

Abbreviations and terms used in this publication

binary material

A chemical that can be mixed with other chemicals to make a lethal chemical agent.

Chemical Weapons Convention (CWC)

The international agreement, signed by over 180 nations and in effect since April 1997, that prohibits the development, production, acquisition, stockpiling, retention, transfer and use of chemical weapons.

DF

Methylphosphonicdifluoride, a non-lethal chemical that was produced at the Army's Pine Bluff Arsenal Integrated Binary Production Facility in the 1980s and 1990s. As one part of a binary munition, DF was intended to be mixed in a projectile while in flight to a target to form the lethal chemical, GB nerve agent, also known as sarin.

DF neutralent

Liquid that results from destroying the binary material DF using water. The neutralent is approximately 70% water and contains several byproducts that are hazardous because they are strong acids (methylphosphonic acid and hydrofluoric acid). These strong acids need additional treatment before final disposal.

2-(diisopropylamino) ethanol (KB)

A chemical byproduct produced by neutralizing QL with water. KB is classified as a "schedule 2" compound under the Chemical Weapons Convention based on its being a component used to make chemical agent.

environmental assessment

Under NEPA, an environmental assessment is applied to activities that are not routine at facilities and require a greater level of evaluation, such as installing new equipment in an industrialized area or expanding an existing facility. The environmental assessment evaluates the potential impact of these activities and issues a finding. No environmental impacts lead to a "Finding of No Significant Impact" or FONSI; minor impacts can be addressed in this document. A finding of significant impact will lead to an environmental impact statement.

ethanol

A chemical compound commonly known as alcohol that is contained in beverages for human consumption. It is a byproduct produced by neutralizing QL with water.

GB

A liquid nerve agent, also known as sarin.

hydrofluoric acid (HF)

The chemical compound hydrogen fluoride. HF is a strong acid that is formed by the reaction of fluorine with water. HF is a byproduct produced by neutralizing DF with water.

methylphosphinic acid (MP)

A chemical byproduct produced by neutralizing QL with water. MP is classified as a "schedule 2" compound under the Chemical Weapons Convention based on its chemical structure containing a carbon-phosphorous bond. It is considered a precursor to forming other schedule compounds.

methylphosphonic acid (MPA)

A chemical byproduct produced by neutralizing DF with water. MPA is classified as a "schedule 2" compound under the Chemical Weapons Convention based on its chemical structure containing a carbon-phosphorous bond. It is considered a precursor to forming other schedule compounds.

National Environmental Policy Act (NEPA)

This act sets guidelines and requirements to ensure potential impacts to the environment are evaluated as part of the decision-making process for major activities at facilities.

non-schedule wastes

Non-schedule wastes are generated from the destruction of chemical warfare materiel that do not contain any compounds included in the Chemical Weapons Convention treaty list of compounds monitored by the Convention.

Non-Stockpile Chemical Materiel Project (Non-Stockpile Project)

Provides centralized management and direction for the U.S. Department of Defense for the disposal of non-stockpile chemical warfare materiel in a safe, environmentally sound and cost-effective manner. The Non-Stockpile Project conducts research and develops treatment options and destruction plans that fully comply with all federal, state, and local regulations and laws. This effort includes developing, implementing, and monitoring a public outreach program to ensure the exchange of information between the Army and the public.

non-stockpile chemical warfare materiel

Chemical warfare materiel that is not part of the U.S. chemical weapons stockpile. The five categories of non-stockpile materiel include binary chemical weapons, former production facilities, miscellaneous chemical warfare materiel, recovered chemical warfare materiel and buried chemical warfare materiel.

QL

Diisopropylaminoethyl methylphosphonite, a chemical that was produced primarily at the Army's Newport Chemical Depot and stored at the Pine Bluff Arsenal. One part of a binary munition, QL was intended to be mixed in a projectile while in flight to a target with another chemical to form the lethal nerve agent, VX.

QL neutralent

Liquid that results from destroying the binary material QL with water. The neutralent is approximately 82% water and contains several hazardous byproducts—methylphosphinic acid and 2-(diisopropylamino) ethanol—that need additional treatment before final disposal.

sarin

A liquid nerve agent, also known as GB.

schedule wastes

Schedule wastes are generated from the destruction of chemical warfare materiel that contain compounds included in the Chemical Weapons Convention treaty list of compounds monitored by the Convention at concentrations above 1,000 parts per million.

secondary wastes

Hazardous and non-hazardous waste generated during the destruction of chemical warfare materiel.

stockpile chemical warfare materiel

Includes the current U.S. stockpile of chemical weapons. These weapons are kept under strict conditions of accountability in Alabama, Kentucky, Utah, Maryland, Indiana, Arkansas, Colorado and Oregon.

VX

A liquid nerve agent.

wet air oxidation (WAO)

A thermal process that uses heat and the oxygen in air to destroy organic matter in water. The process can convert organics to carbon dioxide, water and biodegradable, weak organic acids.

How the selection was made for a treatment, storage and disposal facility to host the Zimpro® wet air oxidation system

Evaluating the impact on the environment

All federal agencies, including the Army, must assess the impact of major actions—such as the installation of a wet air oxidation unit—on the environment by conducting an environmental study under the ***National Environmental Policy Act***. This act sets guidelines and requirements to ensure potential impacts to the environment are evaluated as part of the decision-making process.

The Non-Stockpile Project suggested that an ***environmental assessment*** was the appropriate NEPA process for the installation and use of a wet air oxidation treatment system to treat binary neutralent because:

- Wet air oxidation has been demonstrated to treat binary neutralents safely and successfully.
- The commercial facility selected to treat, store and dispose of the waste also has demonstrated experience and ability to treat neutralent waste in a safe and environmentally sound manner.

What does an environmental assessment do?

An environmental assessment:

- describes the proposed installation process;
- evaluates potential impacts to environmental resources such as air, water, land use and wildlife;
- evaluates potential impacts to cultural, social and economic resources;
- describes waste management issues

Because the assessment was performed at three separate facilities in two states, the assessment did not evaluate transportation issues or the pre-treatment of the binary neutralents that will occur before they are transported to the commercial treatment facility.

What effect did the environmental assessment have on the project?

A "Finding of No Significant Impact" (FONSI) was determined after the environmental assessment was finished. This finding meant that there would be no significant impacts to the natural and human environments resulting from the use of the wet air oxidation treatment system at any of the three facilities investigated. Any minor impacts would have to be addressed before the FONSI was finalized.

If the environmental assessment had determined there were significant impacts with use of the system, the Non-Stockpile Project would have prepared an environmental impact statement to examine the system and alternatives to the system in greater detail.

What happens after a "Finding of No Significant Impact"?

The draft FONSI document was made available to the public during a 45-day public comment period that ended March 16, 2005. During this time, community members and interested parties, such as regulatory agencies, were invited to submit comments on the assessment. The Army collected and reviewed the comments received, and they did not result in any changes to the draft FONSI. The document was finalized in April 2005 and now is available on the Web site: www.nscmp-wao.com.

How was the commercial facility selected?

Before the environmental assessment was conducted, Shaw Environmental–Non-Stockpile's waste management contractor–requested several facilities known to handle similar types of waste to bid on hosting the wet air oxidation system. Shaw issued the request for proposal in the summer of 2004 and received bids by mid-December.

Following its own government-approved formal process to seek and evaluate proposals received from commercial facilities, the Shaw evaluation team prepared a report detailing its evaluation of all proposals and a recommendation for contract award. This recommendation was submitted to an independent Source Selection Board for review and approval. The contract was awarded to Texas Molecular Limited Partnership, located in Deer Park, Texas, in April 2005.

For more detail about the site selection process, see the fact sheet located on the Web site www.nscmp-wao.com.

Learn more about Texas Molecular Limited Partnership

At the top of this page is a description and finding of the environmental assessment and some of the activities that were conducted before Texas Molecular Limited Partnership, a commercial treatment, storage and disposal facility, was selected for the installation of the Zimpro® wet air oxidation unit. If you would like to learn more about this company that is hosting this technology for the Non-Stockpile Project, contact:

Frank Marine, Vice President of Environmental Sales and Marketing
Texas Molecular Limited Partnership
2525 Battleground Road
P.O. Box 1914
Deer Park, TX 77536
Phone: 281-930-2525
E-mail: fmarine@texasmolecular.com

You also may want to visit Texas Molecular's Web site at: www.txmolecular.com. Documents related to this task are located at www.nscmp-wao.com.

Non-Stockpile Project public involvement

Since its beginning in 1994, the Non-Stockpile Project has committed to involving the public at every step of its mission. This endeavor has included developing, implementing and monitoring a public outreach program to ensure the exchange of information between the Army and the public. The Non-Stockpile Project has responded to public environmental and health concerns by sharing information and open dialogue with many stakeholders that include members of the general public and public, private and government organizations, including environmental and community advocacy groups.

The Non-Stockpile Project uses many methods to actively inform and involve its stakeholders. These tools include more than 250 information repositories located nationwide, public meetings, fact sheets, targeted mailings, and a Web site. Independent advisory groups that have provided invaluable insight to public issues about the program include the Non-Stockpile Core Group and technical advisory panels.

The Non-Stockpile Project offers opportunities for public involvement, including small-group and other public meetings and workshops to share information with and receive feedback from local communities and interested parties. For more information about or to be added to a mailing list for the Non-Stockpile Chemical Materiel Project, contact Karen Drewen in our public outreach and information office toll-free at (800) 488-0648 or (410) 436-3445, or visit our Web site at www.cma.army.mil/nscmp.aspx.

Removing threats from yesterday's chemical weapons
Protecting our environment and health today

Ending Our Cold-War Legacy

The ***Chemical Weapons Convention*** (CWC) is an international treaty prohibiting the development, production, stockpiling and use of chemical weapons. The treaty came into force on April 29, 1997, 180 days after ratification by 65 countries. It is the product of decades of international deliberations and negotiations on the elimination of weapons of mass destruction.

The Organisation for the Prohibition of Chemical Weapons at The Hague, Netherlands, is responsible for overseeing the implementation of the CWC. Specifically, the CWC forbids each States Party to:

- develop, produce, acquire, retain or transfer chemical weapons;
- use chemical weapons;
- engage in any military preparations to use chemical weapons; and
- assist, encourage or induce in any way, anyone engaging in any activity prohibited under the CWC.

The treaty imposes international economic penalties and other actions for nations failing to ratify the treaty and for participants violating its provisions.

U.S. participation in the CWC

The United States became a States Party when it ratified the CWC on April 25, 1997. As a States Party, the U.S. government is striving to meet CWC destruction deadlines while ensuring public and environmental safety. The U.S. Army's Chemical Materials Agency is currently the international leader in chemical weapons destruction, destroying over 20 percent of its declared chemical weapons stockpile well ahead of the April 2002 treaty deadline. The U.S. has stated that it will destroy 45 percent of its declared inventory by the end of 2007.

Under the requirements of the treaty, the Chemical Materials Agency also is active in destroying ***non-stockpile*** chemical warfare materiel, such as recovered chemical weapons, former chemical weapons production facilities, binary chemical weapons and chemical samples.

The ***Non-Stockpile Chemical Materiel Project*** (Non-Stockpile Project), a part of the Chemical Materials Agency, completed the destruction of all M687 binary projectiles in July 1999 and destroyed 40 percent of former production facilities two years ahead of the 2002 treaty deadline. The U.S. is on track to destroy 100 percent of its former production facilities by April 2007.

Currently, the Non-Stockpile Project is destroying binary chemicals—which are not chemical weapons themselves but are components for producing chemical weapons—under a secondary waste disposal contract. This publication describes some of the activities associated with the Non-Stockpile Project's disposal of secondary waste.

The Non-Stockpile Chemical Materiel Project

The Non-Stockpile Project provides centralized management and direction to the U.S. Department of Defense for the disposal of ***non-stockpile chemical warfare materiel*** in a safe, environmentally sound and cost-effective manner.

A separate specialized branch of the Army is destroying the bulk of the U.S. chemical weapons stockpile at the eight sites where the materiel is stored.

The Non-Stockpile Project is tasked to dispose of smaller quantities of chemical and chemical-related materials that also are subject to the Chemical Weapons Convention. The Non-Stockpile Project conducts research and develops treatment options and destruction plans for chemical warfare materiel that fully comply with all federal, state and local regulations and laws.

The Non-Stockpile Project is tasked with the destruction and disposal of five types of chemical warfare materiel:

- Binary chemical weapons
- Former production facilities
- Buried chemical warfare materiel
- Miscellaneous chemical warfare materiel
- Recovered chemical warfare materiel

This materiel includes the individual components used to make chemical agents, structures and equipment from facilities once used for making chemical weapons such as empty storage tanks, as well as chemical sampling kits and samples filled and unfilled munitions. The Non-Stockpile Project has developed specialized equipment and processes to safely destroy the materiel for which it is responsible.

These destruction processes generate solid and liquid wastes called ***secondary wastes*** that require disposal. The secondary wastes from the destruction of all five categories of chemical weapons materiel include non-hazardous and hazardous materials. Although the secondary wastes are less toxic than the original chemicals, they still frequently require further processing before final disposal.

Countries signing the CWC treaty



As of October 16, 2005, 186 countries have signed the CWC, and 174 of them have ratified its terms and principles.

What's inside

Inside this publication is more detail about the Non-Stockpile Project's activities associated with the destruction and disposal of these non-hazardous and hazardous secondary wastes.

On the back page is information about contacts for getting answers to your questions, joining a mailing list or visiting a web site for more information.



U.S. ARMY CHEMICAL MATERIALS AGENCY



