments will take place as well as the WCH Infusion Center.

UPDATE:

There are several water filling stations available. They include:

Duval Volunteer Fire Department in Griffithsville, WV is giving out bottled water. They are limiting it to one per family as there are a lot of people affected.

Saint Marks Episcopal Church, at 405 B Street in Saint Albans, which will have a filling station until 10:30 p.m.

(Click to view slideshow of Photos surrounding State of Emergency)

The West Hamlin Volunteer Fire Department in Lincoln County is also being used a water filling station. People are being asked to bring their own containers.

According to Chief Robert Stickler of the Hamlin Volunteer Fire Department in Lincoln County, they will be giving out one case of water to each household that arrives at their station, and will be open 24 hours a day until the emergency is lifted. Chief Stickley says that each household must show that they live in the affected areas.

The Crossing Baptist Church, in the area of Harrison Avenue, in St. Albans is remaining open so that people can come and get water.

Both the Bartlett-Chapman Funeral Home in St. Albans, and the Chapman Funeral Home in Hurricane will be open at 7 a.m. Friday, Jan. 10, for people who need water. People are being asked to bring their own containers.

We will also keep you updated on Facebook and Twitter.

A list of water filling or distribution centers can be found here.

UPDATE:

According to a news release from the Supreme Court of Appeals of West Virginia, Chief Justice Robin Jean Davis has ordered the Administrative Office and Chief Counsel's Office of the Supreme Court of Appeals of West Virginia to be closed on Friday, January 10, due to a water emergency. Employees in those offices have been asked not to report to work.

However, the Supreme Court Clerk's Office will be open on Friday to accept filings.

The news release says the Chief Circuit Judge in each affected county must decide whether to close courts in that county. The Twenty-Fifth Judicial Circuit Judge Jay M. Hoke has closed courts in Boone and Lincoln Counties for Friday, January 10.

UPDATE:

Freedom_0006121_0200

Gov. Earl Ray Tomblin issued a State of Emergency for Boone, Cabell, Clay, Jackson, Kanawha, Lincoln, Logan, Putnam and Roane counties.

According to the Boone County Health Department, they are trying to close all restaurants, and essentially anyplace that uses water, and are stressing that people should not use the water.

According to The Kanawha Charleston Animal Shelter, they are collecting donations of water for the animals housed at the shelter. They will begin collecting water Friday morning at 9 a.m.

The Kanawha County Commission says that the Kanawha County Courthouse Complex will be open tomorrow, Jan. 10.

We will also keep you updated on Facebook and Twitter.

A list of water filling or distribution centers can be found here.

UPDATE:

According to the authority of WVAWC, you can use water if you have St. Albans Water, City of Cedar Grove Water, Montgomery/Kanawha Fayette Water, East Bank City Water or Putnam PSD, as they are not affected.

An updated list of counties was released by the WV DHHR and those are Kanawha, Boone, Putnam, Jackson and Lincoln counties. This is only for customers of West Virginia American Water.

The WV DHHR also updated symptoms: severe burning in throat, severe eye irritation, non-stop vomiting, trouble breathing or severe skin irritation such as skin blistering.

Schools in Clay, Kanawha, Lincoln and Putnam will be closed on Jan. 10.

Saint Marks Episcopal Church at 405 B Street in Saint Albans will have a filling station until 10:30 p.m. The West Hamlin Volunteer Fire Department in Lincoln County is also being used a water filling station. People are being asked to bring their own containers. The Crossing Baptist Church, in the area of Harrison Avenue, in St. Albans is remaining open so that people can come and get water. Both the Bartlett-Chapman Funeral Home in St. Albans, and the Chapman Funeral Home in Hurricane will be open at 7 a.m. Friday, Jan. 10, for people who need water.

UPDATE:

According to West Virginia American Water, due to a chemical leak of 4-methylcyclohexane methanol that went into the Elk River Thursday, a Do Not Use Water order has been issued for the counties of Boone, Jackson, Kanawha, Lincoln, Logan, Putnam, and Roane in WV. Only the Bomont and Queen Shoals areas of Clay County is affected, as well as the area of Culloden in Cabell County.

Residents living in these counties who use West Virginia American Water are being asked to not use tap water for drinking, cooking, washing, doing laundry, or bathing until further notice.

Freedom_0006121_0201

This only affects customers who use West Virginia American Water in these counties. Customers in St. Albans and Cedar Grove are not affected by this. Putnam PSD customers are not affected.

However, the Lincoln County Public Service District says customers are being asked to not drink or use any water in the areas from Breedlover Road on Route 214 back towards Hamlin on Route 3 until further notice. They say that boiling water will not help.

It is believed that the material may be hazardous and may have entered the water system.

Governor Earl Ray Tomblin has declared a State of Emergency.

A spokesperson for West Virginia American Water says if you come into contact with the water and feel ill, call the Poison Control Hotline at 1-800-222-1222. Public health officials say symptoms would include nausea, vomiting, burning sensation, and severe eye irritation.

Keep checking wowktv.com for all the latest updates.

UPDATE:

West Virginia American Water released a statement on the chemical spill in Charleston, WV.

According to the release, the treatment facility's process is effective enough to remove contaminants but water quality experts are monitoring the process and will be in contact with the DEP and chemical supplier.

The water quality experts say the contaminates do not pose a health risk to the public.

ORIGINAL:

A chemical leak at Freedom Industries in Charleston, WV has crews working to clean up the non-toxic chemical.

According to a release from the Kanawha County Emergency Management Office, a chemical named 4-methylcyclohexane methanol, that is used in coal washing and preparation, leaked from a containment area into the Elk River.

Work crews and the DEP are working to clean the area. The chemical is considered non-toxic.

Residents in the area should go inside if they experience any signs of nausea.

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

Freedom_0006121_0202

Marzulli, Linda

From: Seneca, Roy
Sent: Friday, January 10, 2014 7:41 AM
To: Garvin, Shawn; Ryan, Daniel; Early, William; D'Andrea, Michael; duteau, helen; Heron, Donna; Sternberg, David; Smith, Bonnie; Miller, Linda; Ferrell, Mark; Brown-Perry, Kinshasa; Howell, Amie; Capacasa, Jon; damm, thomas; Hodgkiss, Kathy; Wright, Dave; Heston, Gerald; Burns, Francis; Matsinger, Josie; Marzulli, Linda; Matlock, Dennis; schafer, joan; White, Terri-A; Rose, Kenneth
Subject: CBS News (1-10) Some people treated for water-related issues in W. Va.

Importance: High

Some people treated for water-related issues in W. Va.

Last Updated Jan 10, 2014 7:20 AM EST

CHARLESTON, W.Va. -- Restaurants closed their doors, groceries stores sold out of bottled water and thousands of children got an extra day off from school as residents were told to not bathe, brush their teeth, or wash their clothes following a chemical spill that may have contaminated tap water in nine West Virginia counties.

President Obama declared a state of emergency Friday morning after a spill from a Freedom Industries plant in Charleston inundated the Elk River and a nearby water treatment plant Thursday. Gov. Earl Ray Tomblin had already declared a state of emergency.

Customers of West Virginia American Water in the affected areas got the order from Tomblin on Thursday night: Do not drink, bathe, cook or wash clothes with tap water.

The chemical, a foaming agent used in the coal preparation process, leaked from a tank at Freedom Industries, overran a containment area and went into the river earlier Thursday.

Officials say the orders - which the water company also delivered to residents via automated telephone messages - were issued as a precaution, as they are still not sure exactly what hazard the spill posed to residents. It also was not immediately clear how much of the chemical spilled into the river and at what concentration.

"I don't know if the water is not safe," said water company president Jeff McIntyre. "Until we get out and flush the actual system and do more testing, we can't say how long this (advisory) will last at this time."

There is no way to treat the water, a spokesperson for the water company, Laura Jordan, told CBS Huntington, W. Va. affiliate WOWK-TV.

McIntyre said the chemical isn't lethal in its strongest form. Kanawha County emergency officials said the chemical is called 4-methylcyclohexane methanol. Freedom Industries officials were unavailable for comment.

According to a fact sheet from Fisher Scientific, the chemical is harmful if swallowed and causes eye and skin irritation and could be harmful if inhaled.

The Charleston Area Medical Center reported Friday morning that its emergency room had treated approximately five people who reported symptoms of water contamination related to the chemical spill, according to WOWK.

Medical professionals have indicated those people will be fine, but were warned to look out for nausea, skin and eye irritation and vomiting and hospital personnel will keep a close eye on them as well, WOWK says.

The emergency declaration involves customers in all or parts of the counties of Kanawha, Boone, Cabell, Clay, Jackson, Lincoln, Logan, Putnam and Roane. In the capital city of Charleston, a smell similar to licorice or cough syrup was evident in the air both outdoors and in areas where it had already reached the water supply.

The smell was especially strong at the Charleston Marriott hotel a few blocks from the Elk River, which flows into the Kanawha River in downtown Charleston. The Marriott shut off all water to rooms, and then turned it back on so guests could flush toilets. Each guest was given two 16.9-ounce bottles of spring water upon returning to the hotel.

The West Virginia National Guard planned to mobilize at an air base at Charleston's Yeager Airport on Friday to distribute bottled drinking water to emergency services agencies in the nine counties, Department of Military Affairs and Public Safety spokesman Lawrence Messina told The Associated Press.

"They're committing all necessary resources to help with this," Messina said Thursday night.

Messina said the drinking water will come from several different suppliers. FEMA was to be among them, WOWK reported.

After distribution, the various county agencies "will use their own game plans to distribute it, with hospitals and nursing homes getting priority," Messina said.

Most people weren't waiting for outside help.

Once word got out about the governor's declaration Thursday, customers stripped store shelves in many areas of items such as bottled water, paper cups and bowls. As many as 50 customers had lined up to buy water at a convenience store near the state Capitol in Charleston.

"It was chaos, that's what it was," cashier Danny Cardwell said.

Tomblin said the advisory also extends to restaurants, hospitals, nursing homes and other establishments that use tap water.

At the Little India restaurant in Charleston, about 12 customers were asked to leave when bar manager Bill LaCourse learned about the shutdown notice.

West Virginia lawmakers who just started their session this week won't conduct business on Friday because of the problem and State Department of Education spokeswoman Liza Cordeiro said schools in at least five of the counties will be closed.

Karlee Bolen, 16, of Charleston, said her family, including her parents, two sisters and brother, were considering the possibility of heading to her grandmother's home in Braxton County, where tap water was unaffected, an hour to the northeast.

"I kind of want to shower and brush my teeth," she said.

Freedom_0006121_0204

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

Freedom_0006121_0205

Marzulli, Linda

From: Seneca, Roy
Sent: Friday, January 10, 2014 7:33 AM
To: Garvin, Shawn; Early, William; Ryan, Daniel; D'Andrea, Michael; duteau, helen; Heron, Donna; Sternberg, David; Seneca, Roy; Smith, Bonnie; Hodgkiss, Kathy; Wright, Dave; Matlock, Dennis; Matsinger, Josie; Ferrell, Mark; Miller, Linda; Brown-Perry, Kinshasa; Colip, Matthew; White, Terri-A; schafer, joan; Howell, Amie; Capacasa, Jon; damm, thomas; Heston, Gerald; Burns, Francis; Marzulli, Linda
Subject: Associated Press (1-10) Chemical Spills In Southern W.Va.

Importance: High

Chemical Spills In Southern W.Va.

Several counties placed under state of emergency

January 10, 2014

By JOHN RABY Associated Press Writer , The Intelligencer / Wheeling News-Register
Save | Comments (13) | Post a comment |

CHARLESTON - At least 100,000 customers in nine West Virginia counties were told not to drink, bathe, cook or wash clothes using their tap water because of a chemical spill into the Elk River in Charleston, with Gov. Earl Ray Tomblin declaring a state of emergency Thursday for all those areas.

The chemical, a foaming agent used in the coal preparation process, leaked from a tank at Freedom Industries, overran a containment area and went into the river earlier Thursday. The amount that spilled wasn't immediately known, but West Virginia American Water has a treatment plant nearby and it is the company's customers who are affected.

"The water has been contaminated," said Tomblin, who didn't know how long the emergency declaration would last.

Officials, though, said they aren't sure what hazard the spill poses to humans and that there were no immediate reports of people getting sick. It also was not immediately clear how much spilled into the river and in what concentration.

"I don't know if the water is not safe," said water company president Jeff McIntyre.

Tomblin said he's asking the Federal Emergency Management Agency to assist the state with supplies of bottled water. But people weren't waiting.

Once word got out about the governor's declaration, customers stripped store shelves in many areas of items such as bottled water, paper cups and bowls.

As many as 50 customers had lined up to buy water at a convenience store near the state Capitol in Charleston.

"It was chaos, that's what it was," cashier Danny Cardwell said.

Freedom_0006121_0206

The don't-drink-the-water declaration involves customers in the counties of Kanawha, Boone, Cabell, Clay, Jackson, Lincoln, Logan, Putnam and Roane. Most of the counties surround the capital city of Charleston, where there was a chemical smell similar to licorice in the air both outdoors and in areas where it had already reached the water supply on Thursday night.

West Virginia lawmakers who just started their session this week won't conduct business today because of the problem and State Department of Education spokeswoman Liza Cordeiro said schools in at least five of the counties will be closed. Many students already missed some time this week because of the frigid weather.

McIntyre said the advisory was issued "because we don't know. I don't have anything to indicate the water is not safe. It's an abundance of caution that we're taking this step. We don't do this lightly, tell our customers not to use the water."

McIntyre said testing is being conducted to determine the concentrations of the chemical that have gone through the water system. But he said the chemical was in a much weaker concentration when it reached the water treatment plant through the river.

"Until we get out and flush the actual system and do more testing, we can't say how long this (advisory) will last at this time," McIntyre said. When the advisory was first issued for five counties, as many as 100,000 customers were affected. The company has 170,000 customers in 17 West Virginia counties, as well as in Ohio and Virginia.

Freedom Industries did not immediately respond for comment. The Elk River flows into the Kanawha River in downtown Charleston. The Kanawha eventually flows into the Ohio River at Point Pleasant, about 55 miles to the northwest.

Senate Majority Leader John Unger, D-Martinsburg, said all committee meetings have been canceled and lawmakers will adjourn until at least Monday. Other government offices also will be closed.

Unger, who co-chairs the Joint Legislative Oversight Commission on State Water Resources, said dozens of miles of pipe are affected by the spill.

"Flushing it out, that's going to take some time," Unger said. "You can imagine the infrastructure of the piping through the city and all of those counties."

McIntyre and Tomblin said boiling water first to remove impurities won't help as it sometimes does.

"Don't make baby formula," McIntyre said. "Don't brush your teeth. Don't shower. Toilet flushing only."

McIntyre and state Division of Homeland Security and Emergency Management director Jimmy Gianato said the chemical isn't lethal in its strongest form. Kanawha County emergency officials said the chemical is called 4-methylcyclohexane methanol.

According to a fact sheet from Fisher Scientific, the chemical is harmful if swallowed and causes eye and skin irritation and could be harmful if inhaled.

Tomblin said the advisory also extends to restaurants, hospitals, nursing homes and other establishments that use tap water.

Two fast-food restaurants near the Capitol, a few miles from the spill site, were closed Thursday night, but across the street, a pizza shop remained open.

Freedom_0006121_0207

And at the Little India restaurant in Charleston, owner Meena Anada said she had been drinking water all day, "but I'm not nervous. I'm not going to die."

Little India bar manager Bill LaCourse said he's endured boil water advisories in the past, "but when they tell you it doesn't do any good to boil the water, what can you do?"

About 12 customers were in the restaurant when LaCourse got the word about the shutdown notice and everyone was asked to leave. The situation repeated itself at other restaurants, where workers said they were concerned about what to do about ice machines, hot water heaters and water itself once the emergency is lifted.

West Virginia Delegate Michael Manypenny, D-Taylor, who co-chairs the water resources committee with Unger, said he's been pushing for stronger oversight of industries in order to protect the state's water resources. He said the spill will add fuel to his argument.

"This leaves a lot of questions," he said. "And I think we're going to need an inquiry on why this happens and what we can do to prevent it."

- See more at: http://www.news-register.net/page/content.detail/id/594360/Chemical-Spills-In-Southern-W-Va---.html#sthash.a9JpDPHE.dpuf

Roy Seneca
EPA Region 3 Press Officer
Office of Public Affairs
seneca.roy@epa.gov
(215) 814-5567

Freedom_0006121_0208

FEMA MISSION ASSIGN.
ETC.

U.S. Department of Homeland Security
FEMA Region 3
615 Chestnut Street
Philadelphia, PA 19106

FEMA

January 22, 2014

Dave Wright
Lead, Emergency Response Team
US EPA Region 3
1650 Arch Street Exit
Philadelphia, PA 19103-2029

Dear Mr. Wright:

By mutual agreement with FEMA, effective January 18, 2014, 7:00 pm, your agency can officially deactivate the Environmental Protection Agency staff from operations at the Regional Response Coordination Center (RRCC) for the response to 3366EM. Thank you for your support in our effort to assist the survivors of the chemical release in West Virginia.

No additional Mission Assignment Task Orders or obligations will be issued after the effective date. All Mission Assignments not yet completed will be continued in accordance with the mission statements and fiscal limitations.

Prior to your agency's departure from the RRCC, please provide the FEMA Mission Assignment Manager with the following information from your agency, if applicable:

- Listing of all ongoing Mission Assignments and their status,
- Property Disposition Form(s), if applicable, and,
- Financial and program points of contact.

The final billing for this Mission Assignment should be received within 90 days of physical completion of the mission assignment unless extended by prior agreement with FEMA. This bill should be clearly identified as a final bill to facilitate closing of this tasking once final payment has been forwarded to your agency. Detailed billing instructions may be accessed on-line at http://www.fema.gov/government/business.shtm. Forward bills for appropriate action and fund transfer/payment to:

FEMA Finance Center
188 Brooke Road
Winchester, VA 22603

Agencies using the IPAC system must include the following Agency Location Code (ALC) in their billing: ALC 70-07-0002.

Freedom_0006121_0210

Your agency is responsible for submitting a Mission Assignment Quarterly Progress Report to FEMA to include cost data when a Mission Assignment takes more than 60 days to complete, including billing. The Mission Assignment Quarterly Progress Report can be accessed and submitted on-line at http://www.fema.gov/maprogress/index.jsp.

If you have any questions or need any information regarding your Mission Assignment or subsequent actions, please contact the FEMA Region III Mission Assignment Manager, Thomas Murray, (215) 478-2919.

Sincerely,

Michael Senycz
Resource and Capabilities Branch Director, 3366EM

cc: FEMA Finance Center

Freedom_0006121_0211

Marzulli, Linda

From: Ferrell, Mark
Sent: Monday, January 27, 2014 7:38 PM
To: R3 HOTSITES
Subject: WV Governor modifies FEMA request
Attachments: TIERNEY LETTER.pdf

Letter from Gov. Earl Ray Tomblin to FEMA (attached) requesting Direct Funding Assistance.

Mark Ferrell
EPA Region 3
Office of State and Congressional Relations
West Virginia Liaison
Charleston, W.Va.

(304) 542-0231

Freedom_0006121_0212

STATE OF WEST VIRGINIA
OFFICE OF THE GOVERNOR
1900 KANAWHA BOULEVARD, EAST
CHARLESTON, WV 25305
(304) 558-2000

EARL RAY TOMBLIN
GOVERNOR

January 27, 2014

Ms. MaryAnn Tierney
Regional Administrator
FEMA Region III
One Independence Mall, Sixth Floor
615 Chestnut Street
Philadelphia, PA, 19106-0444

Through:

Mr. Michael J. Lapinski
Federal Coordinating Officer
FEMA-3366-EM
FEMA Region III
One Independence Mall, Sixth Floor
615 Chestnut Street
Philadelphia, PA, 19106-0444

Dear Ms. Tierney:

Beginning on January 9, 2014, the West Virginia-American Water Company issued an order directing approximately 100,000 customers not to use their tap water. The affected area contained portions of Boone, Cabell, Clay, Jackson, Kanawha, Lincoln, Logan, Putnam, and Roane Counties. This "Do Not Use" order was issued to prevent adverse health effects for the approximately 300,000 residents, as well as those visiting the area. This situation was deemed serious enough to warrant an immediate Presidential Emergency Declaration (FEMA-EM-3366-WV) that utilized Emergency Protective Measures to assist the state in providing for the safety and welfare of the affected citizens, but that help was limited to Direct Federal Assistance.

At the time of the Presidential Emergency Declaration, no one knew how long this assistance would be needed, but by the rapid response to our request, affected citizens were provided the water and food they have needed during this time of deprivation.

The public agencies that have borne the brunt of the extraordinary expenditures required to distribute supplies and meet the needs of the affected population are presently denied access to Category B Emergency Protective Measures funding due to the limitation placed on the program by the wording of the Emergency Declaration. Therefore, I respectfully request that this Emergency Declaration be modified to provide Category B, Emergency Protective Measures, including direct funding assistance, to eligible applicants in the nine counties currently included in the declaration.

This is necessary due to the extraordinary expenditures incurred by state and local responding agencies and the adverse effects on the economy and tax revenues of the affected areas. A preliminary estimate is that state and local responding agencies will incur in excess of $2,000,000 in eligible costs in addition to the state payment of 25% of the costs of the already approved direct federal assistance. And, I must emphasize that the response is ongoing and several of the key agencies have not been able to take the time to provide estimates of their costs because of their commitment to meeting the needs of the people first.

At the same time, the affected area's economy has been devastated by the loss of income to businesses that have been closed or open on a limited basis. One source has estimated that hotels and restaurants have lost $1,000,000 in revenue a day while other businesses have had to close part of their operation. For example, a business selling coffee and food in addition to merchandise could remain open, but lost a portion of its income which, in some cases, can equal or exceed its merchandise revenue. There is concern that this event will further impact the state's economy because of the negative images that many potential tourists have seen.

The closure of businesses costs workers their source of income and increases their need for assistance. A similar situation exists for government at all levels. If businesses and individuals do not make money, then they pay less in taxes and that affects the solvency of state and local governments. A detailed analysis of this event is not possible at this time, but I am certain it will show a total economic loss for the citizens, businesses, and governments of this area that will exceed the direct emergency protective measures we are providing many times over.

The economic and social consequences of this event are far-reaching. The school systems in some of the affected counties have lost instructional time that will result in extending their school calendars to comply with state law, lost food that expired during the outage, and had extraordinary costs to pay in order to flush their water systems and clean the areas exposed to the contaminated water. Ongoing testing of the water supply by National Guard personnel, including members of Civil Support Teams from four states, has assisted in the verification of the levels of the contaminant so it could be determined when the levels fell to the range that the Centers for Disease Control and Prevention believed safe. Yet, despite the best efforts of the company and government many people no longer view their tap water as safe and are continuing to demand bottled water to meet their potable water needs. It is impossible to predict when this will change, if ever.

There is little hope that these costs can be recouped by the party found responsible for this event. The company that was storing the contaminants has filed for bankruptcy and there are several pending suits against that company. It is very unlikely the state will ever receive any reimbursement for its costs from the responsible party. We are aware that the assistance that can be provided through the Stafford Act is limited. However, by granting my request that the Emergency Declaration be modified so eligible Emergency Protective Measures expenditures by state and local governments and eligible non-profit agencies are treated the same as those provided by the federal government, your efforts to help those affected will be as comprehensive as they can be.

Sincerely,

Earl Ray Tomblin

Earl Ray Tomblin
Governor

Marzulli, Linda

From: Kelly, Jack (R3 Phila.)
Sent: Friday, January 10, 2014 6:13 PM
To: R3 RRC
Subject: Re: Draft FEMA Mission Assignments for ASSESSMENT PHASE AND RESPONSE PHASE--in case we need them

---

From: Casillas, Laura on behalf of R3 RRC
Sent: Friday, January 10, 2014 4:23:26 PM
To: r03esf4fful@fema.dhs.gov
Cc: Burns, Francis; Kelly, Jack (R3 Phila.); Wright, Dave; Williams, Jacqueline; Werner, Lora; Markiewicz, Karl; Casillas, Laura; Matlock, Dennis; Linden, melissa; Macmillan, Fred; Scharr, Ruth; Jarvela, Steve; Rovira, Eduardo; Macmillan, Fred; McDowell, Joseph; Steuteville, William
Subject: Draft FEMA Mission Assignments for ASSESSMENT PHASE AND RESPONSE PHASE--in case we need them

Resending to include Bill and watch standers, and this for us to note:

Ex. 5 - Deliberative

Fred MacMillan,

Here are drafts for two phases—assessment and response. We understand the intent is that these will be ready for FEMA to issue if they choose to activate EPA under ESF 10.

Ex. 5 - Deliberative

And in case we need to do a response post assessment here is a draft scope of work for the response phase

Ex. 5 - Deliberative

Laura Casillas, Federal On-Scene Coordinator
[illegible]

Cell 215-779-4896
Office 215-814-3253
Casillas.Laura@epa.gov

Freedom_0006121_0217

Marzulli, Linda

From: McDowell, Joseph
Sent: Friday, January 10, 2014 5:25 PM
To: R3 RRC
Cc: Burns, Francis; Kelly, Jack (R3 Phila.); Wright, Dave; Williams, Jacqueline; Werner, Lora; Markiewicz, Karl; Casillas, Laura; Matlock, Dennis; Linden, melissa; Macmillan, Fred; Scharr, Ruth; Jarvela, Steve; Rovira, Eduardo; Macmillan, Fred; Steuteville, William
Subject: RE: Draft FEMA Mission Assignments for ASSESSMENT PHASE AND RESPONSE PHASE--in case we need them

Fred,

There is also a pre-negotiated MA that FEMA should use for staffing the RRC.

joe

From: Casillas, Laura **On Behalf Of** R3 RRC
Sent: Friday, January 10, 2014 4:23 PM
To: r03esf4fful@fema.dhs.gov
Cc: Burns, Francis; Kelly, Jack (R3 Phila.); Wright, Dave; Williams, Jacqueline; Werner, Lora; Markiewicz, Karl; Casillas, Laura; Matlock, Dennis; Linden, melissa; Macmillan, Fred; Scharr, Ruth; Jarvela, Steve; Rovira, Eduardo; Macmillan, Fred; McDowell, Joseph; Steuteville, William
Subject: Draft FEMA Mission Assignments for ASSESSMENT PHASE AND RESPONSE PHASE--in case we need them

Resending to include Bill and watch standers, and this for us to note:

Ex. 5 - Deliberative

Fred MacMillan,

Here are drafts for two phases—assessment and response. We understand the intent is that these will be ready for FEMA to issue if they choose to activate EPA under ESF 10.

Ex. 5 - Deliberative

And in case we need to do a response post assessment here is a draft scope of work for the response phase

Ex. 5 - Deliberative

Freedom_0006121_0218

Ex. 5 - Deliberative

Laura Casillas, Federal On-Scene Coordinator
Office of Preparedness and Response
Health and Safety Policy Center
USEPA Region 3, Mail Code [illegible]
1650 Arch Street, Philadelphia, PA 19103

Cell 215-779-4896
Office 215-814-3253
Casillas.Laura@epa.gov

Freedom_0006121_0219

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Extended Spill Summary Report for DataID #1516584

Report Date: 1/10/2014 **Report Time:** 8:58 AM

Hotline Log Entry Information

Data ID: 1516584

Date Of Report: 09-JAN-14 19:16 **NRC #:** 1070627 **State #:** **ERNS #:**

Material Type: Haz **Receiver:** d matlock

Material / Amount: METHYLCYCLOHEXANE (0 UNKNOWN AMOUNT);

Location: City:
County: KANAWHA
State: WV

Source of Pollution: WEST VIRGINIA AMERICAN WATER

Water Body: ELK RIVER

State Or EPA Responded: WVDEP and EPA

Initial EPA Action: WVDEP responded to odor complaint. WV Governor declared emergency for severla counties. OSC Matlock will be on scene to WV EOC Friday, 1/10.

Status: 1 - Pending

URL:

Associated Action Reports

DataID: 0680179

Date: 2014/01/10	**Time:** 00:04	**Submitted by:** HQ Duty Officer
Duty Officer/Responder Name: d matlock	**NRC Report #:** 1070627	**Hotline Log DataID:** 1516584
Action Information		
Description: OSC Matlock will meet with FEMA, WVDEP and RP personnel on Friday, 1/10. FEMA mission assignment for OSC Matlock and EPA Rep in the RRCC to support operations.		
Person Contacted		
Name: Mike Dorsey		

Freedom_0006121_0227

Organization: WVDEP
Phone #:

Associated NRC Report

NATIONAL RESPONSE CENTER 1-800-424-8802
GOVERNMENT USE ONLYGOVERNMENT USE ONLY***
Information released to a third party shall comply with a
applicable federal and/or state Freedom of Information and Pri

Incident Report # 1070627

INCIDENT DESCRIPTION

*Report taken by: CIV KEVIN WILLIAMS at 19:16 on 09-JAN-
Incident Type: STORAGE TANK
Incident Cause: UNKNOWN
Affected Area: ELK RIVER
Incident occurred on 09-JAN-14 at 10:47 local incident time.
Affected Medium: WATER ELK RIVER

REPORTING PARTY
Name: WILLIAMS
Organization: NATIONAL RESPONSE CENTER

WASHINGTON, DC

PRIMARY Phone: (800)4248802
Type of Organization: FEDERAL GOVERNMENT

SUSPECTED RESPONSIBLE PARTY
Name: UNKNOWN
Organization: WEST VIRGINIA AMERICAN WATER

Type of Organization: PRIVATE ENTERPRISE

INCIDENT LOCATION
ELK RIVER County: KANAWHA
1015 BARLOW DRIVE
State: WV

RELEASED MATERIAL(S)
CHRIS Code: MCY Official Material Name: METHYLCYCLOHEX

DESCRIPTION OF INCIDENT

RESIDENTS IN CHARLESTON AND SURROUNDING COUNTIES WERE TOLD THURSDA
NOT TO DRINK, COOK WITH OR WASH WITH WATER SUPPLIED BY WEST VIF
AMERICAN WATER, FOLLOWING A LEAK EARLIER IN THE DAY AT A CHEMICAL
ALONG THE ELK RIVER.

ANY WATER SUPPLIED BY WEST VIRGINIA AMERICAN WATER IN KANAWHA, E
BOONE, JACKSON AND LINCOLN COUNTIES WAS TO BE USED ONLY FOR FLU
TOILETS AND PUTTING OUT FIRES.

THE STATE OF EMERGENCY INCLUDES WEST VIRGINIA AMERICAN WATER CUST
BOONE, LINCOLN, KANAWHA, JACKSON AND PUTNAM COUNTIES, ACCORDING
STATION WSAZ.

RESIDENTS WERE TOLD NOT TO DRINK THE WATER, BATHE IN IT OR COOK W
WATER AND ONLY USE IT FOR FLUSHING AND FIRE EMERGENCIES. BOILING
NOT REMOVE THE CHEMICALS.

THE DECLARATION IS BELIEVED TO IMPACT 100,000 CUSTOMERS, WSAZ RE

THE STATION SAID THE CHEMICAL LEAKED FROM A TANK AT FREEDOM INDUS
CHARLESTON. THE LEAKED PRODUCT IS 4-METHYLCYCLOHEXANE METHANOL, W
USED IN THE FROTH FLOTATION PROCESS OF COAL WASHING AND PREPAR

ACCORDING TO WEST VIRGINIA AMERICAN WATER, DUE TO A CHEMICAL LEAK
INTO THE ELK RIVER THURSDAY, A DO NOT USE WATER ORDER HAS BEEN IS
THE COUNTIES OF BOONE, JACKSON, KANAWHA, LINCOLN, AND PUTNAM I

RESIDENTS LIVING IN THESE COUNTIES WHO USE WEST VIRGINIA AMERICAN
BEING ASKED TO NOT USE TAP WATER FOR DRINKING, COOKING, WASHING, C
UNTIL FURTHER NOTICE.

THE PUBLIC SERVICE DISTRICT SAYS THIS ONLY AFFECTS CUSTOMERS WHO
VIRGINIA AMERICAN WATER. CUSTOMERS IN ST. ALBANS AND CEDAR GROVE
AFFECTED BY THIS.

IT IS BELIEVED THAT THE MATERIAL MAY BE HAZARDOUS AND MAY HAVE ENT
WATER SYSTEM.

THE GOVERNOR OF WV HAS DECLARED A STATE OF EMERGENCY.

A SPOKESPERSON FOR WEST VIRGINIA AMERICAN WATER SAYS IF YOU CAM
CONTACT WITH THE WATER AND FEEL ILL, CALL THE POISON CONTROL HOTLINE
222-1222.

IMPACT

Fire Involved: NO Fire Extinguished: UNKNOWN

INJURIES:	NO	Hospitalized:	Empl/Crew:	Passen
FATALITIES:	NO	Empl/Crew:	Passenger:	Occup
EVACUATIONS:	NO	Who Evacuated:	Radius/Area:	

Damages: NO

Closure Type		Description of Closure	Hours Closed	Direc Closu
Air:	N			
Road:	N			
Waterway:	N			
Track:	N			

Passengers Transferred: NO
Environmental Impact: UNKNOWN
Media Interest: HIGH Community Impact due to Material:

REMEDIAL ACTIONS

Release Secured: UNKNOWN
Release Rate:
Estimated Release Duration:

WEATHER

ADDITIONAL AGENCIES NOTIFIED

Federal: EPA REGION III
State/Local: STATE OF WEST VIRGINIA EOC
State/Local On Scene:
State Agency Number:

NOTIFICATIONS BY NRC

ATLANTIC STRIKE TEAM (MAIN OFFICE)
09-JAN-14 20:00 (609)7240008 MARCHUT
DHS NOC (NOC)
09-JAN-14 19:42 (202)2828114
CG INVESTIGATIVE SERVICE BALTIMORE (MAIN OFFICE)
09-JAN-14 19:42 (410)5762555
CGIS RAO ST. LOUIS (COMMAND CENTER)
09-JAN-14 19:42 (314)2692420
CHEM SAFETY AND HAZARD INVEST BOARD (AFTER HOURS)
09-JAN-14 19:43 (202)6312440 NO VERBAL

CHEM SAFETY AND HAZARD INVEST BOARD (CSB AUTOMATIC NOTIFICATIC
09-JAN-14 19:42 (202)3780334
DOT CRISIS MANAGEMENT CENTER (MAIN OFFICE)
09-JAN-14 19:42 (202)3661863
DOT OFFICE OF INSPECTOR GENERAL (OFFICE OF INVESTIGATORS)
09-JAN-14 19:42 (202)3295487
EPA OEM (MAIN OFFICE)
09-JAN-14 19:45 (202)5643850 GRIER
EPA OEM (AFTER HOURS SECONDARY)
09-JAN-14 19:48 (202)5643850 GRIER
U.S. EPA III (MAIN OFFICE)
09-JAN-14 20:13 (215)8143255 MATTLOCK
NATIONAL INFRASTRUCTURE COORD CTR (MAIN OFFICE)
09-JAN-14 19:42 (202)2829201
NOAA RPTS FOR WV (MAIN OFFICE)
09-JAN-14 19:42 (206)5264911
NATIONAL RESPONSE CENTER HQ (AUTOMATIC REPORTS)
09-JAN-14 19:42 (202)2671136
NRC SENIOR WATCH OFFICER (MAIN OFFICE)
09-JAN-14 20:13 (202)2672100 MATTICE
HOMELAND SEC COORDINATION CENTER (MAIN OFFICE)
09-JAN-14 19:42 (202)2828300
ORSANCO (MAIN OFFICE)
09-JAN-14 19:42 (513)2317719
SECTOR OHIO VALLEY (COMMAND CENTER)
09-JAN-14 19:42 (502)7795424
OFFICE OF ENV. POLICY & COMPLIANCE (MAIN OFFICE)
09-JAN-14 19:42 (215)5975012
USCG DISTRICT 8 (MAIN OFFICE)
09-JAN-14 19:42 (504)5896225
WEST VIRGINIA DEP (MAIN OFFICE)
09-JAN-14 19:42 (304)5585938
WV DEP ATTN: DUTY OFFICER (MAIN OFFICE)
09-JAN-14 19:42 (800)6423074
WV DEP SPILL LINE (MAIN OFFICE)
09-JAN-14 19:42 (304)3683960
WV INTELLIGENCE/FUSION CENTER (COMMAND CENTER)
09-JAN-14 19:42 (304)5584831

ADDITIONAL INFORMATION

*** END INCIDENT REPORT # 1070627 ***
Report any problems by calling 1-800-424-8802
PLEASE VISIT OUR WEB SITE AT http://www.nrc.uscg.mil

Matsinger, Josie

From: Wright, Dave
Sent: Friday, January 10, 2014 8:00 AM
To: Burns, Francis; Matlock, Dennis; Hodgkiss, Kathy; Garvin, Shawn; Capacasa, Jon
Cc: Matsinger, Josie; Eoc, Epahq; Irizarry, Gilberto; Lee, Eugene
Subject: FW: Follow-up on West Virginia Chemical Spill sampling results

Importance: High

Some useful information from WV Health (via ATSDR). Hopefully the flushing will be the cure and drop the number.

David P. Wright, Director
Office of Preparedness and Response
Mid - Atlantic Region
United States Environmental Protection Agency (3HS30)
1650 Arch Street
Philadelphia, PA 19103

Office: 215-814-3207
Cell: 609-865-7957

From: Werner, Lora
Sent: Friday, January 10, 2014 7:54 AM
To: Johnson, KarenD; Wright, Dave
Cc: Markiewicz, Karl
Subject: Fw: Followup on West Virgina Chemical Spill sampling results

Fyi

From: Bixler, Dee <Dee.Bixler@wv.gov>
Sent: Friday, January 10, 2014 7:47:39 AM
To: Cseh, Larry (ATSDR/DTHHS/OD); Frazer, Teresa E
Cc: Werner, Lora S. (ATSDR/DCHI/EB); Holler, James S. (Jim) (ATSDR/DTHHS/OD); Murray, Ed (ATSDR/DTHHS/OD); EOC Report (CDC); Haddy, Loretta E; Ibrahim, Sherif M
Subject: RE: Followup on West Virgina Chemical Spill sampling results

Thanks. This has been shared with health incident command, poison control and relevant partners. We greatly appreciate your support through this.

-dee

Danae Bixler, MD, MPH
Director, Infectious Disease Epidemiology
West Virginia Bureau for Public Health

From: Cseh, Larry (ATSDR/DTHHS/OD) [mailto:loc3@cdc.gov]
Sent: Fri 1/10/2014 7:09 AM
To: Frazer, Teresa E; Bixler, Dee
Cc: Werner, Lora S. (ATSDR/DCHI/EB); Holler, James S. (Jim) (ATSDR/DTHHS/OD); Murray, Ed (ATSDR/DTHHS/OD);

Freedom_0006121_0232

Cseh, Larry (ATSDR/DTHHS/OD); EOC Report (CDC)
Subject: Followup on West Virgina Chemical Spill sampling results

Teresa,

Last night we discussed a screening of 1 ppm, we continue to believe will be protective of public health. The levels reported by American Water for samples collected around 17:00 on January 9, 2014 were between 1.2 and .6 ppm. We do not anticipate any adverse health effects from these levels.

That said because of the odor and not knowing an odor threshold we would also recommend that the system or residents be told to flush their systems until it is no longer observed. ATSDR is willing to continue to support you with data review and consultation as you need.
Larry

CAPT Larry F. Cseh, R.S., MSA
US Public Health Service
Emergency Response Coordinator
ATSDR, DTHHS, ERP

770-488-3335
Cell 404-791-7215
Loc3@cdc.gov

Agency for Toxic Substances and Disease Registry
Division of Toxicology and Human Health Sciences
4770 Buford Hwy, mailstop F-58
Atlanta, GA 30341

Freedom_0006121_0233

Matsinger, Josie

From: Burns, Francis
Sent: Thursday, January 09, 2014 8:55 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Freedom Industries, Charleston, WV

This afternoon there was a chemical spill from Freedom Industries, which is the old Pennzoil Refinery. The spilled chemical was methylcyclohexane, which is used in coal preparation and processing. Spill into the ELK River occurred sometime earlier in the day and there was an early report of an odor. The Gov of WV declared a state of emergency for at least five counties. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort.

WV issued an order to not drink cook or bathe in the water, which affects approximately 100,000 people. WV is conducting additional water sampling. The Civil Support Team is also deployed to the WVEOC to assist in supplying water to residents. The WV EOC is operational but have not requested EPA assistance. OSC Dennis Matlock has contacted WV DEP Mike Dorsey and offered EPA assistance.

11 AM RECT Call

215-316-1012
Jon Janowicz

Josie Matsinger - 215/814-3132

Ex. 6 - Personal Privacy

Response Center - 215/814-2830

Duty Office (OSC) 215/814-3255

Macmillan, Fred

From: Matsinger, Josie
Sent: Friday, January 10, 2014 8:25 AM
To: Macmillan, Fred
Subject: FW: HOTSITE REPORT: Freedom Industries, Charleston, WV

Importance: High

-----Original Message-----
From: Burns, Francis
Sent: Thursday, January 09, 2014 8:55 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Freedom Industries, Charleston, WV

This afternoon there was a chemical spill from Freedom Industries, which is the old Pennzoil Refinery. The spilled chemical was methylcyclohexane, which is used in coal preparation and processing. Spill into the ELK River occurred sometime earlier in the day and there was an early report of an odor. The Gov of WV declared a state of emergency for at least five counties. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort.

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Macmillan, Fred

From: Matsinger, Josie
Sent: Friday, January 10, 2014 8:38 AM
To: Macmillan, Fred
Subject: FW: Follow-up on West Virginia Chemical Spill sampling results

Importance: High

From: Wright, Dave
Sent: Friday, January 10, 2014 8:00 AM
To: Burns, Francis; Matlock, Dennis; Hodgkiss, Kathy; Garvin, Shawn; Capacasa, Jon
Cc: Matsinger, Josie; Eoc, Epahq; Irizarry, Gilberto; Lee, Eugene
Subject: FW: Follow-up on West Virginia Chemical Spill sampling results
Importance: High

Some useful information from WV Health (via ATSDR). Hopefully the flushing will be the cure and drop the number.

David P. Wright, Director
Office of Preparedness and Response
Mid - Atlantic Region
United States Environmental Protection Agency (3HS30)
1650 Arch Street
Philadelphia, PA 19103

Office: 215-814-3207
Cell: 609-865-7957

From: Werner, Lora
Sent: Friday, January 10, 2014 7:54 AM
To: Johnson, KarenD; Wright, Dave
Cc: Markiewicz, Karl
Subject: Fw: Followup on West Virgina Chemical Spill sampling results

Fyi

From: Bixler, Dee <Dee.Bixler@wv.gov>
Sent: Friday, January 10, 2014 7:47:39 AM
To: Cseh, Larry (ATSDR/DTHHS/OD); Frazer, Teresa E
Cc: Werner, Lora S. (ATSDR/DCHI/EB); Holler, James S. (Jim) (ATSDR/DTHHS/OD); Murray, Ed (ATSDR/DTHHS/OD); EOC Report (CDC); Haddy, Loretta E; Ibrahim, Sherif M
Subject: RE: Followup on West Virgina Chemical Spill sampling results

Thanks. This has been shared with health incident command, poison control and relevant partners. We greatly appreciate your support through this.

-dee

Freedom_0006121_0237

Danae Bixler, MD, MPH
Director, Infectious Disease Epidemiology
West Virginia Bureau for Public Health

From: Cseh, Larry (ATSDR/DTHHS/OD) [mailto:loc3@cdc.gov]
Sent: Fri 1/10/2014 7:09 AM
To: Frazer, Teresa E; Bixler, Dee
Cc: Werner, Lora S. (ATSDR/DCHI/EB); Holler, James S. (Jim) (ATSDR/DTHHS/OD); Murray, Ed (ATSDR/DTHHS/OD); Cseh, Larry (ATSDR/DTHHS/OD); EOC Report (CDC)
Subject: Followup on West Virgina Chemical Spill sampling results

Teresa,

Last night we discussed a screening of 1 ppm, we continue to believe will be protective of public health. The levels reported by American Water for samples collected around 17:00 on January 9, 2014 were between 1.2 and .6 ppm. We do not anticipate any adverse health effects from these levels.

That said because of the odor and not knowing an odor threshold we would also recommend that the system or residents be told to flush their systems until it is no longer observed. ATSDR is willing to continue to support you with data review and consultation as you need.
Larry

CAPT Larry F. Cseh, R.S., MSA
US Public Health Service
Emergency Response Coordinator
ATSDR, DTHHS, ERP

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Division of Toxicology and Human Health Sciences
4770 Buford Hwy, mailstop F-58
Atlanta, GA 30341

Freedom_0006121_0238

Ex. 6 - Personal Privacy

Ex. 6 - Personal Privacy

ENLV

Marzulli, Linda

From: Ventura, Dominic
Sent: Wednesday, January 15, 2014 2:20 PM
To: Casillas, Laura; Matlock, Dennis; Smith, Bonnie; Ferrell, Mark; Wisniewski, Patti-Kay; binetti, victoria; Daniel, Kevin; Burns, Francis; Williams, Jacqueline; Kelly, Jack (R3 Phila.)
Cc: Wright, Dave; Markiewicz, Karl; Steuteville, William; Armstrong, Joan; Welsh, Mike; Rose, Kenneth; Taylor, Trish; Marzulli, Linda; Miller, Linda; Santiago, Cindy; Matsinger, Josie; Werner, Lora; Price-Fay, Michelle; Helverson, Robert
Subject: Charleston Chemical Leak General Brief - Follow-up

Hello all,

During this morning's meeting a question was asked about how long it would take for the Chemical Safety Board (CSB) to complete their report. I spoke with a bit with CSB who said that it typically takes 1 year or more to complete a full report for an incident such as this.

Dom Ventura
On Scene Coordinator
U.S. EPA Region 3
(215) 814-2363

-----Original Appointment-----
From: Casillas, Laura
Sent: Wednesday, January 15, 2014 11:38 AM
To: Matlock, Dennis; Smith, Bonnie; Ferrell, Mark; Wisniewski, Patti-Kay; binetti, victoria; Daniel, Kevin; Ventura, Dominic; Burns, Francis; Williams, Jacqueline; Kelly, Jack (R3 Phila.)
Cc: Wright, Dave; Markiewicz, Karl; Steuteville, William; Armstrong, Joan; Welsh, Mike; Rose, Kenneth; Taylor, Trish; Marzulli, Linda; Miller, Linda; Santiago, Cindy; Matsinger, Josie; Werner, Lora; Price-Fay, Michelle; Helverson, Robert
Subject: Charleston Chemical Leak General Brief
When: Monday, January 20, 2014 9:00 AM-10:00 AM (UTC-05:00) Eastern Time (US & Canada).
Where: Conf Call #866-299-3188, Code #215-814-3256

Purpose of this meeting is to provide a forum for a coordinated response.
It will provide opportunity for general operational and regulatory awareness WITHIN EPA REGION 3 response parties.
Please share accordingly.

AGENDA

Roll Call-PSC
Ground Rules-PSC
Review Agenda-PSC

1. Incident Commander/OPS (Dennis Matlock/Dom Ventura):

Freedom_0006121_0242

   a. Current response actions and accomplishments
   b. Safety Issues
2. Regional Incident Commander (Fran Burns):
   a. Reviews Key Decisions Priorities, Constraints and Limitations
   b. Discusses Incident Objectives
   c. Reviews Key Procedures
   d. Assigns/Reviews Functional Tasks
3. REGULATORY CONTACT-issues and updates
4. FSC (Jackie Williams)-finance issues
5. PIO (Bonnie Smith) -public affairs issues
6. LNO (Mark Ferrell)-interagency issues
7. PSC-facilitates open discussion to:
   a. Clarify priorities and objectives
   b. Review Assignments/Open Actions/Tasks

Freedom_0006121_0243

Matsinger, Josie

From: DTRA Reachback [reachback@cnttr.dtra.mil]
Sent: Thursday, January 09, 2014 9:35 PM
To: OPSCNTR1@DTRA.MIL; NOC.SWO@HQ.DHS.GOV; IMAAC@HQ.DHS.GOV
Cc: reachback@cnttr.dtra.mil
Subject: IMAAC Product Available

IMAAC has completed an initial modeling product for the FEMA Region 3 for a chemical spill of methycyclohexane at the Young's Industrial Park in Charleston, West Virginia at 1730 EST. The product is available on the HSIN IMAAC page (https://hsin.dhs.gov/collab/IMAAC).
IMAAC Technical Operations will conduct a coordination teleconference at 2150 EST to discuss source term and weather information, and the initial modeling product.

Teleconference information:
Phone number: Ex. 6 - Personal Privacy
PIN: Ex. 6 - Personal Privacy
IMAAC TECHNICAL OPERATIONS HUB
Phone: 703-767-2003

Respectfully,

Defense Threat Reduction Agency
COM: (703) 767-3448 (DSN 427-)
STE: (703) 767-2138
NIPR: reachback@cnttr.dtra.mil
SIPR: reachback@cnttr.dtra.smil.mil
JWICS: reachback@dtra.ic.gov
J9 Directorate
Information and Systems Applications Dept.
Technical Reachback Division

Freedom_0006121_0244

Marzulli, Linda

From: Werner, Lora
Sent: Friday, January 10, 2014 3:41 PM
To: Werner, Lora; Melvin, Karen; Aquino, Marcos; Armstead, John A.; Beers, Samantha; Borsellino , Ron; Burns, Francis; Capacasa, Jon; D'Andrea, Michael; DiPasquale, Nicholas; Esher, Diana; Fala, Geoffrey; Garvin, Shawn; Goodwin, Jada; Heston, Gerald; Hodgkiss, Kathy; Libertz, Catherine; Marzulli, Linda; Matsinger, Josie; Mulkey, Marcia; Pomponio, John; Rodriguez, Norman; Schadel, Chuck; Steuteville, William; Tate, Rita; White, Terri-A; Wisniewski, Patti-Kay; Rose, Kenneth
Cc: Early, William; Hepler, Teresa; binetti, victoria; Markiewicz, Karl; Helverson, Robert; Macmillan, Fred
Subject: RE: Freedom Chemical Spill; update from ATSDR

On the acute exposure question, I discussed this with Vickie a few moments ago. Unfortunately, ATSDR ER does not feel the limited tox data supports the development of any other health effect screening numbers beyond the 1 ppm provisional number proposed already at this time. We can continue to review available sampling data and discuss this further with EPA as additional site specific exposure information becomes available.

Ex. 5 - Deliberative

Thank you. Lora

Lora Siegmann Werner, MPH
Regional Director, Region 3
Division of Community Health Investigations
Agency for Toxic Substances & Disease Registry (ATSDR)/Centers for Disease Control & Prevention
c/o EPA Region 3
1650 Arch Street
Mailstop 3HS00
Philadelphia, PA 19103

Desk phone: 215-814-3141
Cell phone: 215-588-9778
Fax: 215-814-3003
Emails (only need to use one): lkw9@cdc.gov and werner.lora@epa.gov

---

From: Werner, Lora
Sent: Friday, January 10, 2014 2:14 PM
To: Melvin, Karen; Aquino, Marcos; Armstead, John A.; Beers, Samantha; Borsellino , Ron; Burns, Francis; Capacasa, Jon; D'Andrea, Michael; DiPasquale, Nicholas; Esher, Diana; Fala, Geoffrey; Garvin, Shawn; Goodwin, Jada; Heston, Gerald; Hodgkiss, Kathy; Libertz, Catherine; Marzulli, Linda; Matsinger, Josie; Mulkey, Marcia; Pomponio, John; Rodriguez, Norman; Schadel, Chuck; Steuteville, William; Tate, Rita; White, Terri-A; Wisniewski, Patti-Kay; Rose, Kenneth
Cc: Early, William; Hepler, Teresa; binetti, victoria; Markiewicz, Karl; Helverson, Robert; Macmillan, Fred
Subject: RE: Freedom Chemical Spill

Hi there

I have Vickie's emailed request and shared it with ATSDR emergency response. Vickie I will give you a call to discuss verbally after this HHS call ends, probably around 3 pm.

I have not been able to locate a centralized local or state agency contact for health questions/concerns about this incident. I requested that our CDC INFO 800 line be provided some talking points to answer questions that might come in to ATL. It sounds like most residents are being referred to the WV American Water authority website for information. Note, the American Water website mentions the EPA Safe Water Drinking Line "General guidelines on ways to lessen the health risk are available from the EPA Safe Drinking Water Hotline at 1-800-426-4791." (http://www.amwater.com/wvaw/about-us/news.html), which might be why the EPA R3 Call Center is getting questions? The local health department, Kanawha Charleston Health Department, has a running banner on the issue on the top of their website and the health director stated in their press release from last night that "...anyone experiencing any type of health care symptoms they think may have been associated with consuming the contaminated water to contact their health care provider or the Poison Control Center at 1-800-222-1222" (http://www.kchdwv.org/KCHD/media/KCHD-Media/PDF%20Files/14-01-03-Facilities-Ordered-Closed.pdf). So, EPA R3's hotline can share that information if appropriate.

Regarding the request that came in to Fred via FEMA about whether the do not use the water order also applies to pets -- our response is that we suggest that the same information would apply to pets, particularly for aquatic animals.

Thank you, Lora

Lora Siegmann Werner, MPH
Regional Director, Region 3
Division of Community Health Investigations
Agency for Toxic Substances & Disease Registry (ATSDR)/Centers for Disease Control & Prevention
c/o EPA Region 3
1650 Arch Street
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Desk phone: 215-814-3141
Cell phone: 215-588-9778
Fax: 215-814-3003
Emails (only need to use one): lkw9@cdc.gov and werner.lora@epa.gov

-----Original Appointment-----
From: Melvin, Karen
Sent: Friday, January 10, 2014 10:58 AM
To: Aquino, Marcos; Armstead, John A.; Beers, Samantha; Borsellino , Ron; Burns, Francis; Capacasa, Jon; D'Andrea, Michael; DiPasquale, Nicholas; Esher, Diana; Fala, Geoffrey; Garvin, Shawn; Goodwin, Jada; Heston, Gerald; Hodgkiss, Kathy; Libertz, Catherine; Marzulli, Linda; Matsinger, Josie; Mulkey, Marcia; Pomponio, John; Rodriguez, Norman; Schadel, Chuck; Steuteville, William; Tate, Rita; Werner, Lora; White, Terri-A; Wisniewski, Patti-Kay; Rose, Kenneth
Cc: Early, William; Hepler, Teresa; binetti, victoria
Subject: Freedom Chemical Spill
When: Friday, January 10, 2014 11:00 AM-12:00 PM (GMT-05:00) Eastern Time (US & Canada).
Where: RRC

For those who did not receive this already, the call in number is Ex. 6 - Personal Privacy
Code Ex. 6 - Personal Privacy

Marzulli, Linda

From:	Matsinger, Josie
Sent:	Friday, January 10, 2014 9:51 AM
To:	Aquino, Marcos; Armstead, John A.; Beers, Samantha; Borsellino , Ron; Burns, Francis; Capacasa, Jon; D'Andrea, Michael; DiPasquale, Nicholas; Esher, Diana; Fala, Geoffrey; Garvin, Shawn; Goodwin, Jada; Heston, Gerald; Hodgkiss, Kathy; Libertz, Catherine; Marzulli, Linda; Matsinger, Josie; Mulkey, Marcia; Pomponio, John; Rodriguez, Norman; Schadel, Chuck; Steuteville, William; Tate, Rita; Werner, Lora; White, Terri-A; Wisniewski, Patti-Kay; Wright, Dave
Cc:	Matlock, Dennis; Linden, melissa
Subject:	Freedom Chemical Spill - RICT Mtg./Conference Call

Follow-up Information:
Location: RRC/EOC
Call in Ex. 6 - Personal Privacy
Code:
Time: 1100 hrs

Chair: Karen Melvin
Roll Call
Overview of incident and Status of Response - Fran Burns/Dave Wright
Update: OSC Matlock and OPR Coordination Activities -
Update: Water Treatment Plant Status - Patty Wisniewski
Media/Congressional Interest
Action Items

BACKGROUND: Yesterday, there was a chemical spill from Freedom Industries, which is an old Pennzoil Refinery. The spilled chemical was 4-methylcyclohexane methanol, which is used in coal preparation and processing. Spill into the ELK River occurred sometime earlier in the day and there was an early report of an odor. The Gov of WV declared a state of emergency for at least five counties. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort.

WV issued an order to not drink cook or bathe in the water, which affects approximately 100,000 people. WV is conducting additional water sampling. The Civil Support Team is also deployed to the WVEOC to assist in supplying water to residents. The WV EOC is operational but have not requested EPA assistance. OSC Dennis Matlock has contacted WV DEP Mike Dorsey and offered EPA assistance.

CURRENT ACTIVITIES: EPA OSCs Matlock and Linden are enroute to Charleston with START contractor to assist in any sampling activities if requested. They have been in contact with FEMA and will meet up with the IMAT (incident management assistance team) upon his arrival. In anticipation that we will need to staff the ESF-10 desk at the FEMA Region 3 Regional Response Coordination Center (RRCC), the RRC has sent a request for availability to the RSC membership for volunteers to serve as Watchstander at the FEMA offices here in Philadelphia. Until 7:00 pm this evening, Fred MacMillan from HSCD is scheduled to staff the ESF-10 desk.

- As always, we will follow the RICT protocols for deployment of any RSC staff which includes: 1) reminding the RSC members to discuss with their supervisor their interest prior to volunteering; 2) obtaining Deputy Director approval/clearance prior to deployment; and, 3) checking with ORC on whether the employee to be deployed is needed for any enforcement matters.

Freedom_0006121_0248

Marzulli, Linda

From: Werner, Lora
Sent: Friday, January 10, 2014 6:43 AM
To: Johnson, KarenD; Johnson, Eric; Ioven, Dawn
Cc: Markiewicz, Karl; Marzulli, Linda; Wright, Dave
Subject: Fw: Freedom Industries, Charleston, WV chemical spill; methylcyclohexane and drinking water
Attachments: January 9 Exposure.docx

Hi there Karen

Scroll below for limited tox info Karl located and info WV Poison Control is sharing.

EPA OSC Matlock said last night he was going down. No requests for ATSDR assistance as of yet, don't know about EPA.

Lora

From: Ex. 6 - Personal Privacy
Sent: Thursday, January 09, 2014 9:37:43 PM
To: Werner, Lora
Cc: Markiewicz, Karl; Helverson, Robert; Pomales, Ana
Subject: RE: Freedom Industries, Charleston, WV chemical spill; methylcyclohexane and drinking water

Thanks, Lora!
The Poison Center is getting hammered right now! And thanks, Karl for your research. I equally have found minimal info about it. I've attached our response to anyone calling with an exposure. Mostly based on the structure, I would expect this chemical to cause gastric irritation, maybe defatting to skin, and possibly inebriating if ingested. I'm glad your analysis was similar to mine as I don't think this will be an inhalation risk based on volatility.

As always, thanks for your help.

Ex. 6 - Personal Privacy, M.D.
Chief, Division of Medical Toxicology
Department of Emergency Medicine
University of Pittsburgh Medical Center

Associate Professor
University of Pittsburgh School of Medicine

-----Original Message-----
From: Werner, Lora [mailto:Werner.Lora@epa.gov]
Sent: Thursday, January 09, 2014 9:22 PM
To: Ex. 6 - Personal Privacy
Cc: Markiewicz, Karl; Helverson, Robert; Pomales, Ana
Subject: Freedom Industries, Charleston, WV chemical spill; methylcyclohexane and drinking water

Hi Tony

I am sure you have heard about this already, but wanted to share what we have heard over here on the ATSDR and EPA R3 side. Are you getting calls in to the PCC?

"This afternoon there was a chemical spill from Freedom Industries, which is the old Pennzoil Refinery. The spilled chemical was methylcyclohexane, which is used in coal preparation and processing. Spill into the ELK River occurred sometime earlier in the day and there was an early report of an odor. The Gov of WV declared a state of emergency for at least five counties. The Kanawha Valley Water Treatment Plant detected the chemical even after the increased carbon treatment effort.

WV issued an order to not drink cook or bathe in the water, which affects approximately 100,000 people. WV is conducting additional water sampling. The Civil Support Team is also deployed to the WVEOC to assist in supplying water to residents."

Karl provided the following from his prelim research tonight:

"I think the "do not use" order and subsequent state of emergency is related to lack of toxicity information rather than known hazard.

From Chemspider: It has a low vapor pressure (0.133 mmHg at 25C) and high boiling point (192C at 760mmHg) so its not moving into the air. The density is 0.884 g/cm3 so its a floater.

I think its an eye and skin irritant based on structure. Can't find any tox specific studies."

Let us know if we can be of assistance.

Best, Lora

Lora Siegmann Werner, MPH
Regional Director, Region 3
Division of Community Health Investigations Agency for Toxic Substances & Disease Registry (ATSDR)/Centers for Disease Control & Prevention c/o EPA Region 3
1650 Arch Street
Mailstop 3HS00
Philadelphia, PA 19103

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Cell phone: 215-588-9778
Fax: 215-814-3003
Emails (only need to use one): lkw9@cdc.gov and werner.lora@epa.gov

Freedom_0006121_0250

January 9, 2014
CONTAMINATED WATER INCIDENT (as of 19:30)

INVOLVED CHEMICAL:
Reported to be 4-methylcyclohexane methanol
CAS: 34885-03-5
Multiple other synonyms

DOSE:
Unknown at this time how much went into the water system. Dilution will limit the exposure but without specific information regarding the leak/spill, the actual dose is unknown.

There may also be a lag between when the chemical entered the water and when that water appears in homes and businesses.

TOXICITY:
No information is available for this chemical. Based on the chemical's structure, it is assumed that it may have the properties of higher alcohols and/or phenol-like solvents.

The WV Poison Center will update this information if more becomes available.

SYMPTOMS:
Assuming the above, symptoms would be expected to occur shortly after exposure. Therefore, if there are no symptoms, and water has been used for bathing, teeth brushing, or drinking during the day today, it is likely that no acute symptoms will develop.

Skin irritation is possible
Vomiting is possible
CNS depression if a large exposure

Whether or not the above occurs would depend on dose and individual sensitivity.

It is important to note that unusual smells, odors, and taste can cause nausea and headaches. These symptoms are not due to toxic effects but are a response to unusual smells/tastes.

CURRENT TRIAGE RECOMMENDATIONS (19:30 01-09-14):
If no symptoms are present, do nothing and follow recommendations not to use the water for drinking or bathing.

If mild symptoms are present (mild skin irritation, mild vomiting), the Poison Center is attempting to manage these cases at home.

If callers are reporting significant symptoms, the Poison Center is referring these individuals in.

If callers are reporting symptoms that are likely related to a medical event, the Poison Center is referring these individuals in.

HOSPITAL MANAGEMENT RECOMMENDATIONS:
Please let the Poison Center know about these cases.

Treatment is symptomatic and supportive. There is no specific/antidotal treatment.

Ensure that a co-existing or coincidental medical event is not occurring.

Occupational Health Guideline for Methylcyclohexane

INTRODUCTION

This guideline is intended as a source of information for employees, employers, physicians, industrial hygienists, and other occupational health professionals who may have a need for such information. It does not attempt to present all data; rather, it presents pertinent information and data in summary form.

SUBSTANCE IDENTIFICATION

- Formula: $CH_3C_6H_{11}$
- Synonyms: Cyclohexylmethane; hexahydrotoluene
- Appearance and odor: Colorless liquid with a faint, benzene-like odor.

PERMISSIBLE EXPOSURE LIMIT (PEL)

The current OSHA standard for methylcyclohexane is 500 parts of methylcyclohexane per million parts of air (ppm) averaged over an eight-hour work shift. This may also be expressed as 2000 milligrams of methylcyclohexane per cubic meter of air (mg/m^3). The American Conference of Governmental Industrial Hygienists has recommended for methylcyclohexane a Threshold Limit Value of 400 ppm.

HEALTH HAZARD INFORMATION

- **Routes of exposure**

Methylcyclohexane can affect the body if it is inhaled, comes in contact with the eyes or skin, or is swallowed.

- **Effects of overexposure**

1. Short-term Exposure: Overexposure to methylcyclohexane may cause light-headedness and drowsiness. It may also cause a slight irritation of the eyes, nose, and throat. At high concentrations, it may cause unconsciousness and death.

2. Long-term Exposure: Prolonged exposure to the liquid may cause irritation of the skin.

3. Reporting Signs and Symptoms: A physician should be contacted if anyone develops any signs or symptoms and suspects that they are caused by exposure to methylcyclohexane.

- **Recommended medical surveillance**

The following medical procedures should be made available to each employee who is exposed to methylcyclohexane at potentially hazardous levels:

1. Initial Medical Screening: Employees should be screened for history of certain medical conditions (listed below) which might place the employee at increased risk from methylcyclohexane exposure.

—Skin disease: Methylcyclohexane is a skin defatting agent and can cause dermatitis on prolonged exposure. Persons with pre-existing skin disorders may be more susceptible to the effects of this agent.

—Liver disease: Although methylcyclohexane is not known as a liver toxin in humans, the importance of this organ in the biotransformation and detoxification of foreign substances should be considered before exposing persons with impaired liver function.

—Kidney disease: Although methylcyclohexane is not known as a kidney toxin in humans, the importance of this organ in the elimination of toxic substances justifies special consideration in those with impaired renal function.

—Chronic respiratory disease: In persons with impaired pulmonary function, especially those with obstructive airway diseases, the breathing of methylcyclohexane might cause exacerbation of symptoms due to its irritant properties.

2. Periodic Medical Examination: Any employee developing the above-listed conditions should be referred for further medical examination.

- **Summary of toxicology**

Methylcyclohexane vapor is a mild narcotic. Concentrations of 10,000 to 12,500 ppm were fatal to mice. Rabbits exposed to 3330 ppm for 300 hours showed minor evidence of liver and kidney injury, while 1200 ppm was innocuous for rabbits, and prolonged exposure at 370 ppm was harmless to monkeys. No toxic effects from industrial exposure have been reported. Prolonged

---

These recommendations reflect good industrial hygiene and medical surveillance practices and their implementation will assist in achieving an effective occupational health program. However, they may not be sufficient to achieve compliance with all requirements of OSHA regulations.

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service Centers for Disease Control
National Institute for Occupational Safety and Health

U.S. DEPARTMENT OF LABOR
Occupational Safety and Health Administration

Freedom_0006121_0252

or repeated skin contact may produce drying and irritation due to defatting action.

CHEMICAL AND PHYSICAL PROPERTIES

- **Physical data**
  1. Molecular weight: 98
  2. Boiling point (760 mm Hg): 101 C (214 F)
  3. Specific gravity (water = 1): 0.77
  4. Vapor density (air = 1 at boiling point of methylcyclohexane): 3.4
  5. Melting point: −126 C (−196 F)
  6. Vapor pressure at 20 C (68 F): 37 mm Hg
  7. Solubility in water, g/100 g water at 20 C (68 F): Insoluble
  8. Evaporation rate (butyl acetate = 1): Data not available
- **Reactivity**
  1. Conditions contributing to instability: Heat
  2. Incompatibilities: Contact with strong oxidizing agents may cause fires and explosions.
  3. Hazardous decomposition products: Toxic gases and vapors (such as carbon monoxide) may be released in a fire involving methylcyclohexane.
  4. Special precautions: Methylcyclohexane will attack some forms of plastics, rubber, and coatings.
- **Flammability**
  1. Flash point: −3.9 C (25 F) (closed cup)
  2. Autoignition temperature: 250 C (482 F)
  3. Flammable limits in air, % by volume: Lower: 1.2; Upper: 6.7
  4. Extinguishant: Dry chemical, foam, carbon dioxide
- **Warning properties**
  1. Odor Threshold: Sax states that at the level of 500 ppm, methylcyclohexane "exhibits only a very faint odor."
  2. Irritation Levels: Sax states that "this material does not cause irritation to the eyes and nose."
  3. Evaluation of Warning Properties: At concentrations within two or three times the permissible exposure limit, methylcyclohexane can be detected through its odor. Therefore, for the purposes of this guideline, it is treated as a material with adequate warning properties.

MONITORING AND MEASUREMENT PROCEDURES

- **General**

Measurements to determine employee exposure are best taken so that the average eight-hour exposure is based on a single eight-hour sample or on two four-hour samples. Several short-time interval samples (up to 30 minutes) may also be used to determine the average exposure level. Air samples should be taken in the employee's breathing zone (air that would most nearly represent that inhaled by the employee).

- **Method**

Sampling and analyses may be performed by collection of methylcyclohexane vapors using an adsorption tube with subsequent desorption with carbon disulfide and gas chromatographic analysis. Also, detector tubes certified by NIOSH under 42 CFR Part 84 or other direct-reading devices calibrated to measure methylcyclohexane may be used. An analytical method for methylcyclohexane is in the *NIOSH Manual of Analytical Methods*, 2nd Ed., Vol. 2, 1977, available from the Government Printing Office, Washington, D.C. 20402 (GPO No. 017-033-00260-6).

RESPIRATORS

- Good industrial hygiene practices recommend that engineering controls be used to reduce environmental concentrations to the permissible exposure level. However, there are some exceptions where respirators may be used to control exposure. Respirators may be used when engineering and work practice controls are not technically feasible, when such controls are in the process of being installed, or when they fail and need to be supplemented. Respirators may also be used for operations which require entry into tanks or closed vessels, and in emergency situations. If the use of respirators is necessary, the only respirators permitted are those that have been approved by the Mine Safety and Health Administration (formerly Mining Enforcement and Safety Administration) or by the National Institute for Occupational Safety and Health.
- In addition to respirator selection, a complete respiratory protection program should be instituted which includes regular training, maintenance, inspection, cleaning, and evaluation.

PERSONAL PROTECTIVE EQUIPMENT

- Employees should be provided with and required to use impervious clothing, gloves, face shields (eight-inch minimum), and other appropriate protective clothing necessary to prevent repeated or prolonged skin contact with liquid methylcyclohexane.
- Clothing wet with liquid methylcyclohexane should be placed in closed containers for storage until it can be discarded or until provision is made for the removal of methylcyclohexane from the clothing. If the clothing is to be laundered or otherwise cleaned to remove the methylcyclohexane, the person performing the operation should be informed of methylcyclohexane's hazardous properties.
- Any clothing which becomes wet with liquid methylcyclohexane should be removed immediately and not reworn until the methylcyclohexane is removed from the clothing.
- Employees should be provided with and required to use splash-proof safety goggles where liquid methylcyclohexane may contact the eyes.

Freedom_0006121_0253

SANITATION

• Skin that becomes wet with liquid methylcyclohexane should be promptly washed or showered with soap or mild detergent and water to remove any methylcyclohexane.

COMMON OPERATIONS AND CONTROLS

The following list includes some common operations in which exposure to methylcyclohexane may occur and control methods which may be effective in each case:

Operation	Controls
Use as a diluent solvent for cellulose during spray application of lacquers	Process enclosure; local exhaust ventilation; personal protective equipment
Liberation during wire- and textile-coating operations with resins and rubber	General dilution ventilation
Liberation during brush and hand application of synthetic varnishes, lacquers, and paints	General dilution ventilation; personal protective equipment
Use during manufacture of rotogravure inks	Process enclosure; local exhaust ventilation; personal protective equipment
Use as a solvent for oils, fats, waxes, and rubber; use as a diluent in resin molding; use as a degreasing agent	General dilution ventilation; personal protective equipment
Use in industrial organic synthesis in hydro-reforming process	Process enclosure; local exhaust ventilation; personal protective equipment

EMERGENCY FIRST AID PROCEDURES

In the event of an emergency, institute first aid procedures and send for first aid or medical assistance.

• **Eye Exposure**

If methylcyclohexane gets into the eyes, wash eyes immediately with large amounts of water, lifting the lower and upper lids occasionally. If irritation persists after washing, get medical attention. Contact lenses should not be worn when working with this chemical.

• **Skin Exposure**

If methylcyclohexane gets on the skin, promptly wash the contaminated skin using soap or mild detergent and water. If methylcyclohexane soaks through the clothing, remove the clothing immediately and wash the skin using soap or mild detergent and water. If irritation persists after washing, get medical attention.

• **Breathing**

If a person breathes in large amounts of methylcyclohexane, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

• **Swallowing**

If methylcyclohexane has been swallowed, do not induce vomiting. Get medical attention immediately.

• **Rescue**

Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

SPILL, LEAK, AND DISPOSAL PROCEDURES

• Persons not wearing protective equipment and clothing should be restricted from areas of spills or leaks until cleanup has been completed.

• If methylcyclohexane is spilled or leaked, the following steps should be taken:

1. Remove all ignition sources.
2. Ventilate area of spill or leak.
3. For small quantities, absorb on paper towels. Evaporate in a safe place (such as a fume hood). Allow sufficient time for evaporating vapors to completely clear the hood ductwork. Burn the paper in a suitable location away from combustible materials. Large quantities can be collected and atomized in a suitable combustion chamber. Methylcyclohexane should not be allowed to enter a confined space, such as a sewer, because of the possibility of an explosion.

• Waste disposal method:

Methylcyclohexane may be disposed of by atomizing in a suitable combustion chamber.

REFERENCES

• American Conference of Governmental Industrial Hygienists: "Methylcyclohexane," *Documentation of the Threshold Limit Values for Substances in Workroom Air* (3rd ed., 2nd printing), Cincinnati, 1974.

• Browning, E.: *Toxicity and Metabolism of Industrial Solvents*, Elsevier, New York, 1965.

• Gleason, M. N., Gosselin, R. E., Hodge, H. C., and Smith, R. P.: *Clinical Toxicology of Commercial Products* (3rd ed.), Williams and Wilkins, Baltimore, 1969.

• Grant, W. M.: *Toxicology of the Eye* (2nd ed.), C. C. Thomas, Springfield, Illinois, 1974.

• International Labour Office: *Encyclopedia of Occupational Health and Safety*, McGraw-Hill, New York, 1971.

• Patty, F. A. (ed.): *Toxicology*, Vol. II of *Industrial Hygiene and Toxicology* (2nd ed. rev.), Interscience, New York, 1963.

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• Phillips Petroleum Company: *Material Safety Data Sheet – Methylcyclohexane*, Bartlesville, Oklahoma.
• Sax, N. I.: *Dangerous Properties of Industrial Materials* (3rd ed.), Van Nostrand Reinhold, New York, 1968.
• Treon, J. F., Crutchfield, W. E., and Kitzmiller, K. V.: "The Physiological Response of Rabbits to Cyclohexane, Methylcyclohexane, and Certain Derivatives of These Compounds: I. Oral Administration and Cutaneous Application," *Journal of Industrial Hygiene and Toxicology*, 25:6, p. 323, 1943.

RESPIRATORY PROTECTION FOR METHYLCYCLOHEXANE

Condition	Minimum Respiratory Protection* Required Above 500 ppm
Vapor Concentration	
1000 ppm or less	Any chemical cartridge respirator with an organic vapor cartridge(s).
5000 ppm or less	A gas mask with a chin-style organic vapor canister. Any supplied-air respirator. Any self-contained breathing apparatus.
10,000 ppm or less	A gas mask with a front- or back-mounted organic vapor canister. A Type C supplied-air respirator operated in pressure-demand or other positive pressure or continuous-flow mode. Any supplied-air respirator with a full facepiece, helmet, or hood. Any self-contained breathing apparatus with a full facepiece.
Greater than 10,000 ppm or entry and escape from unknown concentrations	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode. A combination respirator which includes a Type C supplied-air respirator with a full facepiece operated in pressure-demand or other positive pressure or continuous-flow mode and an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode.
Fire Fighting	Self-contained breathing apparatus with a full facepiece operated in pressure-demand or other positive pressure mode.
Escape	Any gas mask providing protection against organic vapors. Any escape self-contained breathing apparatus.

*Only NIOSH-approved or MSHA-approved equipment should be used.

Freedom_0006121_0255

PRP Info

Ma[redacted]ulli, Linda

From: Eoc, Epahq
Sent: Friday, January 10, 2014 12:49 PM
To: Burns, Francis; Wright, Dave; Smith, Bonnie; White, Terri-A; Zenone, Vincent; R3 RRC
Subject: FW: W. Va Chemical Spill

FYI, a bit more information which just came our way in case you haven't seen it.

Watch Officer
U.S. Environmental Protection Agency
Headquarters Emergency Operations Center
1200 Pennsylvania Ave
Washington, DC 20004
202-564-3850 202-564-8729 (fax)

mailto:eoc.epahq@epa.gov

From: Stanton, Larry
Sent: Friday, January 10, 2014 12:32 PM
To: Eoc, Epahq
Subject: Fw: W. Va Chemical Spill

Fyi

From: Breen, Barry
Sent: Friday, January 10, 2014 12:26:04 PM
To: Stanton, Larry
Cc: Fine, Ellyn
Subject: FW: W. Va Chemical Spill

To make sure you have this too

From: Johnson, Alisha
Sent: Friday, January 10, 2014 12:06 PM
To: Breen, Barry; White, Terri-A; Garvin, Shawn; Stanislaus, Mathy
Subject: FW: W. Va Chemical Spill

From: Conger, Nick
Sent: Friday, January 10, 2014 11:49 AM
To: Bloomgren, David
Cc: Johnson, Alisha
Subject: RE: W. Va Chemical Spill

Freedom_0006121_0257

Hi guys. Our team didn't find anything on Freedom Industries or its affiliate companies in Wva. Here are the details:

Freedom Industries and its affiliate companies do not have any enforcement violations according to our records.

The company doesn't appear to operate their facilities under the name Freedom Industries. From their website, they reference two facilities:
Etowah River Terminal in Charleston, WV, which is also indicated as their corporate office. There are two FRS Registry records for this location:

ETOWAH RIVER TERMINAL LLC, 1015 BARLOW DRIVE, CHARLESTON, WV 25311 (FRS ID: 110010851541) which is a NPDES minor General Permit Covered facility.
There is no DMR, compliance, or enforcement data for this facility in ECHO.
ETOWAH RIVER TERMINAL, 1015 BARLOW DR - SITE B, CHARLESTON, WV 25311 (FRS ID: 110013294167) which is a RCRA active small quantity generator.
There is no compliance or enforcement data for this facility in ECHO.

Their other location is Poca Blending, in Nitro, WV. There are three FRS records for this facility name (including one in Charleston):

POCA BLENDING, PLANT ROAD, NITRO, WV 25143 (FRS ID: 110040137189) which has a RCRA inactive facility record.
There was an EPA inspection (CEI) performed on 11/3/2009. No violation or enforcement data in ECHO.
POCA BLENDING LLC, PLANT RD PAR INDUSTRIAL PARK BLDG 1, NITRO, WV 25143 (FRS ID: 110043694446) which has only a TRIS link.
No TRI release/transfer data are shown in ECHO.
POCA BLENDING LLC, 1015 BARLOW DR, CHARLESTON, WV 25311 (FRS ID: 110010869658) which is a NPDES minor General Permit Covered facility.
There is no compliance or enforcement data for this facility in ECHO.

RRT

Marzulli, Linda

From: Gilbert, John
Sent: Thursday, January 16, 2014 3:51 PM
To: Kelly, Jack (R3 Phila.); Smith, Art; Matlock, Dennis; Marzulli, Linda
Subject: FW: Ops call on 1/16
Attachments: JK reviewR03 ops mtg 01_16_14.docx

FYI

-John | ERT | 513-607-1571 (cell)

From: ERT Support
Sent: Thursday, January 16, 2014 3:00 PM
To: Gilbert, John
Subject: RE: Ops call on 1/16

For Additional Information Please Contact
ERT Software Support

Ex. 4 - CBI

From: Gilbert, John
Sent: Thursday, January 16, 2014 2:42 PM
To: ERT Support
Subject: FW: Ops call on 1/16

-John | ERT | 513-607-1571 (cell)

From: Kelly, Jack (R3 Phila.)
Sent: Thursday, January 16, 2014 1:27 PM

To: Gilbert, John; Matlock, Dennis; Smith, Art
Subject: RE: Ops call on 1/16

My comments....a bit picky I know. (My MO).

Jack Kelly
On Scene Coordinator
EPA Region III, Philadelphia
215-514-6792 (cell)
215-814-3112 (office)

From: Gilbert, John
Sent: Thursday, January 16, 2014 12:59 PM
To: Kelly, Jack (R3 Phila.); Matlock, Dennis; Smith, Art
Cc: Gilbert, John
Subject: Ops call on 1/16

Jack, Dennis, Art,

Here is quick summary from the call this morning. Let me know I have anything wrong.

-John | ERT | 513-607-1571 (cell)

Freedom_0006121_0261

Ex. 5 - Deliberative

Ex. 5 - Deliberative

Marzulli, Linda

From: Wright, Dave
Sent: Friday, January 10, 2014 5:28 PM
To: Ormes, David T CIV; Mike.H.Dorsey; heston.gerald; Marzulli, Linda
Subject: Re: RRT IV Incident Activation: Methylcyclohexane Methanol Release

I will be on.
Dave Wright, Director
Office of Preparedness and Response

Sent via Blackberry - please excuse typos.

From: David.T.Ormes@uscg.mil <David.T.Ormes@uscg.mil> on behalf of Ormes, David T CIV <David.T.Ormes@uscg.mil>
Sent: Friday, January 10, 2014 4:16:20 PM
To: Mike.H.Dorsey; Wright, Dave; heston.gerald; Marzulli, Linda
Subject: FW: RRT IV Incident Activation: Methylcyclohexane Methanol Release

All

Region IV has requested a joint conference call with Region III for an update in the West Virginia chemical spill. Please scroll down to see the call in info. The call will be conducted at 6 pm

Mike. Please let me know if you are available.

Thanks

Dave

Sent with Good (www.good.com)
Dave Ormed

-----Original Message-----
From: Andrew, Gary [Andrew.Gary@epa.gov]
Sent: Friday, January 10, 2014 03:31 PM Eastern Standard Time
To: Ormes, David T CIV
Subject: FW: RRT IV Incident Activation: Methylcyclohexane Methanol Release

Gary A

From: Andrew, Gary
Sent: Friday, January 10, 2014 3:27 PM
To: Andrew, Gary; Darrel Wieland - USCG - Region IV - RRT & CRRT); Forest A. Willis ; James Webster; Airrion Moore ; Artie Buff ; Bill Greim; Billie Kizer; Brad Benggio; Christina Edwards ; Dave Anderson; Elisa Roper; Emanuel Hudson ; Ginger J. Edwards ; Jack Fowler (jafowler2@tva.gov); Jesse Munoz; Jim Jeansonne; Joaquin Cardenas; Joyce Stanley ; Justin Smith ; Lindy Nelson ; Mike Davenport Ex. 6 - Personal Privacy); Nathan Bland (blandjn@state.gov); Robert K. Rader (robert.rader@dot.gov); Robert Mayr (; Robert Safay; Stanley Copeland ; Teresa Harrison; Walter Sternke; Wayne M. Kee (wayne.m.kee@nasa.gov); 'Barry McMaster'; 'Charlie O'Neal '; 'Chris Staton ';

Freedom_0006121_0264

'David L. Evans '; 'Doug White'; 'Earl Alexander '; 'Grady Springer'; 'Gwen Keenan'; 'JR Campbell'; 'Paul D. Lee '; 'Paul Wotherspoon'; 'Randy Jenkins'; 'Robbie Francis'; 'Shawanesse, Elizabeth'; 'Stephen Clark '; 'Steve Lewis'; 'Tim Holden'; 'Yatasha Moore'; Bill Gordon ; Darin Steen; James M. Long ; Jason Dobronz ; Kevin Donaldson ; Ralph McCullers ; Allan, Thomas G CAPT; Ashonte.M.Franklin@uscg.mil; Brandon Guldseth; CAPT William Drelling ; CAPT. Austin Gould ; CAPT. Aylwyn Young; CAPT. Gregory Case ; CAPT. Ric Rodriguez ; CAPT. Richard Timme; CAPT. Sean Murtagh; CDR Joseph Loring ; CDR Kevin P. Lynn; CDR Malcolm McLellan; CDR. Lee Boone; LCDR John D. Block ; LCDR. James Weaver ; Pat Dequattro (Pat.Dequattro@uscg.mil)
Cc: Stilman, Terry; El-Zein, Jason; 'jschulte@orsanco.org'; 'mike.h.dorsey@wv.gov'; McQuiddy, David; Mike Sams; Ragan Broyles ; Steve Mason; Todd Peterson
Subject: RRT IV Incident Activation: Methylcyclohexane Methanol Release
Importance: High

Good Afternoon Everyone,

There has been a request for RRT IV activation this afternoon in reference to the chemical spill that occurred yesterday in West Virginia. The spill has impacted the Elk River in West Virginia which discharges to the Kanawha River, a tributary of the Ohio River. This call is intended to bring us up to speed on the status of the incident and any potential impact to Region 4 waters.

The call will occur at 6pm Eastern Time
Call-in # Ex. 6 - Personal Privacy
Confere

For some background on the release please see:

http://usnews.nbcnews.com/_news/2014/01/09/22245996-west-virginia-chemical-spill-cuts-water-to-up-to-300000-state-of-emergency-declared?lite

Respectfully,

Gary A. Andrew, CHMM
On Scene Coordinator
EPA RRT IV Coordinator
678-733-1621

Freedom_0006121_0265

IAPs

Charleston, WV Chemical Leak
USEPA Region 3
Concept of Operations Document– EPA ConOps
January 11, 2014

Operational Period: January 12, 2014: 800hrs-January 19, 2014: 0759hrs
24 Hour Number: 215.814.3255
24 Hour National Response Center Number – 800. 424. 8802
(to report new and oil or hazardous substances release)
www.epaosc.org/charlestonwvchemicalleak

Key Participants:

EPA Federal On-Scene Coordinator (FOSC) – EPA's Incident Commander is Dennis Matlock
Other USEPA:
- Region 3 Incident Management Team (IMT)
- Special Teams
  - EPA Environmental Response Team (ERT)
  - EPA Office of Ground Water and Drinking Water (OGWDW)
  - Regional Water Protection Division Water Program (WPD)
  - EPA Region 3 Laboratory
- Contracted Resources
  - Superfund Technical Assistance and Response Team Contractor (START)
  - Emergency Response and Removal Services Contractor (ERRS)
  - Contract Laboratory Network

Other: Agency for Toxic Substances and Disease Registry (ATSDR)

A. Purpose:

The U.S. Environmental Protection Agency (EPA) Region 3 Office of *Preparedness and Response (OPR)* maintains response capabilities, through the authorities of the FOSC, to respond to a release and/or a threatened release of oil and hazardous substances 24 hours a day, 365 days per year. The activities associated with the Charleston, WV Chemical Leak (CWVCL) are complex enough to merit EPA to deploy these capabilities so response actions can occur in a timely manner.

B. Communications:

Requests for EPA support should come through the EPA R3 Regional Operations Center (EPA3 REOC) Phone Duty Officer using the 24 hour Number: 215.814.3255

C. Implementation:

The assets described below in this document:

- Are available to support the State of West Virginia in its response to the release, and in its restoration of water systems to a healthy functioning state.
- Can be deployed under the EPA FOSC's authority per the National Contingency Plan (NCP) in service of the State directly, and/or under the National Response Framework in support of FEMA Mission Assignments.
- Are both regional and national and may be obtained through EPA Special Teams under the National Contingency Plan (NCP), but are coordinated thru the EPA FOSC (IC).
- May be accessed by contacting the **24 Hour EPAR3EOC Number: 215.814.3255**.

EPA's Region 3 Incident Management Team (IMT) is supporting FOSCs (who are located on scene) from the EPA3 REOC, located in Philadelphia, PA.

EPA oil and hazardous substance response support is provided by EPA On-Scene Coordinators (FOSCs) who coordinate and direct response to releases of hazardous substances and discharges of oil to navigable waters *as authorized by the National Contingency Plan (NCP)*. The EPA FOSC will coordinate all EPA resources including its special teams.

If FEMA issues a pending EPA-a mission assignment, then these same EPA resources will be available for Emergency Support Function #10 response pursuant to the National Response Framework. The EPA resources will be integrated into the FEMA Consequence Management Branch and will be staged or managed from the Incident Command Post, per EPA FOSC determination.

EPA R3 is prepared to send additional, comparable resources however they are needed as the incident changes.

D. EPA R3 Assets and their Capabilities:

The **FOSC**, are on scene responding pursuant to the NCP. They have the capabilities to address hazardous substance mitigation, environmental sampling and analysis, direct read-out air monitoring support, personnel decontamination support and other similar assistance. They also have the ability to respond more broadly under a FEMA mission assignment which is pending FEMA approval.

The **EPA3 REOC**, located in Philadelphia, is activated and supporting the Response. It is running a Planning, Finance, and Operations Sections. It has established an **Environmental Unit** which is coordinating the needs and capabilities of experts in the public health and water protection field including: the EPA R3 Drinking Water Program, the EPA Environmental Response Team (ERT), the EPA Office of Ground Water and Dinking (OGWDW), the Agency for Toxic Substances and Disease Registry, EPA Regional Toxicologists, and the Regional EPA Laboratory with access to its National Laboratory Network—their capabilities are described below.

The **EPA R3 REOC** can provide other additional resources, technical information and coordinate with EPA HQ in Washington DC. These resources include:

- A fully trained EPA R3 Incident Management Team (IMT).

- The Response Support Corps (RSC), a cadre of program/media trained professionals to augment oversight of field activities and provide experts in specific program fields like drinking water and others;
- Representatives from the Agency for Toxic Substances and Disease Registry (ATSDR) for environmental health assessment and consult purposes;
- Additional public information officer resources for direct assistance to the local health departments;
- Additional support as needed under the NRF.

Analytical Resources:
EPA Region 3 Laboratories and a Contract Laboratory Network—The EPA Regional Lab can assist in sample processing and can augment sampling capacities for the response through its laboratory network.

EPA Special Teams:
EPA Environmental Response Team (ERT)—has the capacity for mobile multi-media sample screening and real time air monitoring and screening. EPA ERT's Trace Atmospheric Gas Analyzer (TAGA) instruments can measure concentrations of pre-selected industrial compounds in the air at the parts-per-billion level as the bus is being driven down the street;

EPA Office of Ground Water and Drinking Water (OGWDW) and its **Water Security Division (WSD)**--Professionals with a focus on drinking water security, distribution system water quality, water treatment, and monitoring for contamination incidents.

Water Protection Program (WPD)--Water Protection Program personnel are available on reach back or on the ground capacity to provide technical guidance on water safety concerns to facilities, local health departments and others.

Contracted Resources:
Superfund Technical Assistance and Response Team Contractor (START) and Superfund Emergency Response and Removal Services Contractor (ERRS) EPA contractors are ready to deploy their technical air monitoring, data management, and heavy earth moving equipment.

D. Outreach:

EPA is using and will also provide **Liaison Officers (LNOs)** where requested either by FEMA/DHS or Local Governments. At this time our LNO is actively maintaining the EOC informed of local needs and press briefings.

EPA is using and will also provide **Public Information Officers (PIO)** available to augment the capacity of local health departments to reach large numbers of public.

EPA is using and will also provide **Community Involvement Coordinators (CICs)** to augment local government public professionals outreach capacities. EPA CICs are also fielding public questions and referring callers to available information.

Incident Name	Operational Period (January 9th 2014 / 2130)	Date Prepared:	Report No:
WV Chemical Leak	7:00pm to 7:00am January 9th through 10th 2014	January 10th, 2014 6:00 am	# 02

INCIDENT SUMMARY (TIME/DATE UPDATED:)

Freedom Industries -- located at 1015 Barlow Dr. in the old Penzoil refinery -- reported one of its products, 4-methylcyclohexane methanol, leaked through the facility's secondary containment and into the Elk River, according to DEP spokesperson Tom Aluise.

5,000 gallons reportedly have spilled

"This leak was upstream from some of the water intakes, so that might be an issue."

A statement from West Virginia American Water said the company is monitoring the spill, which occurred near the Kanawha Valley Water Treatment Plant.

A shelter-in-place was not launched for the area at this time, but residents are urged to stay inside, according to a press release from the Kanawha County Office of Emergency Management. Aluise said Freedom Industries is working to clean up the spill at the facility and in the river.

West Virginia Governor Earl Ray Tomblin has issued a state of emergency proclamation for 9 counties after a chemical leak in Kanawha County Thursday morning. The State of Emergency includes Boone, Jackson, Kanawha, Lincoln and Putnam Counties. Emergency may also exist for Cabell, Clay, Logan and Roane Counties.

WVAW customers are told not to use tap water for drinking, cooking, washing, or bathing. You can use the water for toilets and fire emergencies. Boiling water will not get rid of the chemical.

This is believed to impact 100,000 customers (300,000 people).

Schools in 7 of the affected counties will be closed Friday 1/10/2014.

Emergency Declaration granted, 3366

The natural gas leak reported 1/9/2014 in Madison Creek, Logan County was determined to be minor and is now under control with local resources.

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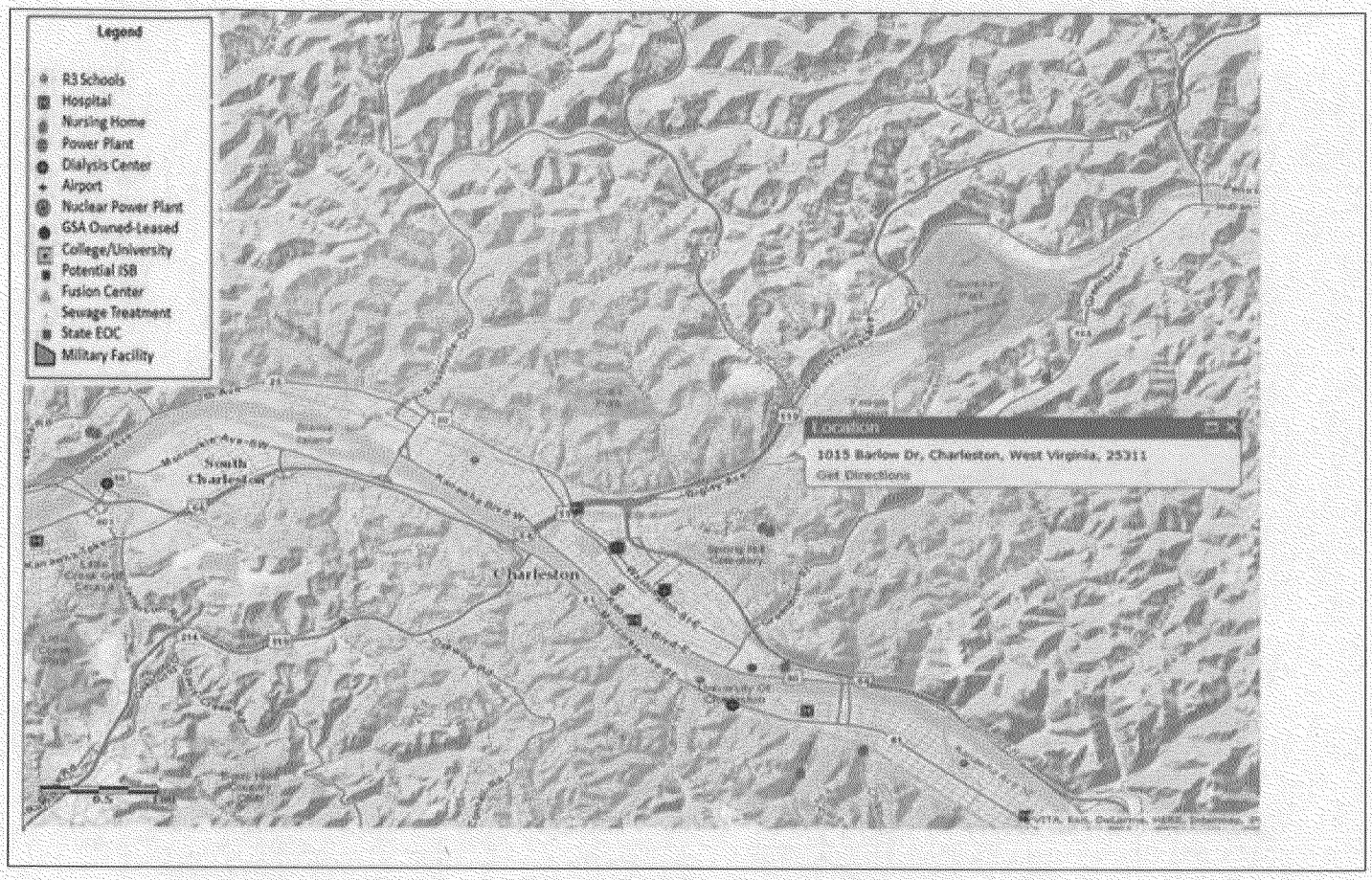

	SAFETY	WATER	ENERGY	ACCESS	TRANSPORT	OTHER	EOC Level	State Dec	EM Requested	EM Declared	DR Requested	DR Declared	Notes
DC	G	G	G	G	G	G		Y/N					
DE	G	G	G	G	G	G		Y/N					
MD	G	G	G	G	G	G		Y/N					
PA	G	G	G	G	G	G		Y/N					
VA	G	G	G	G	G	G		Y/N					
WV	G	A	G	G	G	G	Full	Y		Y			CAT B - DFA Only

COLOR KEY	GREEN-Under Control/Normal			AMBER-Unstable Solution being implemented/Emerging		RED-Unstable Solution in development	

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Critical Issues (Safety and Sheltering, Water, Energy, Accessibility, Transportation, Other)

• The State has issued a NO USE order for the affected area for the plant that would affect up to 100,000 customers, 300,000 residents, in **Kanawha, Boone, Putnam, Lincoln, Logan, Clay, Cabell, Roane and Jackson counties. They are testing the water.**
• **Officials are NOT shutting down the water system**. The State is anticipating a multi-day issue with no potable water as a result of a **NO USE** order. Water production loss is approximately 30-40 million gallons per day.
• An Emergency Declaration has been issued by FEMA for Category B (DFA) for the following eight counties: Boone, Clay, Jackson, Kanawha, Lincoln, Logan, Putnam, and Roane.
• Mike Lapinski has been selected as the FCO ETA 1/10/2014 morning.
• Four Hospitals have a 2-3 day supply of water.
  • Thomas Memorial (South Charleston) Kanawha Co. issue resolved by OES and WV state EOC is coordinating to provide water.
  • CAMC (includes Women's and Children's, General and Memorial hospital facilities)
  • St. Francis
  • Highland hospital has a 2-day supply.

FEMA TEAM	ACTIVATION LEVEL/STATUS	LOCATION
RRCC	Level II	Region III RRCC 615 Chestnut St. Philadelphia, PA
REGIONAL WATCH	Normal Operations	
FCO WV-Mike Lapinski	Enroute to Charleston, WV	
R3 IMAT 1	DEPLOYED to PA 4149	
R3 IMAT 2	Enroute to Charleston, WV	
IMAT OTHER		
MERS	Enroute to Charleston, WV	ETA 1100
STAGING AREA [INSERT LOCATION NAME]		
USAR TEAMS		

Life Safety Operations (expandable)

Search and Rescue	NA
Evacuation Operations	NA
DMAT	NA
NDMS	NA
HCF Evacuations/Restoration	NA

KEY REGIONAL METRICS

Critical Infrastructure

Metric	DC	DE	MD	PA	VA	WV	Total
Power Customers Out	1	0	37	484	417	362	1301

Freedom_0006121_0272

Change in Power Customers out from previous situation report	[redacted]		
Telecommunications Outages (customers impacted)		None reported due to incident	
Waste/Drinking Water Treatment Plants Out		1 Drinking Water Treatment Plant affected	1
Boil Water Advisories		NO USE ORDERS ARE IN EFFECT within the 9 counties	
# of Customers Impacted		Up to 100,000 customers (300,000 people)	
Notes: WV Counties affected - Kanawha, Boone, Putnam, Lincoln, Logan, Clay, Cabell, Roane and Jackson			

Health and Medical (ESF-8)

Metric	DC	DE	MD	PA	VA	WV	Total
#Fatalities	[redacted]					NA	
#Injuries						NA	
#Hospitals Evacuated						NA	
#Nursing Homes Evacuated						NA	

Mass Care (ESF-6)

Metric	DC	DE	MD	PA	VA	WV	Total
# of Schools/# school systems affected						17 schools in Boone Co. 1 school in Cabell Co. 14 schools in Jackson Co. 6 schools in Clay Co. 93 schools in Kanawha Co. (plus one scheduled to be closed for maintenance) 10 schools in Lincoln Co. 27 schools in Putnam Co.	168 (est)
Shelters Open/Closed						NA	
Shelter Population (people)						NA	
Animal Sheltering Activated						NA	
# People needing meals						NA	

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Mass Care (ESF-6)

State	# of Shelters on stand by	# of Shelters Open	Shelter Pop.	Household Pet Shelters Open	Household Pets Population	Medical Support Shelters	Meals Prepared	Meals Served	Fixed Feeding Sites Active	Mobile Feeding Units Active
DE	0	0	0	0	0	0	0	0	0	0
DC	0	0	0	0	0	0	0	0	0	0
MD	0	0	0	0	0	0	0	0	0	0
PA	0	0	0	0	0	0	0	0	0	0
VA	0	0	0	0	0	0	0	0	0	0
WV	0	0	0	0	0	0	0	0	0	0
Total:	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

RESOURCE SUMMARY

State-State/EMAC Requests

State	Resources Requests	Disposition	Pending/Complete
WV	Approximately 943,500 liters of water requested by the Governor. (300,000 people for 24 hours).	Upgraded WV's request to 1.4 million liters (75 truckloads). first truck of water should arrive 1300 1/10/14. 943,500 liters will be turned over to the state.	Signed Resource Request Forms (aka ARF). Received at RRCC.

Resource	Region 3 Requested (Y/N)	State Requested (Y/N)	Ordered	In Transit	Total Delivered	Turned Over to the State
Water	Y - 444,000 liters	Y - 943,500 liters	Y	0	0	0
Meals						

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Cots						
Blankets						
Generators						
Infant/Toddler						
DME/CMS						

MISSION ASSIGNMENTS

SOURCE: RESOURCE TRACKER

Total Mission Assignment Listing

	Total MAs	Total Funding	Issues
DC			
DE			
MD			
PA			
VA			
WV			
FEMA	3	Ex. 6 - Personal Privacy	ESF-3, 8, 10 to report to the RRCC
Total			

	Total MAs Completed	Total MAs Working	Issues
DC			
DE			
MD			
PA			
VA			
WV			
Total			

Tracking #	State	Agency	MA Number	Disaster	Purpose	Cost
01						

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02						
03						
04						
05						
06						
07						

EXTERNAL AND CONGRESSIONAL AFFAIRS

SOURCE: ESF-15

State	Type of Request	Congressional Office	Disposition
WV			
PA			
VA			
DC			
DE			
MD			

SOCIAL MEDIA TRENDS AND DATA

SOURCE: ESF 15

Common Hashtag/Key Words	Trends	Messaging

INCIDENT STAFFING AND FUNDING [Finance and Admin Section]

SURGE -	Allocated	Commited + Obligated + Expended (C+O+E)	Available
Equipment Funds	-	-	-

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Miscellaneous Funds (Mission Assignments, Contracts, Supplies, etc)			
S&B Funds			
Transportation Funds			
Travel Funds			
TOTAL FUNDS			

EM -	Allocated	Commited + Obligated + Expended (C+O+E)	Available
Equipment Funds			-
Miscellaneous Funds (Mission Assignments, Contracts, Supplies, etc)			-
S&B Funds			-
Transportation Funds			-
Travel Funds			-
TOTAL FUNDS			-

Total Allocations		
S&B Funds Available		
Transportation Funds Available		
Travel Funds Available		
Misc. Funds Available (MA, Conference Rooms, Communications, IA)		
Total Funds Available		

Organization	Checked In	Pending	Total

Freedom_0006121_0277

FEMA			
Other Federal Agencies			
State			
Total			

Region III Operational Priorities Next 24 Hours (DATES)

SOURCE: FUTURE PLANNING

- Analyze information to determine what is needed to support commodities and help survivors
- Activate, deploy and support teams to execute mission requirements
- Establish field facilities to support operations
- Move & distribute resources to meet the needs of survivors
- Communicate operational activities to internal and external partners and the public
- Develop demobilization plan for the RRCC

Freedom_0006121_0278

EMERGENCY SUPPORT FUNCTION STATUS REPORT

ESF #1 – Transportation

SOURCE: INFRASTRUCTURE ASSETS GROUP

Not Activated

ESF #2- Communication

SOURCE: DISASTER COMMUNICATIONS COORDINATOR

- *MEOV enroute to WV; ETA 1100*

ESF #3 – Public Works/Engineering

SOURCE: INFRASTRUCTURE ASSETS GROUP

ESF-3 has communicated the situation with its National Water SME.

Alerted its Water PRT that there is a potential water mission in West Virginia.

Also Have HQ-USACE –UOC and NRCC LNO of situation and potential water mission for WV.

Identified potential ESF-3 Team Leader and Assistant Team Leaders of the potential need for ESF-3 Coverage @ RRCC-3 on Friday and possibly through the weekend.

ESF #4 – US Forest Services/Firefighting

SOURCE: EMERGENCY SERVICES GROUP

Not Activated

ESF #6 –Mass Care

SOURCE: Mass Care Emergency Assistance Unit and Voluntary Agency Liaison Unit

- *WV VOADS meeting to coordinate potential water distribution of their own supplies.*

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ESF #7 – Resource Support

SOURCE: RESOURCE TRACKER

NOTE: INFORMATION REGARDING RESOURCE STATUS PLEASE REFER TO THE ARF TRACKER

Not Activated

ESF #8 – Public Health/Medical Services

SOURCE: EMERGENCY SERVICES GROUP

- Hospital status for potable water;
  - CAMC (includes Women's and Children's, General and Memorial hospital facilities) have a 3-day supply of water.
  - St. Francis hospital has a 3-day supply
  - Highland hospital has a 2-day supply
  - Thomas Memorial (South Charleston) has 12hr supply. Kanawha Co. OES and WV state EOC is coordinating to provide water to them right now.

ESF #9 – Urban Search and Rescue

SOURCE: EMERGENCY SERVICES GROUP

Not Activated

ESF #10 – Oil/Hazmat Response

SOURCE: EMERGENCY SERVICES GROUP

EPA sending 1 person to RRCC

ESF #11 – Agriculture/Natural Resources

SOURCE: Mass Care Emergency Assistance Unit

Not Activated

ESF #12 - Energy

SOURCE: INFRASTRUCTURE ASSETS GROUP

Not Activated

Freedom_0006121_0280

ESF #13 - Public Safety/Security

SOURCE: EMERGENCY SERVICES GROUP

Not Activated

ESF #14 Long Term Community Recovery

SOURCE: FDRC

Not Activated

ESF #15 - External Affairs

SOURCE: ESF-15

Not Activated

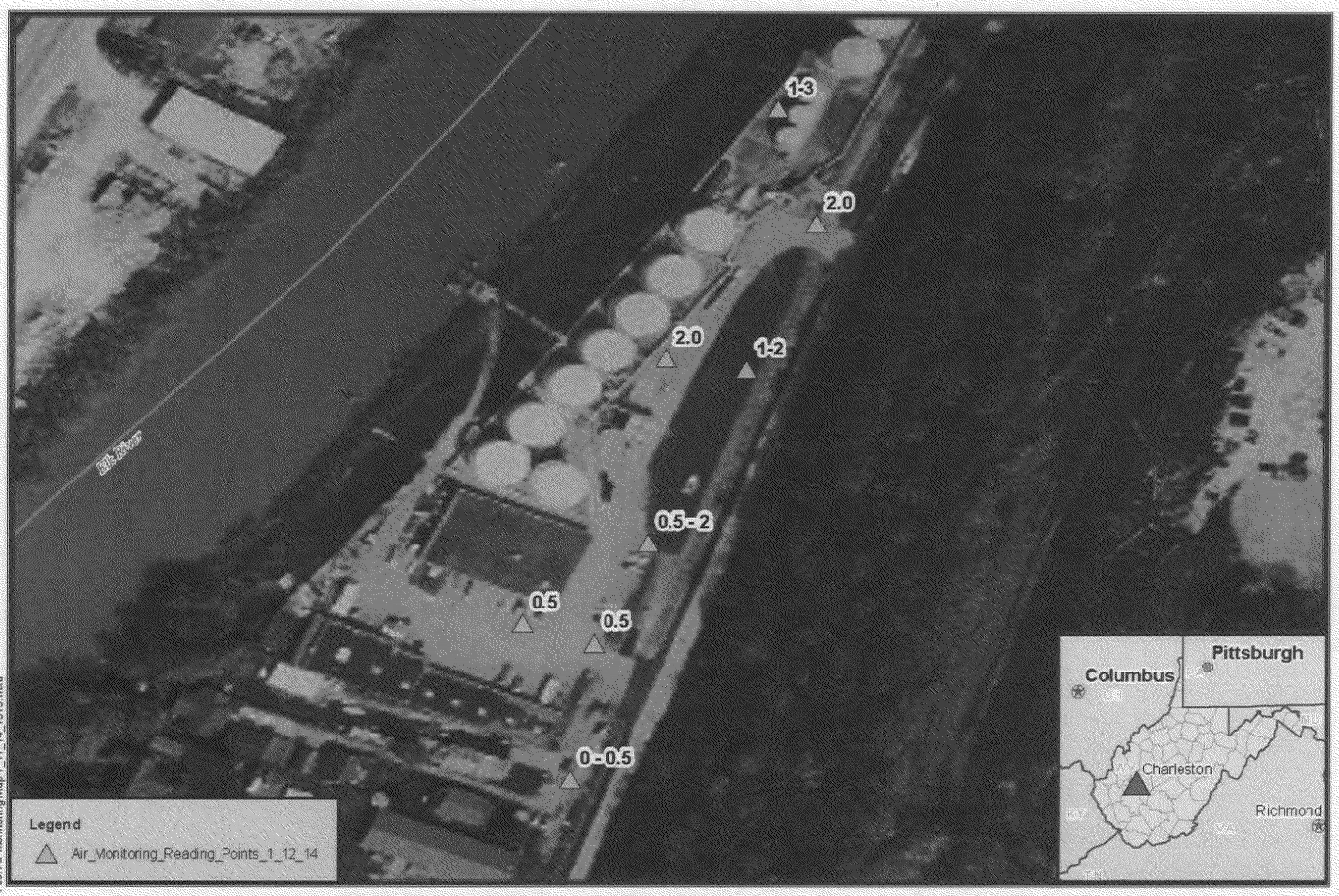
Freedom_0006121_0281

POWER POINT PRESENTATIONS

OPS Briefing

0900

January 13, 2014



File: Air Monitoring Map 1_11_14_1315.mxd

TechLaw

START Contract No. EP-S3-10-04

Air Monitoring Location/Data Map - 1/12/14 - 14;20 hours
Charleston, WV Chemical Leak - Etowah, West Virginia

0 95 190 380 Feet

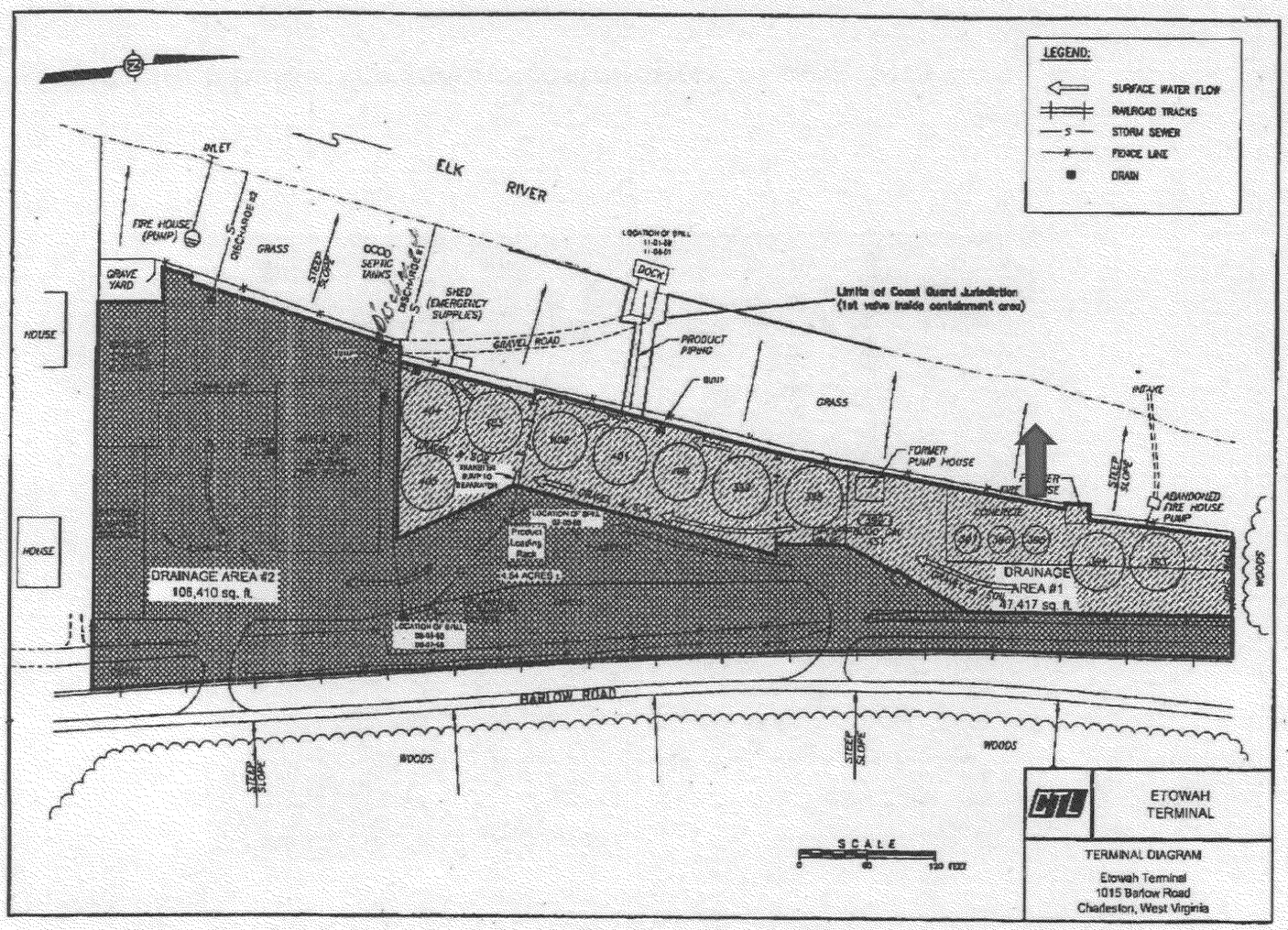
Map By: WFH

Date Modified: 01/12/2014

Scale: 1:1,682

Source:
Base Layers procured from ESRI Online Services.

Air Monitoring Results from field screening using START TVA-1000 FID unit.
Results are approximate due to response factor relationship, wind, and other potential interferences.


LEGEND:
SURFACE WATER FLOW
RAILROAD TRACKS
STORM SEWER
FENCE LINE
DRAIN
ELK RIVER
INLET
FIRE HOUSE (PUMP)
DISCHARGE #2
GRASS
STEEP SLOPE
SEPTIC TANKS
DISCHARGE #1
GRAVE YARD
HOUSE
SHED (EMERGENCY SUPPLIES)
GRAVEL ROAD
DOCK
Limits of Coast Guard Jurisdiction (1st valve inside containment area)
PRODUCT PIPING
SUMP
GRASS
INTAKE
FORMER PUMP HOUSE
STEEP SLOPE
ABANDONED FIRE HOUSE PUMP
HOUSE
DRAINAGE AREA #2
106,410 sq. ft.
Product Loading Rack
DRAINAGE AREA #1
47,417 sq. ft.
WOODS
BARLOW ROAD
STEEP SLOPE
WOODS
STEEP SLOPE
WOODS
SCALE
0
60
120 FEET
CTL
ETOWAH TERMINAL
TERMINAL DIAGRAM
Etowah Terminal
1015 Barlow Road
Charleston, West Virginia

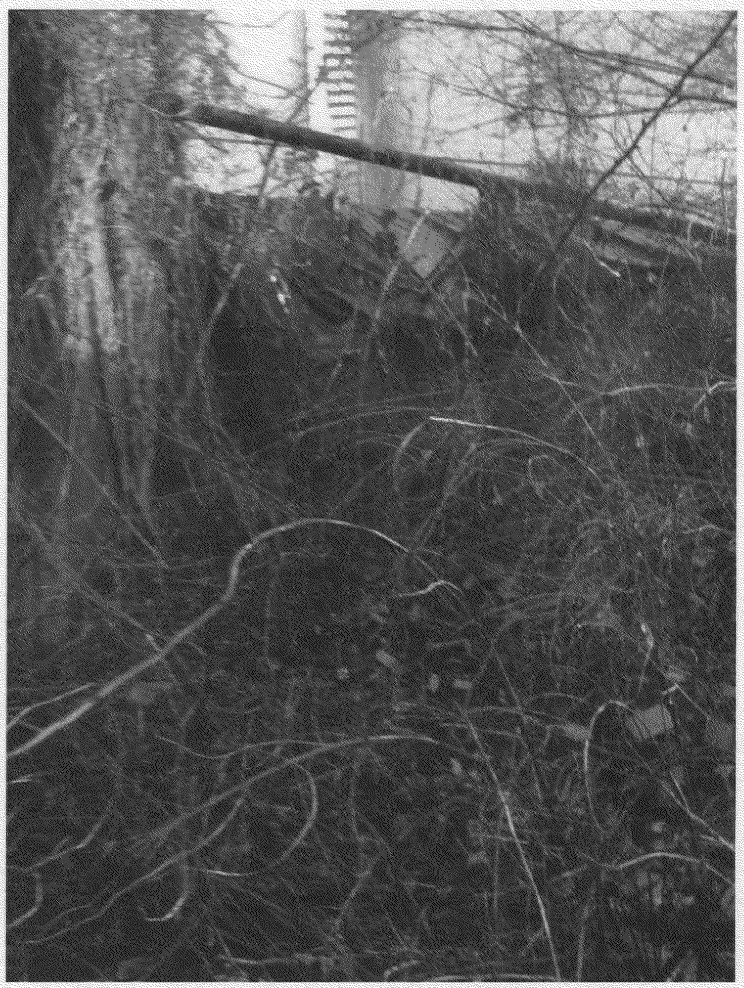
Storm drain below the second containment of tank farm

Example of Fill below Tank Farm

The yellow brick seen in this picture is just one layer of fill used.

- There is a layer of red brick from demolished buildings
- Some tile from buildings are used
- The secondary containment does have a clay liner below the fill and gravel layers

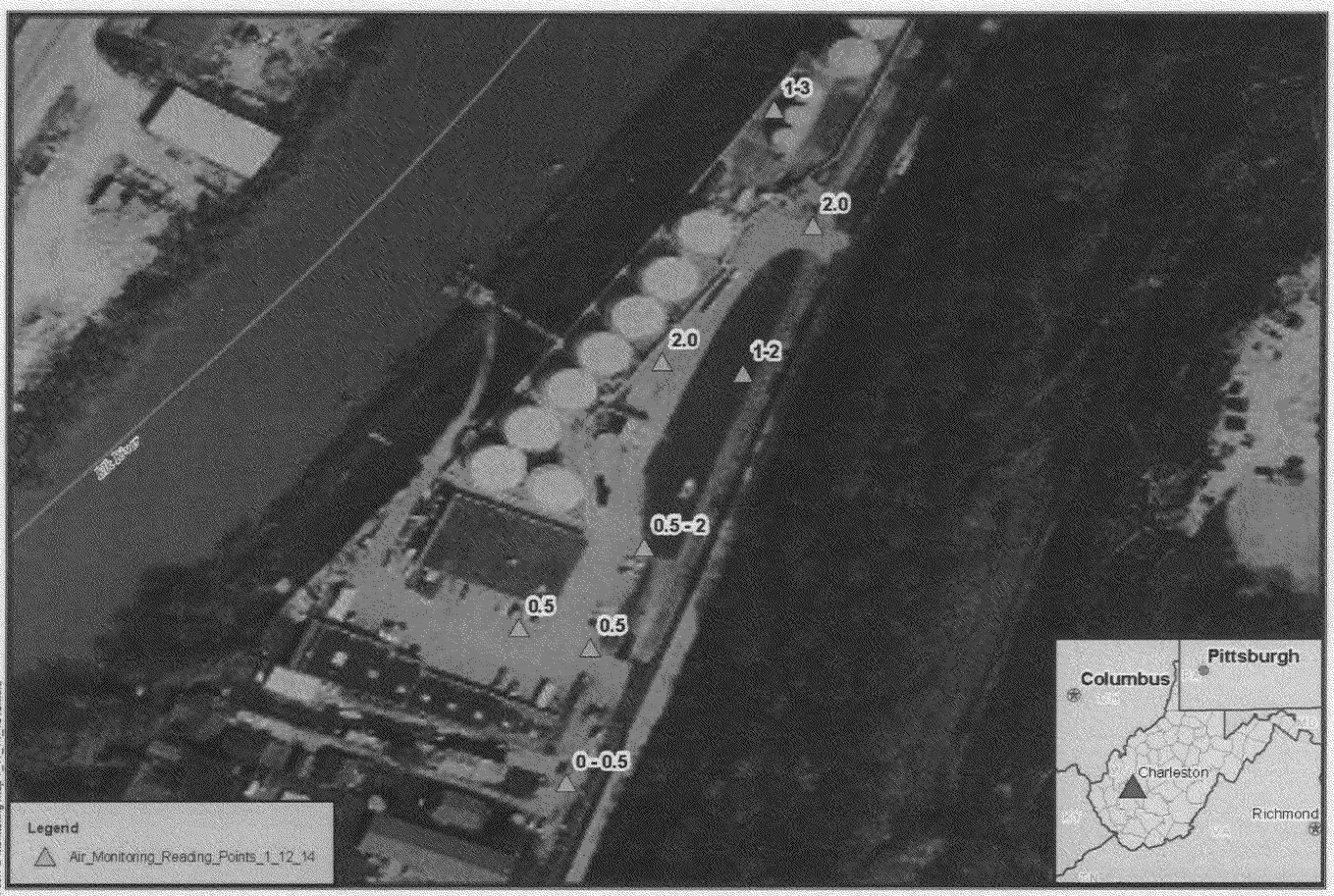
- Freedom Industries will be drilling two holes to look at what the layers of fill are specifically and the depth of each, once the issue with marking gas lines is resolved.



OPS Briefing

0900

January 13, 2014



File: Air Monitoring Map 1_11_14_1315.mxd

TechLaw

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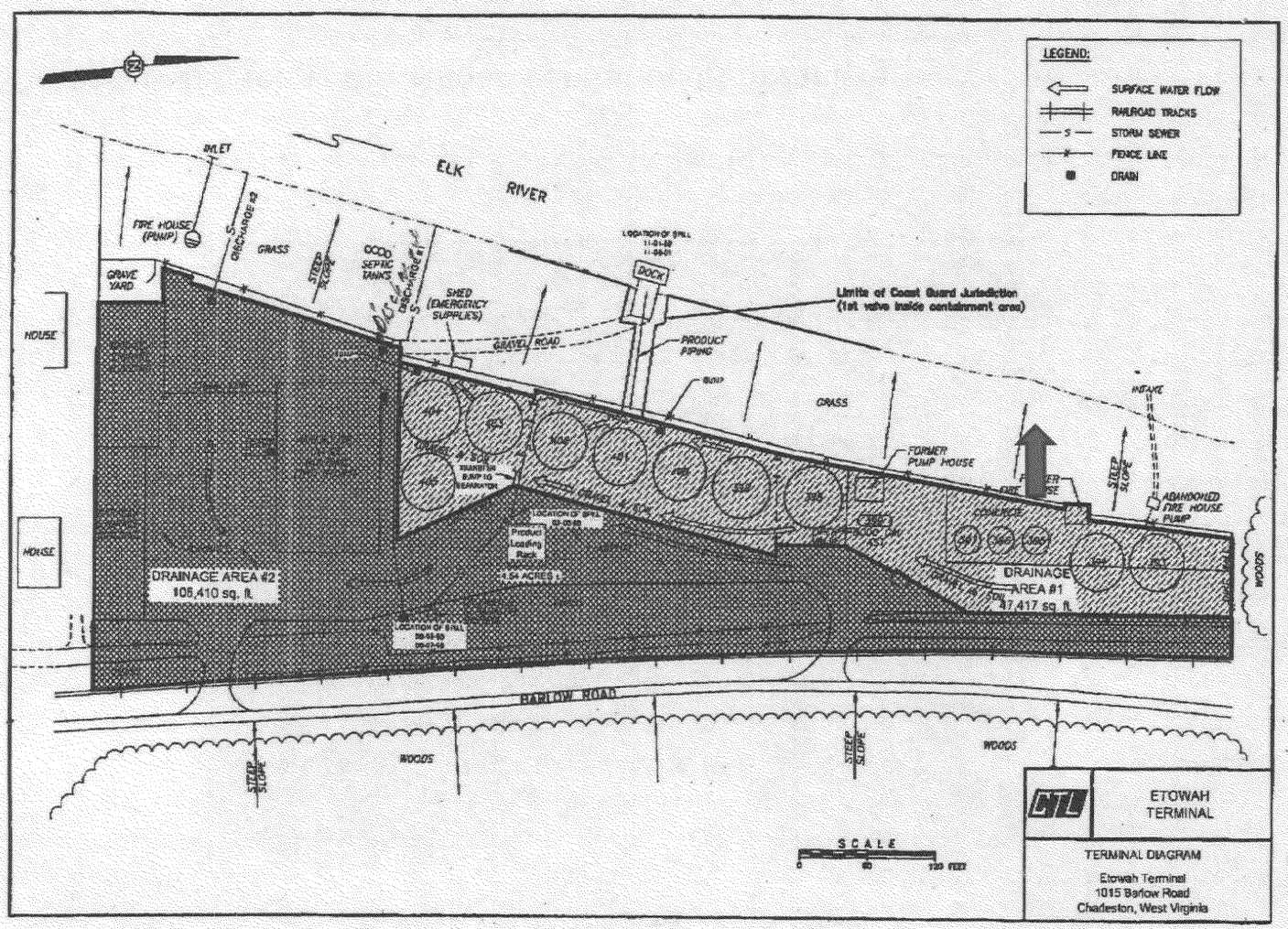
LEGEND:
SURFACE WATER FLOW
RAILROAD TRACKS
STORM SEWER
FENCE LINE
DRAIN
ELK RIVER
INLET
FIRE HOUSE (PUMP)
DISCHARGE #2
GRASS
STEEP SLOPE
OCCD SEPTIC TANKS
DISCHARGE #1
SHED (EMERGENCY SUPPLIES)
GRAVEL ROAD
LOCATION OF SPILL 11-01-89 11-06-01
DOCK
Limits of Coast Guard Jurisdiction (1st valve inside containment area)
PRODUCT PIPING
SUMP
GRASS
INTAKE
FORMER PUMP HOUSE
STEEP SLOPE
ABANDONED FIRE HOUSE PUMP
GRAVE YARD
HOUSE
HOUSE
DRAINAGE AREA #2 105,410 sq. ft.
Product Loading Rack
1.54 ACRES
DRAINAGE AREA #1 47,417 sq. ft.
WOODS
BARLOW ROAD
STEEP SLOPE
WOODS
STEEP SLOPE
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SCALE
0 60 120 FEET
CTL
ETOWAH TERMINAL
TERMINAL DIAGRAM
Etowah Terminal
1015 Barlow Road
Charleston, West Virginia

Storm drain below the second containment of tank farm

Example of Fill below Tank Farm

The yellow brick seen in this picture is just one layer of fill used.

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•Freedom Industries will be drilling two holes to look at what the layers of fill are specifically and the depth of each, once the issue with marking gas lines is resolved.

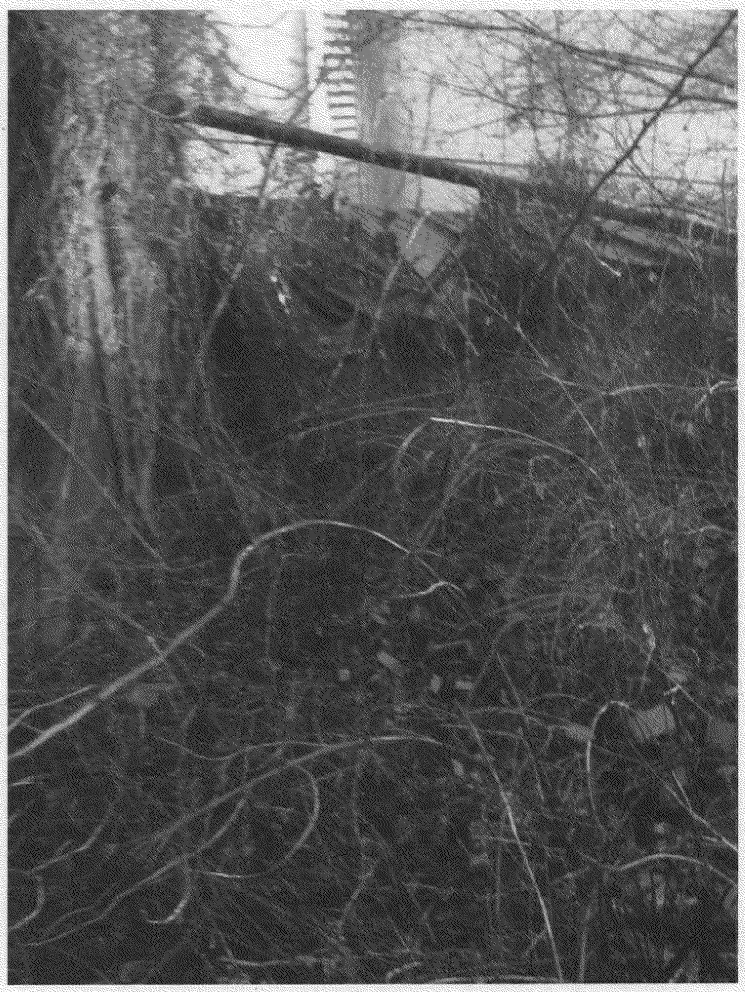

Photo division

January 9, 2014
CONTAMINATED WATER INCIDENT (as of 19:30)

INVOLVED CHEMICAL:
Reported to be 4-methylcyclohexane methanol
CAS: 34885-03-5
Multiple other synonyms

DOSE:
Unknown at this time how much went into the water system. Dilution will limit the exposure but without specific information regarding the leak/spill, the actual dose is unknown.

There may also be a lag between when the chemical entered the water and when that water appears in homes and businesses.

TOXICITY:
No information is available for this chemical. Based on the chemical's structure, it is assumed that it may have the properties of higher alcohols and/or phenol-like solvents.

The WV Poison Center will update this information if more becomes available.

SYMPTOMS:
Assuming the above, symptoms would be expected to occur shortly after exposure. Therefore, if there are no symptoms, and water has been used for bathing, teeth brushing, or drinking during the day today, it is likely that no acute symptoms will develop.

Skin irritation is possible
Vomiting is possible
CNS depression if a large exposure

Whether or not the above occurs would depend on dose and individual sensitivity.

It is important to note that unusual smells, odors, and taste can cause nausea and headaches. These symptoms are not due to toxic effects but are a response to unusual smells/tastes.

CURRENT TRIAGE RECOMMENDATIONS (19:30 01-09-14):
If no symptoms are present, do nothing and follow recommendations not to use the water for drinking or bathing.

If mild symptoms are present (mild skin irritation, mild vomiting), the Poison Center is attempting to manage these cases at home.

If callers are reporting significant symptoms, the Poison Center is referring these individuals in.

If callers are reporting symptoms that are likely related to a medical event, the Poison Center is referring these individuals in.

HOSPITAL MANAGEMENT RECOMMENDATIONS:
Please let the Poison Center know about these cases.

Treatment is symptomatic and supportive. There is no specific/antidotal treatment.

Ensure that a co-existing or coincidental medical event is not occurring.

Marzulli, Linda

From: binetti, victoria
Sent: Monday, January 13, 2014 5:10 PM
To: Werner, Lora; Casillas, Laura; Matlock, Dennis; Ventura, Dominic; Burns, Francis; Williams, Jacqueline; Smith, Bonnie; Kelly, Jack (R3 Phila.); Ferrell, Mark; Wisniewski, Patti-Kay; Daniel, Kevin
Cc: Wright, Dave; Santiago, Cindy; Matsinger, Josie; Markiewicz, Karl; Steuteville, William; Armstrong, Joan; Welsh, Mike; Rose, Kenneth; Taylor, Trish; Marzulli, Linda; Miller, Linda; Helverson, Robert; Cseh, Larry (ATSDR/DTHHS/OD)
Subject: RE: ORSANCO monitoring data?

I haven't seen any data, but I did hear non-specific verbal information from ORSANCO this morning that indicated it was detected in the Ohio (still in WV, I thought), at levels < 0.5 ppm.--Vicky

---

From: Werner, Lora
Sent: Monday, January 13, 2014 4:34 PM
To: Casillas, Laura; Matlock, Dennis; Ventura, Dominic; Burns, Francis; Williams, Jacqueline; Smith, Bonnie; Kelly, Jack (R3 Phila.); Ferrell, Mark; Wisniewski, Patti-Kay; binetti, victoria; Daniel, Kevin
Cc: Wright, Dave; Santiago, Cindy; Matsinger, Josie; Markiewicz, Karl; Steuteville, William; Armstrong, Joan; Welsh, Mike; Rose, Kenneth; Taylor, Trish; Marzulli, Linda; Miller, Linda; Helverson, Robert; Cseh, Larry (ATSDR/DTHHS/OD)
Subject: ORSANCO monitoring data?

Hi there
My office of comms informed me ATSDR/CDC just did an interview with someone from the Louisville Courier Journal who was reporting on ORSANCO's apparently recent water monitoring of the river near Louisville, and they had detections in the 36 ppb range. Don't know if any of you have seen or heard these ORSANCO downstream data already?

Lora

Lora Siegmann Werner, MPH
Regional Director, Region 3
Division of Community Health Investigations
Agency for Toxic Substances & Disease Registry (ATSDR)/Centers for Disease Control & Prevention
c/o EPA Region 3
1650 Arch Street
Mailstop 3HS00
Philadelphia, PA 19103

Desk phone: 215-814-3141
Cell phone: 215-588-9778
Fax: 215-814-3003
Emails (only need to use one): lkw9@cdc.gov and werner.lora@epa.gov

---

From: Casillas, Laura
Sent: Monday, January 13, 2014 3:34 PM
To: Matlock, Dennis; Ventura, Dominic; Burns, Francis; Williams, Jacqueline; Smith, Bonnie; Kelly, Jack (R3 Phila.); Ferrell, Mark; Wisniewski, Patti-Kay; binetti, victoria; Daniel, Kevin
Cc: Wright, Dave; Santiago, Cindy; Matsinger, Josie; Werner, Lora; Markiewicz, Karl; Steuteville, William; Armstrong, Joan; Welsh, Mike; Rose, Kenneth; Taylor, Trish; Marzulli, Linda; Miller, Linda
Subject: Note on the Charleston Chemical Leak General Brief

Group,

Freedom_0006121_0295

Most of you have an assigned response role or a programmatic responsibility related to response.

This meeting was previously scheduled for Monday, Wednesday, and Friday. I have changed it to a daily occurrence to accommodate others with questions about their role in this response.

Please note the agenda, and try to keep your comments to the appropriate point in the agenda—this will help us chug through much faster and thoroughly.

Thank you for your time,

Laura Casillas, Federal On-Scene Coordinator
Office of Preparedness and Response
[illegible] Safety Point of Contact
[illegible]
1650 Arch Street, Philadelphia, PA 191[illegible]

Cell 215-779-4896
Office 215-814-3253
Casillas.Laura@epa.gov

Freedom_0006121_0296

Marzulli, Linda

From: Johnson, KarenD
Sent: Friday, January 10, 2014 6:30 AM
To: Johnson, Eric; Werner, Lora; Ioven, Dawn
Cc: Marzulli, Linda
Subject: FW: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL

Importance: High

Can you tell us anything about this chemical?? Risks, clean up concentrations, etc.? Has the response center assisted WV at this point?

From: Capacasa, Jon
Sent: Thursday, January 09, 2014 8:27 PM
To: Vicky Binetti; binetti, victoria; Wisniewski, Patti-Kay; Arguto, William; Johnson, KarenD
Cc: McGuigan, David; Price-Fay, Michelle
Subject: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL
Importance: High

This appears to be a very significant event. Could you work thru your contacts in HSCD and the state to see what is know about the chemical risk and proper decontamination of the system.

Copying NPDES for spill related followup when appropriate.

From: Ferrell, Mark
Sent: Thursday, January 09, 2014 7:54:14 PM
To: Garvin, Shawn
Cc: Early, William; Ryan, Daniel; R3 DIRECTORS; R3 Deputies; R3 C2s; Colip, Matthew; Crane, Rebecca
Subject: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL

The chemical that leaked into the river from Freedom Industries was 4-methylcyclohexane methanol, DEP spokesman Tom Aluise said.
Freedom Industries produces "freeze conditioning agents, dust control palliatives, flotation reagents [and] water treatment polymers," among other chemicals, according to its website.

http://www.wvgazette.com/News/201401090044

CHARLESTON, W.Va. -- Residents in Charleston and surrounding counties were told Thursday evening not to drink, cook with or wash with water supplied by West Virginia American Water, following a leak earlier in the day at a chemical facility along the Elk River.
Any water supplied by West Virginia American Water in Kanawha, Putnam, Boone, Jackson and Lincoln counties was to be used only for flushing toilets and putting out fires.
Hours after water company officials said their treatment facility - which is near the leak site on the Elk River - could handle the leak from Freedom Industries on Barlow Drive, Gov. Earl Ray Tomblin declared a state of emergency in the The ban could affect as many as 100,000 West Virginia American Water customers, including restaurants, businesses and hospitals.five counties.
Residents swarmed grocery stores, convenience stores and anywhere else with bottled water on Thursday evening, and shelves were quickly depleted.

State and water company officials did not give an estimate on when the water might be safe to drink or use.
"The state of emergency will be in place until we are cleared by the Department of Health and Human Resources, DEP and the company say that the water is safe," Tomblin said.
Places that don't use water from West Virginia American Water are not affected. That includes St. Albans, where Mayor Dick Calloway, whose city gets its water directly from the Coal River, said his town's residents would not fall under the "do not use" order.
West Virginia American Water President Jeff McIntyre said at Thursday's news conference that the company was "fairly confident" earlier in the day that its plant could handle the treatment of the chemical.
"It's clear the chemical has infiltrated the water," McIntyre said. "In an abundance of caution, we are taking these steps today."
He said the water company said is testing the water to better understand the concentration that entered its treatment system.
When asked what might happen if a person consumed the chemical, McIntyre didn't get specific, only saying "it's not particularly lethal in its usage form" and the effects of the chemical would depend on its concentration.
Dr. Rahul Gupta, health officer for the Kanawha-Charleston Health Department, said restaurants, bars, day-care centers and other businesses with a health permit in Kanawha and Putnam counties would be sent a message to "cease operations immediately."
Gupta said there are about 1,200 health department permits issued in Kanawha County and about 300 in Putnam County, where the Kanawha department has temporarily taken over health enforcement duties.
The health department is also working on getting information to people concerned about drinking the water, Gupta said.
"There is very limited information on this particular chemical," he said.
Kanawha County Commission President Kent Carper said the county emergency operations center has been opened and emergency crews are assessing their response.
"Earlier today we were assured there was no harm to the public," Carper said. "We'll do blame assignment later. Now we have to deal with it."
Carper said the do-not-use order would effectively shut down restaurants, nursing homes and any other establishment that relies on water. He did not know how long the emergency would last.
"I have been promised by the governor himself that we'll have any resources we need," he said. "I predict it's going to be a long night."
The chemical that leaked into the river from Freedom Industries was 4-methylcyclohexane methanol, DEP spokesman Tom Aluise said.
Freedom Industries produces "freeze conditioning agents, dust control palliatives, flotation reagents [and] water treatment polymers," among other chemicals, according to its website.
Freedom Industries officials, including the company's president, Dennis Farrell, did not return repeated phone calls on Thursday.
Earlier Thursday, some emergency officials were saying they had found little information about potential toxic effects of the substance.
One material safety data sheet, or MSDS, said that, "no specific information is available ... regarding the toxic effects of this material for humans.
"However, exposure to any chemical should be kept to a minimum," the MSDS said. "Skin and eye contact may result in irritation. May be harmful if inhaled or ingested."
Less than three hours before the state of emergency was declared, an official statement from West Virginia American Water was issued assuring the public and media that the spill "does not present a health risk to customers."
The water company announced an emergency press conference regarding the spill at 5:09 p.m. and Tomblin officially announced the state of emergency around 6 p.m.

"This is not a chemical that we deal with every day. It's not the type of thing we would see in dealing with a water treatment plant," McIntyre said. "We took some time to understand even what we were dealing with at the time."

McIntyre said the company will have to do "extensive flushing" to make sure the contaminant is out of its system. He couldn't say how long the process will take.

There were no reports of illness as a result of contaminated water consumption as of Thursday evening, according to McIntyre.

Gianato advised those customers with concerns of exposure or consumption of the chemical can call the Poison Control Center at 1-800-222-1222. If someone is obviously sick, they should go to the hospital or call 911, Gianato said.

At the Charleston Town Center Mall, marketing director Lisa McCracken said Thursday evening, "We've closed our restaurants and we closed our treateries<co >. We've turned off all the public restroom faucets, and we have issued an advisory mall-wide to the tenants telling them not to use the faucets in their establishments."

Crystal Del Giudice, a supervisor at the Starbucks coffee shop in the mall, said employees ran out to buy hand sanitizer so they could clean themselves up after they closed the store.

"It's like the apocalypse," she said, half-jokingly.

Several mall restaurants had signs posted informing customers that they were closed because of the water emergency.

But some restaurants in downtown Charleston were unaware of the order to shut down.

Staff at Jimmy John's and Adelphia on Capitol Street were still serving Thursday evening, although other restaurants on the street were shutting down. Adelphia workers said they were trying to contact the restaurant's owners before shutting down.

At the Kroger in Kanawha City, shelves in the bottled-water aisle were nearly bare. Charleston Police officers kept an eye on the crowd that came to buy water.

Kerstin Halstead of Campbells Creek loaded two cases of bottled water into her SUV in the parking lot. "People have been grabbing it like crazy ... and some people were getting - well, they could have shared more," she said.

Halstead was doing her regular grocery shopping when her husband called and told her the news and asked her to pick up a case of water.

It was a similar story at the Rite-Aid on Charleston's East End, which ran out of water just after 6:30 p.m., according to a store employee. Customers were buying ice instead.

Ruby Piscopo, 28, of Charleston, and Christi Pritt, 29, of Belle, were having an after-work drink when they heard about the chemical leak.

"We started getting texts and changed the TV to the news," Piscopo said. "I wasn't concerned until someone said it could go on for days."

The two bought $30 worth of water between them. They had other friends buying water throughout the city with the intention of splitting it up later.

Philip Toliver of Charleston came to the East End Rite-Aid because the one on Bridge Road had already sold out of bottled water, he said. He bought six cases.

"[I thought] 'I think I need to get some water,'" Toliver said upon learning of the chemical leak. He added that if the state of emergency stretched on for more than a few days, he would consider leaving town for a while.

Mark Ferrell
EPA Region 3
Office of State and Congressional Relations
West Virginia Liaison
Charleston, W.Va.

(304) 542-0231

Freedom_0006121_0299

OTHER

Kelly, Jack (R3 Phila.)

From: Werner, Lora
Sent: Friday, January 10, 2014 7:21 PM
To: Kelly, Jack (R3 Phila.)
Cc: Markiewicz, Karl
Subject: ATSDR/CDC email exchange with WVDEP tonight

Importance: High

Here you go, Jack.

From: Dempsey, Jay H. (ATSDR/OCOM) <ifb5@cdc.gov>
Sent: Friday, January 10, 2014 7:16:17 PM
To: Werner, Lora
Subject: Fw: I have not received an E-Mail

Hi Lora- See below for what Bernadette sent.

Sent from my BlackBerry 10 smartphone.

From: Burden, Bernadette (CDC/OD/OADC)
Sent: Friday, January 10, 2014 5:17 PM
To: Adolfson, Gregory E
Cc: Dempsey, Jay H. (ATSDR/OCOM)
Subject: RE: I have not received an E-Mail

CDC/ATSDR Statement

HI Gregory, the update about EPA is good to know. Here's the information we are providing and it can of course be inserted into your press materials where you see fit I've highlighted in yellow and italics the key piece of information in case you are reading this from a hand held device. :

The chemical 4-methylcyclohexane methanol is safe for consumption, bathing and washing clothes *if the measured levels are less than 1 parts per million. (ppm)* If the levels of the chemical are less than 1ppm then public health officials do not expect individuals to experience adverse health effects. If a person has questions about their drinking water consumption and other household uses please contact their local public health authority. If there are questions about potential health impact, please contact their healthcare provider.

As discussed during our brief phone call today, please share completed materials with us prior to anything being issued. Good luck. I'll be monitoring my blackberry throughout the weekend and I'm available if needed.

Take care and good luck with everything.

Bernadette Burden
Senior Public Affairs Specialist
Division of News Media
CDC/ATSDR
(404)639-3286

From: Adolfson, Gregory E [mailto:Gregory.E.Adolfson@wv.gov]
Sent: Friday, January 10, 2014 5:01 PM

Freedom_0006121_0301

To: Burden, Bernadette (CDC/OD/OADC)
Subject: Re: I have not received an E-Mail

Ms. Burden,

Thanks. EPA will have answers on Monday 1/13/2014.

Sent from my iPhone

On Jan 10, 2014, at 4:52 PM, "Burden, Bernadette (CDC/OD/OADC)" <btb8@cdc.gov> wrote:

> Gregory it is on its way, we were confirming our phrasing with our environmental staff prior to sending.
>
> ---
>
> **From:** Adolfson, Gregory E [mailto:Gregory.E.Adolfson@wv.gov]
> **Sent:** Friday, January 10, 2014 4:46 PM
> **To:** Media@cdc.gov (CDC); Burden, Bernadette (CDC/OD/OADC)
> **Subject:** I have not received an E-Mail
>
> I have not received an E-Mail and awaiting feedback from EPA Region 3.
>
> Sent from my iPhone

Freedom_0006121_0302

Kelly, Jack (R3 Phila.)

From: Burns, Francis
Sent: Saturday, January 11, 2014 8:45 PM
To: R3 HOTSITES
Subject: HOTSITE REPORT: Update - Freedom Industries, Charleston, WV

EPA finalized a statement concerning the Freedom Industries incident as follows: EPA's Statement

EPA continues to work closely with other Federal and State agencies in West Virginia as they begin implementing a plan for getting the water system back on-line. The State of West Virginia and the West Virginia American Water Company (WVAWC) are developing a plan for flushing the system, along with sampling and analysis, that will allow residents to begin using their water as soon as possible. State and Federal (ATSDR/CDC) health officials have agreed that a level of 1 part per million (ppm) of methylcyclohexanemethanol is protective of public health and the State/WVAWC will use the flushing process to assure that and the 1 ppm level is achieved throughout the system. The EPA supports this approach and has offered sampling and monitoring assistance to the State during the restart efforts.

OSCs Matlock and Linden reported the status of activities at the facility. Throughout the day, the facility continued vacuuming the mixture out of excavated pits in the tank farm area. The facility placed a piece of plastic into the cut-off ditch downhill from the tank farm. The plastic layer should lessen the amount of mixture soaking into the soil. The facility also added a pump to assist the vac truck in pumping the mixture out of the ditch and up the hill.

The smell on the facility property is less than observed yesterday, but could be because of the rain and increased wind speeds. EPA's contractor conducted air monitoring earlier and mapped the air monitoring readings, which are on the site website, www.epaosc.org/CharlestonWVChemicalLeak . The difference today between total VOCs is minimally less than yesterday, but again the higher winds may be dispersing the fumes, which could account for the difference in ppm.

This morning the facility's contractor was using a torch to remove the bolts on the manway cover of the tank. OSHA was on-site and stopped the operation until a wrench could be found to remove the bolts. The tanks will need to be emptied and then cleaned from the inside (permit required confined space entry). This work is currently under way for the failed tank (tank no. 396). The two tanks on either side will undergo a similar process. Once the tanks are cleaned, they will be cut up and removed from the site. After the three tanks are removed, product trapped under tanks' concrete pad can be vacuumed out. The tank removal will take several days.

Region 3 Water Division spoke with Steve Allgeier, team leader for technical support to the Water Security Division, Office of Ground Water and Drinking Water, who reported that EPA is working with the utility to investigate treatment options for the chemical, including additional literature research and bench scale studies at other utilities. In addition, EPA's Ft. Meade lab has started looking into lab support for the chemical analysis or finding labs that can provide support through the laboratory response network.

FEMA is scaling down the Philadelphia RRC and ramping up the FEMA IMAT in the field. EPA OSCs will continue to coordinate with FEMA OPS at the EOC. DHS is bringing in their Office of Health affairs (OHA) to provide technical/scientific support for decision making.

Ex. 5 - Deliberative

Kelly, Jack (R3 Phila.)

From: Marzulli, Linda
Sent: Monday, January 13, 2014 8:53 AM
To: Casillas, Laura; Matsinger, Josie; Kelly, Jack (R3 Phila.)
Subject: FW: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL

FYI

Linda M. Marzulli
Regional Response Center Coordinator
Regional Response Team Coordinator
Preparedness and Support Branch (3HS33)
Phone # 215-814-3256
Fax # 215-814-3254

Dawn Ioven, EPA 3 Tox

From: Ioven, Dawn
Sent: Monday, January 13, 2014 8:50 AM
To: Johnson, KarenD; Johnson, Eric; Werner, Lora
Cc: Marzulli, Linda
Subject: RE: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL

Hi, Karen. I was off on Friday, so I'm just catching up on the incident in WV last week. As you're aware, not much info is available for the compound that was released. However, based on tox data in the literature, assumptions regarding toxicity can be inferred. From the LD50 for this compound, it would not be expected to be highly toxic. Rather than reiterate the prior comments from ATSDR, I agree with their conclusion that 1 mg/L would be an appropriate (and adequately conservative) screening level for this compound, particularly under conditions of acute exposure. If you have any questions, please let me know. Thanks.

Dawn

Dawn A. Ioven, toxicologist
U.S. EPA - Region III
(3HS41)
1650 Arch Street
Philadelphia, PA 19103
215.814.3320

From: Johnson, KarenD
Sent: Friday, January 10, 2014 6:30 AM
To: Johnson, Eric; Werner, Lora; Ioven, Dawn
Cc: Marzulli, Linda
Subject: FW: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL
Importance: High

Can you tell us anything about this chemical?? Risks, clean up concentrations, etc.? Has the response center assisted WV at this point?

Freedom_0006121_0305

From: Capacasa, Jon
Sent: Thursday, January 09, 2014 8:27 PM
To: Vicky Binetti; binetti, victoria; Wisniewski, Patti-Kay; Arguto, William; Johnson, KarenD
Cc: McGuigan, David; Price-Fay, Michelle
Subject: ALERT. Fw: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL
Importance: High

This appears to be a very significant event. Could you work thru your contacts in HSCD and the state to see what is know about the chemical risk and proper decontamination of the system.

Copying NPDES for spill related followup when appropriate.

From: Ferrell, Mark
Sent: Thursday, January 09, 2014 7:54:14 PM
To: Garvin, Shawn
Cc: Early, William; Ryan, Daniel; R3 DIRECTORS; R3 Deputies; R3 C2s; Colip, Matthew; Crane, Rebecca
Subject: WV - State of Emergency Declared 8 counties- CHEMICAL SPILL

The chemical that leaked into the river from Freedom Industries was 4-methylcyclohexane methanol, DEP spokesman Tom Aluise said.
Freedom Industries produces "freeze conditioning agents, dust control palliatives, flotation reagents [and] water treatment polymers," among other chemicals, according to its website.

http://www.wvgazette.com/News/201401090044

CHARLESTON, W.Va. -- Residents in Charleston and surrounding counties were told Thursday evening not to drink, cook with or wash with water supplied by West Virginia American Water, following a leak earlier in the day at a chemical facility along the Elk River.
Any water supplied by West Virginia American Water in Kanawha, Putnam, Boone, Jackson and Lincoln counties was to be used only for flushing toilets and putting out fires.
Hours after water company officials said their treatment facility - which is near the leak site on the Elk River - could handle the leak from Freedom Industries on Barlow Drive, Gov. Earl Ray Tomblin declared a state of emergency in the The ban could affect as many as 100,000 West Virginia American Water customers, including restaurants, businesses and hospitals.five counties.
Residents swarmed grocery stores, convenience stores and anywhere else with bottled water on Thursday evening, and shelves were quickly depleted.
State and water company officials did not give an estimate on when the water might be safe to drink or use.
"The state of emergency will be in place until we are cleared by the Department of Health and Human Resources, DEP and the company say that the water is safe," Tomblin said.
Places that don't use water from West Virginia American Water are not affected. That includes St. Albans, where Mayor Dick Calloway, whose city gets its water directly from the Coal River, said his town's residents would not fall under the "do not use" order.
West Virginia American Water President Jeff McIntyre said at Thursday's news conference that the company was "fairly confident" earlier in the day that its plant could handle the treatment of the chemical.
"It's clear the chemical has infiltrated the water," McIntyre said. "In an abundance of caution, we are taking these steps today."
He said the water company said is testing the water to better understand the concentration that entered its treatment system.

Freedom_0006121_0306