

Technical Briefing Note: Cluster Munition Use in Ukraine

June 2015



Remnants of Uragan cluster munition rockets collected by rebel fighters after attacks on Starobesheve on February 6 and 7. © 2015 Human Rights Watch

Introduction

Both the government of Ukraine and Russian-backed separatists have used cluster munitions in eastern Ukraine since mid-2014, causing numerous casualties, damaging infrastructure, and leaving a deadly legacy of unexploded submunitions that will endanger civilians for years to come until and unless they are cleared and destroyed. Human Rights Watch has identified a dozen locations in two of Ukraine's eastern provinces (Donetsk and Luhansk) where two types of ground-launched cluster munitions and two types of explosive submunitions have been used to date.

While both Ukrainian and Russian authorities have condemned cluster munition use in populated areas, neither Ukraine nor Russia has joined the 2008 Convention on Cluster Munitions.¹ However, this use of banned cluster munitions has attracted widespread media coverage, public outcry, and condemnations from more than 30 countries.² This swift response demonstrates the growing strength of the emerging norm against any use of cluster munitions by any actor under any circumstance.

This Technical Briefing Note looks at the types of cluster munitions used in eastern Ukraine, locations of attacks, and civilian casualties, as well as the international response.

Methodology

The first evidence of the use of cluster munitions in the conflict in eastern Ukraine appeared in July 2014 from photographs taken by the *Associated Press* and a report by the Armaments Research Service.³ Human Rights Watch has continued to monitor videos and photos taken in the region and shared on Twitter, Facebook, and directly with Human Rights Watch.

In October 2014 and January-February 2015, Human Rights Watch researchers undertook field investigations in eastern Ukraine which documented widespread use of cluster munitions by both government forces and Russian-backed separatists in dozens of urban and rural locations, with some hit multiple times.⁴ The weapons used were ground-fired 300mm Smerch (Tornado) and

¹ "Only 'Savages' Use Cluster Munitions," Human Rights Watch dispatch, Ole Solvang, February 13, 2015, <http://www.hrw.org/news/2015/02/13/dispatches-only-savages-use-cluster-munitions>.

² "Use of cluster bombs," accessed June 17, 2015, <http://www.stopclustermunitions.org/en-gb/cluster-bombs/use-of-cluster-bombs/cluster-munition-use-in-ukraine.aspx>.

³ N.R. Jenzen-Jones, "9M27K series cargo rockets used in Ukraine," post to "The Hoplite" (blog), July 12, 2014, <http://www.armamentresearch.com/9m27k-series-cargo-rockets-used-in-ukraine/> (accessed June 17, 2015).

⁴ "Ukraine: Widespread Use of Cluster Munitions," Human Rights Watch news release, October 20, 2014, <http://www.hrw.org/news/2014/10/20/ukraine-widespread-use-cluster-munitions>; "Ukraine: More Civilians Killed in Cluster Munition

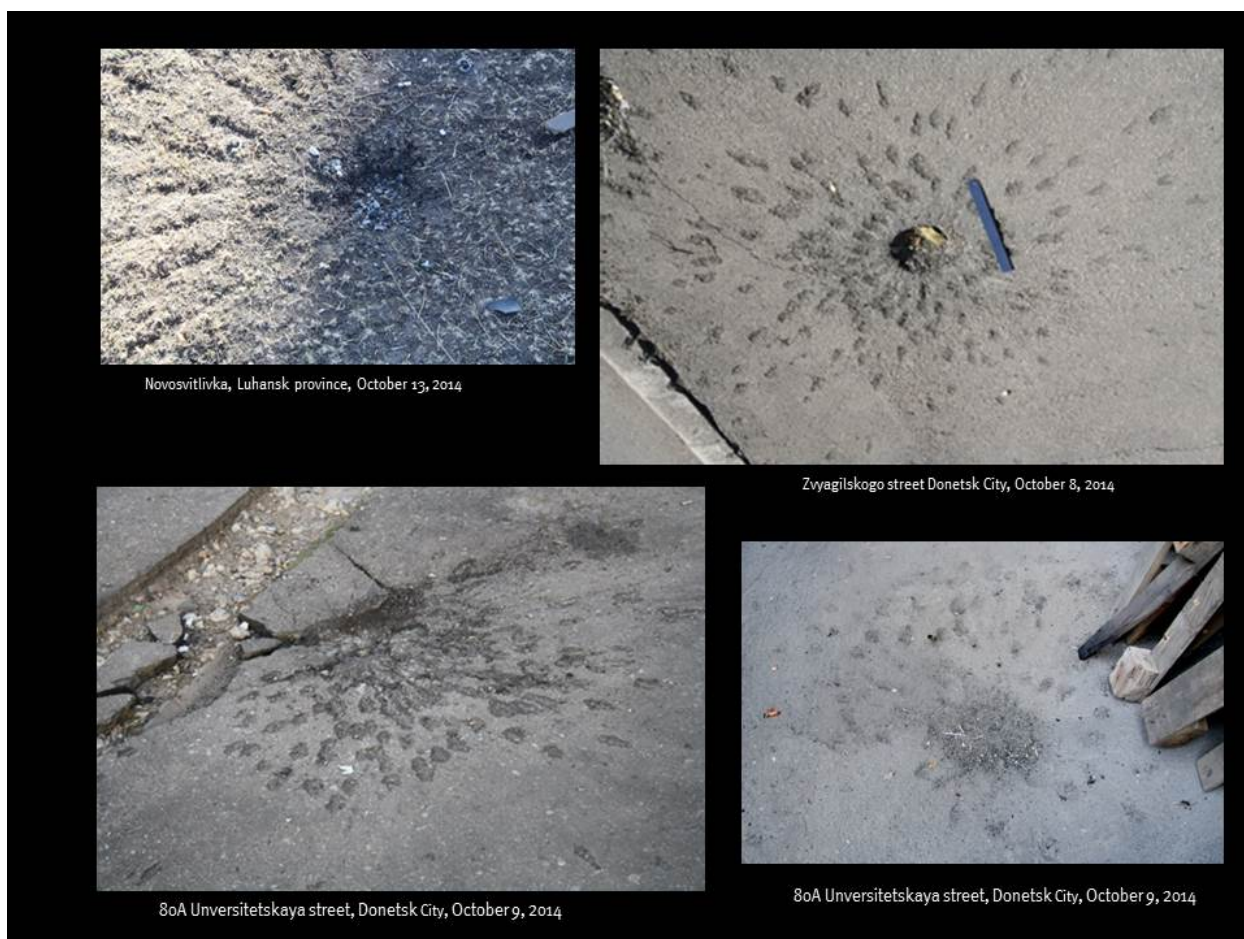
220mm Uragan (Hurricane) cluster munition rockets, which deliver 9N210 or 9N235 antipersonnel fragmentation submunitions.

At each location suspected to have been attacked with cluster munition rockets, Human Rights Watch researchers conducted a detailed surface search of the impacted area. Researchers located remnants of the weapons, collected remnants of submunitions, and interviewed numerous residents including those present at the time of attack. Unless otherwise noted, all statements by local residents, officials, healthcare workers, and others are from interviews with Human Rights Watch. Researchers also took directional readings at the locations where they found intact remnants of cluster munitions to determine the apparent direction from which the attack originated. Researchers took photographs and made video recordings at each site, especially of the individual submunition impact points. They also took GPS coordinates at each strike location.

At each submunition impact point, there is a distinctive small crater and “splatter” pattern in the ground where the submunition detonated—this pattern is quite distinctive on asphalt surfaces where many of the impact points were found. There is also a discernible fragment impact pattern on surfaces like metal doors, trees, and walls that are perpendicular to the detonation of the submunition.

At nearly all of the locations examined where submunitions impacted and detonated, Human Rights Watch researchers collected submunition debris such as the rectangular black stabilization fins, the metal parts of ring that attach these fins to the submunition body, and the metal pre-formed fragments (including 0.5 gram, 2.0 gram, and 4.5 gram fragments), either in the ground at the point of detonation or on surfaces perpendicular to the impact location. Researchers also collected two pieces of the black plastic fragmentation liner, both with pre-formed 2.0 gram fragments still suspended in it, and an intact metal ring that is present where the impact fuze and submunition body meet. The only way to distinguish between the impact of an 9N210 and an 9N235 submunition is by the size of the pre-formed fragments, as all other components are common to both.

Attacks,” Human Rights Watch news release, March 19, 2015, <http://www.hrw.org/news/2015/03/19/ukraine-more-civilians-killed-cluster-munition-attacks>.



Submunition impact "splatters" found at the scenes of cluster munition rocket attacks. © 2015 Human Rights Watch

Types of Cluster Munitions used in Ukraine

Both the Uragan and Smerch rockets are "designed to engage manpower and soft-skinned materiel in concentration areas," according to its manufacturer, Splav SPRA, based in Tula, Russia. The Uragan rocket delivers 9N210 and 9N235 submunitions to a minimum range of 10 kilometers and a maximum range of 35 kilometers;⁵ the Smerch rocket delivers 9N235 submunitions to a minimum range of 20 kilometers and a maximum range of 70 kilometers, according to its manufacturer.⁶ In many of the cases Human Rights Watch investigated, the tail section and rocket motor appeared to fly further than the payload of submunitions.

⁵ "9M27K 220 mm Rocket Projectile with Fragmentation Submunitions Scattering Cluster Warhead," Splav SPRA, accessed June 17, 2015, <http://www.splav.org/en/arms/uragan/m27k.asp>.

⁶ "300 mm 9M55K Rocket Projectile with Fragmentation Submunitions Scattering Cluster Warhead," Splav SPRA, accessed June 17, 2015, <http://splav.org/en/arms/smerch/m55k.asp>.

The 9N210 and 9N235 submunitions contained in these rockets are identical in size, shape, and color. Each submunition has six rectangular black metal pop-up stabilization fins at the end opposite its impact fuze.



9N235 submunitions that failed to explode during a cluster munition attack collected and displayed in Starobesheve, photo taken on October 11, 2014. © 2015 Human Rights Watch

The 9N210 submunition is only delivered by the 9M27K Uragan cluster munition rocket and contains 370-400 cylindrical pre-formed metal fragments each weighing 2.0 grams. These fragments are suspended in a matrix of a thick black plastic material that lines the inside of the cylindrical body of the submunition and are dispersed in all directions upon impact and detonation. A total of 30 9N210 submunitions are in each 9M27K rocket and they are designed to self-destruct after one minute after being ejected from the rocket.

The 9N235 submunition, delivered by a variant of Uragan and all Smerch cluster munition rockets, contains 96 pre-formed metal fragments, each weighing 4.5 grams, and 300 fragments each weighing 0.5-0.75 grams. These fragments are contained in a similar black plastic liner as that of the 9N210 submunition. A total of 30 9N235 submunitions are delivered by a 9M27K1 Uragan rocket, and 72 9N235 submunitions are contained in 9M55K Smerch rockets. The 9N235

submunition is designed to self-destruct nearly two minutes after being ejected from the rocket.

Launcher type	Rocket designation	Minimum/Maximum range	Quantity of submunitions per rocket	Quantity and size of pre-formed fragments per submunition	Submunition self-destruct time
BM-27 Uragan	9M27K	10/35 km	30	370 to 400 fragments of 2.0 grams each	110 seconds
BM-27 Uragan	9M27K1	10/35 km	30	96 fragments of 4.5 grams each and 300 fragments of 0.5 grams each	110 seconds
BM-30 Smerch	9M55K	20/70 km	72	96 fragments of 4.5 grams each and 300 fragments of 0.75 grams each	110 seconds

Source: Russian Federal State Unitary Enterprise “Splav State Research and Production Association” webpages -- <http://splav.org/en/arms/uragan/m27k.asp> and <http://splav.org/en/arms/smerch/m55k.asp> -- accessed March 17, 2015.

Locations of cluster munition use

Cluster munition rockets have been used in attacks in Donetsk and Luhansk provinces.

The following account is provided for illustrative purposes only and is not intended to provide a comprehensive record of all the cluster munition attacks that have occurred. It covers the period from July 2014 until the February 2015 ceasefire. No cluster munition use has been recorded since February 2015.

Donetsk Province

Cluster munition rockets have been used in attacks on Donetsk City and at least seven towns and villages throughout the province (*in alphabetical order*).

Artemivsk

On February 13, 2015, Smerch cluster munition rockets were used in an attack on the northeast part of the town of Artemivsk. According to a *de facto* regional authorities for the Donetsk regional administration, the attack killed a woman and an 8-year-old boy. Local residents also described finding remnants of the weapon, described by one as a “pipe with holes,” a description consistent with the central part of the cluster munition rocket cargo section that can often be found as a remnant after a cluster munition attack.

Donetsk City

At least six Uragan cluster munition rockets hit the center of Donetsk City in early October 2014, killing one person and injuring at least two. On October 2, one payload of submunitions struck the roof and surrounding area of a supermarket at 80A Universitetskaya Street. At about the same time, submunitions from a second Uragan cluster munition rocket struck a paved road just southeast of the building at 94 Universitetskaya Street. Submunitions from a third rocket hit on and around the building at 100B Universitetskaya Street. Also on October 2, submunitions from another Uragan cluster munition rocket struck the building of the Mountain Rescue Service, at 157 Artem Street. In the morning of October 5, at least two Uragan cluster munition rockets struck the fifth subdistrict of the Kyivskyi district.

Hrodivka

On February 10, Smerch cluster munition rockets were used in an attack on Hrodivka, a small government-controlled town about 55 kilometers south-southwest of Kramatorsk. A civil servant with the local administration stated that the attack wounded eight people, five civilians, and three soldiers. A doctor at a local hospital said that the hospital had received eight injured people, including five civilians, after the attack. The doctor also said that one woman’s leg had to be amputated due to her injuries. Dozens of submunition impact craters, three cargo sections, and four tail sections from Smerch cluster munition rockets were found in Hrodivka.

Ilovaisk

Tail sections of three Uragan cluster munition rockets were lodged in the ground by a road approximately two kilometers northwest of the village of Hruzka-Lomivka, outside of Ilovaisk. A demining team destroyed an unexploded submunition found by a local resident in a field west of Ilovaisk. A *New York Times* journalist showed Human Rights Watch a photo of the tail section of a

Smerch rocket lodged in a shed on the northwestern edge of Ilovaisk. Local residents said that the rocket had struck in the period between August 25 and 29.



An unexploded 9N235 submunition (left) found outside Novosvitlivka; remnants of submunitions (right) of the type delivered by Uragan and Smerch cluster munition rockets, photos taken October 13 and October 16. © 2015 Human Rights Watch

Komsomolske

Between February 2 and 7 multiple attacks with Uragan rockets containing unitary fragmentation warheads and cluster munitions payloads struck Komsomolske, a village about 40 kilometers southeast of Donetsk city. Local residents report that a submunition killed a 42-year old man and his 10-year-old son on February 7. More than a dozen craters and impact sites, including damage to the walls and windows of a school, consistent with the use of cluster munitions, as well as a cargo section and pre-formed fragments and stabilization fins from submunitions showing conclusively that cluster munitions were used in an attack on the village. A local resident said that cluster munitions were also used in an attack on Komsomolske on December 2, 2014, killing a 33-

year-old woman. Craters and damage to the wall, consistent with cluster munition use, were at the site where the woman was killed.

Kramatorsk

On February 10, Smerch cluster munition rockets were used in an attack on at least two residential areas in Kramatorsk. A Ukrainian government spokesperson for the Donetsk region administration stated that the attack killed 5 civilians and 12 military servicemen, and that 34 people had required hospital treatment. The same attack also struck the airport, which serves as the headquarters for the government's military operations in eastern Ukraine, and which was likely the target for the main attack. The impacts on Lenin Street were located around a base used by border guard forces, which might have been the target of that attack.

Makiievka

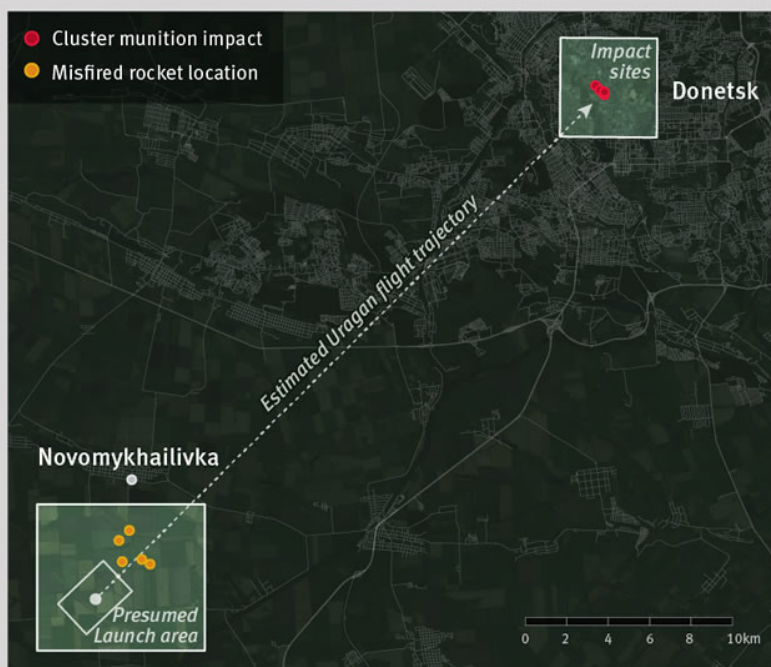
A local first responder in Makiievka, a rebel-controlled town bordering Donetsk city to the east, reported finding unexploded submunitions and remnants of Uragan cluster munition rockets in at least three places. He said that cluster munitions had killed two people on August 19 and 20 near a train station in the town.

Starobesheve

On the morning on August 24, Smerch cluster munition rockets struck Starobesheve, a town about 35 kilometers southeast of Donetsk. Employees at the town hospital, which received the injured, said that the attack had killed 3 civilians and injured 17. On February 6 and 7, 2015, Uragan cluster munition rockets were used in an attack killing a 46-year-old man. Local authorities collected six cargo sections from Uragan cluster munition rockets shortly after the attacks, as well as a 9N210 submunition that had failed to both explode on impact and to self-destruct after being dispersed.

CLUSTER MUNITIONS USED IN DONETSK

In October 2014, cluster munitions struck Donetsk city in eastern Ukraine. Weapon remnants at the impact sites and near the presumed launch area showed that the weapon used was the 9M27K rocket with 9N128K warhead, containing 9N210 fragmentation submunitions.



DONETSK: ●

Remnants found at impact sites



Expended warhead of a 9M27K rocket found at 157 Artem street, Donetsk city. Payload designator code 9N210 and warhead designator code 9M27K partially visible.



Remnants from a 9N210 fragmentation submunition found at 94 Universitetskaya street, Donetsk city.

SOUTH OF NOVOMYKHAILIVKA: ●

Misfired rockets found near presumed launch area



Warhead examined in field by Human Rights Watch.

Close-up of warhead:

- Payload designator code 9N210 partially visible.
- Weapon designator code 9M27K visible.



Expended warhead and rocket motor found in field by local residents. Examined by Human Rights Watch at nearby location.

Close-up of warhead: Payload designator code 9N210 and warhead designator code 9N128K visible.

Close-up of rocket engine: Rocket designator code 9M27 visible.



Warhead and rocket engine examined in field by Human Rights Watch.

Close-up of warhead: Warhead designator code 9N128K visible.

Close-up of rocket engine: Rocket designator code 9M27 visible.

Luhansk Province

Cluster munition rockets have been used in attacks on Luhansk City and at least two towns in the province *(in alphabetical order)*.

Luhansk City

Smerch cluster munition rockets were used in an attack on January 27 in residential areas in the Artemivsk district in the western part of the city along Izvestkova Street and around school number 37. Medical personnel stated that the attack had killed two civilians. In a second attack, submunitions detonated on and near Arktychna Street in the Zhovtnevy district shortly after midnight on February 12. The area is residential with detached houses and residents said the attack did not kill or injure anybody. A member of an ordnance clearance team in Luhansk stated that the team had cleared remnants from 23 Smerch cluster munition rockets that they had found in the city since the beginning of January. He also said that they had found and neutralized 17 unexploded submunitions, but that there were probably more. A clearance team member said that they had also recorded cluster munition attacks on January 24 and February 11.

Novosvitlivka

After fighting in mid-August 2014, the remnants of at least six Smerch rockets, two Uragan rockets, and three unexploded 9N235 submunitions were found in the village of Novosvitlivka, located south of Luhansk City. The village suffered extensive damage from the fighting and more than 100 people from the village were killed in the fighting, but it is not possible to attribute the casualties to a specific weapon system, according to medical personnel at the local hospital.

Stakhanov

On January 23, Smerch cluster munition rockets were used in an attack on the center of this rebel-controlled town 45 kilometers west of Luhansk. The head of the local hospital stated that the hospital had received and treated three civilians after the attack. A total of three cargo sections and three tail sections from Smerch cluster munition rockets that were still stuck in the ground in the town. At a collection point for remnants of weapons, Human Rights Watch researchers found parts from more than 30 Smerch cluster munition rockets and a few Uragan cluster munition rockets that a local clearance team had collected from Stakhanov and surrounding towns, including nine unexploded submunitions collected after the January 23 attack.

CLUSTER MUNITION ATTACKS IN EASTERN UKRAINE

Documented by Human Rights in January and February 2015



International Response

Visiting the site of an attack by pro-Russian separatists in the eastern Ukrainian city of Kramatorsk on February 10,⁷ President Petro Poroshenko said: “It is savages who use cluster munitions against civilians.”⁸ The Ukrainian president’s words were very similar to the Russian⁹ reaction to a Human Rights Watch report in October that documented Ukrainian government use of cluster munitions in Donetsk.¹⁰ The Ukrainian forces’ use of cluster munitions showed the “barbaric nature” of Kiev’s military operations in the eastern Ukraine, said a Russian Foreign Ministry spokesman.¹¹ Neither side in the conflict in Ukraine has acknowledged or taken responsibility for use of cluster munitions by their own forces nor has Russia acknowledged or taken responsibility for their use by the separatists to whom they provide support.

The reported use of cluster munitions in eastern Ukraine was discussed at the Fifth Meeting of States Parties to the Convention on Cluster Munitions in San José, Costa Rica in September, 2014.¹² At the meeting, 21 states made national statements that expressed concern and/or condemned the reported use of cluster munitions in Ukraine.¹³ The European Union expressed deep concern at “worrying reports” of cluster munition use in Ukraine as did Costa Rica as president of the meeting.¹⁴

During an October 24, 2014 United Nations Security Council debate on the situation in Ukraine, 11 states expressed concern at the reported use of cluster munitions and called for an investigation.¹⁵

⁷ “Ukraine,” Human Rights Watch, accessed June 17, 2015, <http://www.hrw.org/europecentral-asia/ukraine>.

⁸ “Ukraine: More Civilians Killed in Cluster Munition Attacks,” video clip, YouTube, <https://www.youtube.com/watch?v=ObKB1jCB7Oo>, 2:25-2:45.

⁹ “Russia,” Human Rights Watch, accessed June 17, 2015, <http://www.hrw.org/europecentral-asia/russia>.

¹⁰ “Ukraine: Widespread Use of Cluster Munitions,” Human Rights Watch news release.

¹¹ “Comment by Russian Foreign Ministry Spokesman Alexander Lukashevich regarding the Human Rights Watch report on the use of cluster munitions by the Ukrainian Armed Forces in populated areas of the Donetsk Region,” The Ministry of Foreign Affairs of the Russian Federation, October, 23, 2014, http://mid.ru/bdomp/brp_4.nsf/e78a4807of128a7b4325699005bcbb3/3cbod2874273033044257d7a005c327b!OpenDocument (accessed June 17, 2015).

¹² “Fifth Meeting of States Parties,” Convention on Cluster Munitions, accessed June 17, 2015, <http://www.clusterconvention.org/meetings/msp/5msp/>.

¹³ Australia, Austria, Belgium, Chile, Colombia, Côte d’Ivoire, Croatia, Ecuador, France, Guatemala, Ireland, Italy, Mauritania, the Netherlands, New Zealand, Norway, Peru, Portugal, Slovenia, Somalia, and Switzerland. “General exchange of views,” Convention on Cluster Munitions Fifth Meeting of States Parties, San Jose, Costa Rica, September 2-5, 2015, <http://www.clusterconvention.org/meetings/msp/5msp/general-exchange-of-views/>.

¹⁴ Statement by the European Union, Convention on Cluster Munitions Fifth Meeting of States Parties, General Exchange of Views, San Jose, Costa Rica, September 2-5, 2015, http://www.clusterconvention.org/files/2014/09/CCM_5MSP_EU_statement_FINAL1.pdf.

¹⁵ Argentina, Australia, Chad, Chile, Jordan, Lithuania, Luxembourg, Russia, Rwanda, UK, and US. Provisional report of the 7287th meeting of the UN Security Council, S/PV.7287, October 24, 2014, http://www.un.org/en/ga/search/view_doc.asp?symbol=S/PV.7287, p. 21.

Russia expressed concern at the “alarming and growing number of civilian victims, including children” resulting from the use of weapons including “prohibited munitions” such as cluster bombs.

At an October 30 meeting of the OSCE Council in Vienna, the United States and other OSCE member states expressed concern at the use of cluster munitions in east Ukraine use and called for an investigation.