

Ukraine Missile Dismantlement Chronology

Last update: September 2007

This annotated chronology is based on the data sources that follow each entry. Public sources often provide conflicting information on classified military programs. In some cases we are unable to resolve these discrepancies, in others we have deliberately refrained from doing so to highlight the potential influence of false or misleading information as it appeared over time. In many cases, we are unable to independently verify claims. Hence in reviewing this chronology, readers should take into account the credibility of the sources employed here.

Inclusion in this chronology does not necessarily indicate that a particular development is of direct or indirect proliferation significance. Some entries provide international or domestic context for technological development and national policymaking. Moreover, some entries may refer to developments with positive consequences for nonproliferation.

2002-1994

22 February 2002

LAST SS-24 MISSILE DISASSEMBLED

Ukrainian television reported on 22 February 2002 that the last RT-23UTTKh ICBM [NATO designation SS-24 'Scalpel'] was dismantled for storage at the Pavlohrad Mechanical Plant where SS-24 elimination is to take place. Although Ukraine reportedly already destroyed 16 such missiles, the remainder of the missiles, and some 5,000 metric tons of solid rocket fuel stored at the Pavlohrad plant, remain to be disposed of with US assistance. Pivdenne Design Bureau Chief Designer Stanislav Konyukhov, while praising US assistance, nevertheless criticized it for being insufficient with regards to the continuing social needs of Pavlohrad workers.

—UT1 TV broadcast, 22 February 2002; in "Ukraine destroys its last SS-24 intercontinental missile," FBIS Document CEP20020223000085.

26 May 2002

SIX TONS OF SS-24 PARTS STOLEN

UNIAN reported on 26 May 2002 that the Dnipropetrovsk Oblast office of the Security Service of Ukraine announced that six tons of RT-23UTTKh [NATO designation SS-24 'Scalpel'] ICBM components were stolen from the Pavlohrad Mechanical Plant, which is conducting ICBM elimination. The thieves stole pieces of metal from one of the plant's dismantled missile parts warehouses. The thefts took place in March and April 2002 by a criminal group headed by one of the plant's deputy directors. The deputy director, with the assistance of several of the plant's workers, smuggled 2.8t of aluminum from the plant and sold 2.6t without proper documentation to a local commercial organization which in turn sold it to a company based in Zaporizhzhya. The perpetrators were reportedly arrested while transporting the metal. Pavlohrad Mechanical Plant's losses are estimated at 14,600 hryvne (\$2,739 as of 13 June 2002).

—"Boleye 6 tonn chastey strategicheskikh raket SS-24 pokhishcheno s Pavlogradskogo mekhanicheskogo zavoda,"

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UNIAN, No. 020 (212), 20-26 May 2002. "Na Ukraine ukrali tysyachi tonn loma utiliziruyemykh raket," RTR-Vesti, www.rtr-vesti.ru.

8 June 2002

EXPLOSION AT PAVLOHRAD MECHANICAL PLANT

On 8 June 2002, an explosion took place on the territory of the Pavlohrad Mechanical Plant, involved in solid-fuel ICBM elimination. Four plant employees were injured by flying glass fragments. The blast shattered windows up to five kilometers away from the plant, and resulted in a greenish cloud of smoke. The explosion reportedly took place during the incineration of solid rocket fuel and other flammables. According to the Emergencies Ministry office in Pavlohrad the explosion has not resulted in air and soil pollution above maximum permissible levels. —UNIAN, 11 June 2002; in "Officials dismiss missile explosion scare in eastern Ukrainian city," FBIS Document CEP20020611000082.

20 August 2002

43RD ROCKET ARMY DISBANDS

The 43rd Rocket Army, a former Soviet Strategic Rocket Forces (SRF) unit that controlled all strategic ballistic missiles located on Ukraine's territory, was officially deactivated on 20 August 2002 after 42 years of existence. Ukrainian Defense Minister Volodymyr Shkidchenko visited garrisons belonging to the disbanded army and thanked its officers for their efforts in strategic arms elimination activities. A museum dedicated to the SRF will be established on the site of the deactivated army.

—UT1 Television, 20 August 2002; in "Ukraine's 43rd missile army unit disbands," FBIS Document CEP20020820000378.

11 February 2001

RUSSIA AND UKRAINE SIGN MEMORANDUM OF COOPERATION TO ELIMINATE RUSSIAN SS-24 and SS-N-20 BALLISTIC MISSILES

On 11 February 2001, Ukrainian and Russian officials signed a Memorandum of Cooperation at a Russian-Ukrainian summit meeting in Dnipropetrovsk addressing the dismantlement of solid-propellant RS-22 [NATO designation SS-24 'Scalpel'] and RSM-52 [NATO designation SS-N-20 'Sturgeon'] missiles. In compliance with the memorandum, Ukraine will dismantle the first stages of Russian RS-22 ICBMs at the Pavlohrad Chemical Plant in Dnipropetrovsk Oblast. Pavlohrad has already been tasked with the extraction and conversion of solid rocket fuel from RS-22 missiles being dismantled in Ukraine. For more information, see the 11/99 and 7/1/2000 entries in this section. —"Ukraina, Rossiya i SShA prodolzhayut konsultatsii po voprosam likvidatsii tverdotoplivnykh strategicheskikh raket," Interfax, 15 March 2001.

6 March 2001

CITY COUNCIL ORDERS HALT TO OPERATIONS AT PAVLOHRAD MISSILE DISMANTLEMENT PLANTS

The Pavlohrad Mechanical and Chemical Plants have halted RT-23UTTKh [NATO designation SS-24 'Scalpel'] missile elimination activities. The Pavlohrad City Council ordered the operations halted on 6 March 2001, citing a lack of environmental safety guarantees from the plants.

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5 May 2001

UKRAINE RESUMES SS-24 SILO DEMOLITION

On 5 May 2001 Interfax reported that on 18 May 2001 Ukraine will demolish the first RT-23UTTKh [NATO designation SS-24 'Scalpel', START I designation RS-22] ICBM silo for this year, with a total of 15 silos near Pervomaysk scheduled for elimination in 2001. Interfax also reported that the last Ukrainian RT-23UTTKh missile was extracted from its silo on 18 April 2001. The silo will be destroyed using explosives, and the operation will be performed by Donetsk-based Shakhtspetsstroy, using funds provided by the US Cooperative Threat Reduction program at a rate of approximately \$50,000 per silo. Strategic Offensive Arms Reduction Treaty Implementation Support Center Chief Volodymyr Shapovalov stated that while the date for the final silo demolition has not yet been set, Ukraine will fulfill its START I obligations by 4 December 2001.

—"Ukraina pristupayet k poslednemy etapu likvidatsii puskovoy ustanovki strategicheskikh raket," Interfax, 5 May 2001.

28 October 2001

SS-24 ELIMINATION PROGRAM SUFFERS DELAYS

According to Ukrainian START Treaty Implementation Center Chief Colonel Vladimir Shapovalov, Ukraine may not be able to complete RT-23UTTKh [NATO designation SS-24 'Scalpel'] elimination by the end of 2004, as originally planned. Although US equipment for eliminating the missiles had already arrived at the Pavlohrad Mechanical Plant, the program has suffered delays. There reportedly are disagreements between US and Ukrainian government agencies concerning the necessary level of safety during missile elimination. Sources in the Ukrainian National Security Council consider the delays normal and believe the time may be made up in the future. The most time-consuming part of the process, according to the National Security Council, will be optimizing the fuel extraction regimes at the pilot plant, since each stage of the RT-23UTTKh will require different settings. A US Embassy representative reportedly attributed the delay to the Ukrainian proposal to convert extracted rocket fuel into high explosives.

—"Ukraina mozhet ne uspet utilizirovat rakety SS-24 do 2004 goda - Defense-Express," UNIAN, No. 043 (183), 22-28 October 2001. "SShA ponimayut, chto protsess likvidatsii v Ukraine raket RS-22 mozhet zaderzhatsya po tekhnicheskim prichinam," UNIAN, No. 043 (183), 22-28 October 2001.

30 October 2001

UKRAINE ELIMINATES LAST SS-24 SILO

On 30 October 2001, Ukraine destroyed the last of 46 silos for RT-23UTTKh [NATO designation SS-24 'Scalpel', START I designation RS-22] ICBMs located in Pervomaysk District, Mikolayiv Oblast. Sergey Borodenkov, a spokesperson for the Ukrainian Foreign Ministry, announced that this demolition marks the fulfillment by Ukraine of its commitment under START I to eliminate its strategic offensive weapons by 5 December 2001.

—"Ukraina unichtozhayet poslednyuyu raketnyuyu shakhtu," Korrespondent.net, www.korrespondent.net, 29 October 2001. "Ukraine Eliminates All Its Nuclear Weapons," Interfax, 30 October 2001.

4 November 2001

SUPPLEMENTARY AGREEMENT ON ICBM INFRASTRUCTURE ELIMINATION SIGNED

UNIAN reported on 4 November 2001 that 43rd Missile Army Commander and Deputy Defense Minister Vladimir

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Mikhtyuk and US SOAE Program Director for Ukraine John Connell had signed a supplementary agreement on the elimination of R-36M [NATO designation SS-18 'Satan'] and RT-23UTTKh [NATO designation SS-24 'Scalpel'] construction infrastructure.

—"SShA pomogut Ukraine likvidirovat 47 tyazhelykh bombardirovshchikov Tu-22," UNIAN, No. 044 (184), 29 October-4 November 2001.

1 April 2000

SS-24 ELIMINATION TO COMMENCE IN 2002

Technical experts at the Pavlohrad Chemical Plant are in the final phases of evaluating a hydrodynamic extraction technique for use on solid-fuel RS-22 ICBMs [NATO designation SS-24 'Scalpel'] which are scheduled for elimination under the terms of the START II treaty. Pavlohrad Chemical Plant is the former manufacturer of solid-fuel rocket engines for RS-22 ICBMs, and has been selected as the site for eliminating these missiles with the aid of Cooperative Threat Reduction (CTR) program funds. The elimination of RS-22s is to begin in 2002, and the solid rocket fuel extracted using this technique will be converted to industrial explosive.

—Dinau News Agency, 1 July 2000; in "Ukraine to Use US Technology for Recycling Nuclear Missiles," FBIS Document CEP20000701000108.

7 April 2000

MISSILE SILO DISMANTLEMENT MOVING AHEAD AS SCHEDULED

According to Deputy Defense Minister Colonel General Volodymyr Mykhtyuk, Ukraine has eliminated 20 RS-22 [NATO name SS-24 'Scalpel'] missile silos. The silos are to be dismantled by 5 December 2001 under the reductions agreed upon between the United States and Russia. Their disassembly will take place at the Pavlohrad Chemical Plant in Dnipropetrovsk Oblast. For more information, see the 9/99 entry and the 11/1999 entry on this page.

—UNIAN, 7 April 2000; in "General reports progress in missiles destruction," FBIS Document CEP20000407000261.

26 July 2000

DNEPR TO LAUNCH SATELLITES FOR OSSS

Kosmotras, a Russo-Ukrainian space launch company, will use its Dnepr space launch vehicles for cluster-launches of small satellites on behalf of the US company One Stop Satellite Solutions (OSSS) which is involved in manufacturing small satellites for universities. The Dnepr is a converted RS-20 [NATO designation SS-18 'Satan'] ICBM, of which 150 are still considered suitable for conversion. The memorandum of understanding between OSSS and Kosmotras signed in June 2000 specifies test-launching a small OSSS satellite in March 2001. Each Dnepr launch would put into orbit five to seven small satellites and cost \$6-8 million, or \$10,000-\$12,000 per kilogram of payload. Large-scale commercial launches of OSSS satellites are to begin in 2002. For more information on the Dnepr program, see the 9/20/1999 and 1/20/1999 entries on this page.

—"Ukrainsko-rossiyskiy "Kosmotras" i amerikanskaya OSSS budut osushchestvlyat zapuski sputnikov konversionnym raketonositelem 'Dnepr'," Interfax, No.4, 26 July 2000.

4 August 2000

UKRAINIAN FIRMS TO PARTICIPATE IN SOLID ROCKET FUEL ELIMINATION

On 4 August 2000 Interfax reported that by end of August 2000 the US firms Morrison Knudsen and Thiokol

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Propulsion will select Ukrainian subcontractors to build a solid rocket fuel conversion facility in Pavlohrad, to process fuel extracted from RS-22 ICBMs [NATO designation SS-24 'Scalpel']. According to the chief of the Center for the Implementation of Strategic Arms Reduction Treaties, Volodymyr Shapovalov, the US Defense Threat Reduction Agency signed an agreement with Morrison Knudsen and Thiokol Propulsion to select Ukrainian subcontractors on 30 July 2000. The Pavlohrad Chemical Plant, which Shapovalov considers to be the most likely Ukrainian primary subcontractor, will be the site for solid rocket fuel conversion facilities. A pilot fuel conversion facility is to be built by the end of May 2000 and then put into experimental operation. Construction of a full-scale fuel conversion facility, which will require 18 months, will begin following the completion of evaluation of the pilot facility. Large-scale rocket fuel conversion is expected to begin by mid-2003.

— "Amerikanskiye kompanii namereny opredelit ukrainskikh podryadchikov po stroitelstvu zavoda po pererabotke tverdogo topliva raket SS-24," Interfax, No.4, 4 August 2000.

31 August 2000

LIQUID ROCKET FUEL SUSPECTED CAUSE OF ILLNESSES IN MYKOLAYIV OBLAST

Interfax reported that on 31 August 2000 President Kuchma declared villages in the Pervomaysk district of Mykolayiv Oblast to be an environmental disaster zone after a large number of inhabitants were diagnosed with illnesses connected to poisoning from traces of liquid rocket fuel. Liquid fueled RS-16 [NATO designation SS-17 'Spanker'] and later RS-20 [NATO designation SS-18 'Satan'] missiles were previously based in Mykolayiv Oblast. Soil and water samples have shown unusually high amounts of toxins that are byproducts of decaying heptyl and amyl, both found in rocket fuel. A Ukrainian public health official stated that rocket fuel is the probable cause of the illness. Media sources speculate that locals may have triggered the toxic chemical leaks by disturbing a missile or waste burial site.

— "Presidential Bulletin for 31 August 2000," Interfax, Vol. 165, 31 August 2000; in "Presidential Bulletin for 31 Aug 00," FBIS Document CEP20000831000297. Viktor Yadukha, "Pandora's Missile Box. Mykolayiv Prospectors for Nonferrous Metal Bury Their Children's Health in the Ground," *Segodnya*, 30 August 2000, p. 7; in "Russian Paper Reports Ukrainian Outbreak of Disease Linked to Rocket Fuel," FBIS Document CEP20000830000286. Svyatoslav Rechinskiy, "Otravlenneya zhizn," *Moskovskiy novosti*, No. 37, 19-25 September 2000, p. 11. "Ukraine villagers affected by mystery illness," Deutsche Presse-Agentur, 10 August 2000; in Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>.

11 September 2000

PIVDENNE/PIVDENMASH TO DELIVER 80 ROCKETS TO SEA LAUNCH

On 11 September 2000 the Sea Launch consortium signed a contract for Pivdenne/Pivdenmash to deliver 80 Zenit-3SL rockets to its Long Beach, California site. The contract includes rockets that have already been delivered to Sea Launch. The Zenit-3SL boosters have been tested by Sea Launch and will be used to launch a communications satellite into orbit for the United Arab Emirates on 19 October. Sea Launch is a consortium in which Pivdenne's design board owns 15% and Boeing owns 40%. For more information see the 10/10/1999 and 9/20/1999 entries on this page.

— "Sea Launch, Yuzhnoye Agree to 80-Rocket Deal," *Space News*, Vol. 11, No. 36, 25 September 2000, p. 2. Vitaliy Matarykin, "Morskaya startovaya platforma 'Odissey' otpravilas k mestu zapuska ukrainsko-rossiyskoy rakety-

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nositelya 'Zenit-3SL'," ITAR-TASS, 10 October 2000; in Integrum Techno, www.integrum.ru. "Arab Emirates communications satellite to be launched from Sea Launch," Interfax, No. 3, 7 September 2000.

26 September 2000

FIRST COMMERCIAL LAUNCH OF CONVERTED SS-18 ICBM SUCCESSFUL

Interfax reported that on 26 September 2000 the space launch vehicle Dnepr, a converted RS-20 [NATO designation SS-18 'Satan'] intercontinental ballistic missile (ICBM), was successfully launched from the Baykonur Cosmodrome. The RS-20 conversion into the Dnepr was accomplished with the cooperation of Ukrainian Pivdenne Design Bureau and Pivdenmash Production Association. For more information, see the 7/26/2000, 9/20/1999, and 1/20/1999 entries in this section.

4 October 2000

UKRAINE TO RECEIVE US FUNDS FOR PILOT FUEL CONVERSION PLANT

On 4 October 2000, Interfax reported that the US Congress had approved \$24 million for construction of a pilot solid rocket fuel conversion plant at the Pavlohrad Chemical Plant. Deputy Defense Minister Colonel General Volodymyr Mykhtyuk stated that the US company Morrison Knudsen had already purchased the necessary construction equipment and would deliver it to Ukraine in the first quarter of 2001. Mykhtyuk said that a lack of world experience with RS-22 [NATO designation SS-24 'Scalpel'] ICBM solid rocket fuel extraction and conversion established the need for the pilot plant before large-scale conversion can begin. Pivdenne (Yuzhnoye) Design Bureau, which designed the RS-22, decided to build the pilot plant. In September contracts were also signed to construct four missile storage facilities, which are scheduled for completion by December 2000. Each storage facility will house the separate stages of 8.5 dismantled missiles. At present, the missiles are housed at storage facilities in Mykhaylenki and Pervomaysk. Mykhtyuk also reported that Ukraine and Russia are discussing the possibility of eliminating Russian solid-fuel missiles in Ukraine.

—"SShA profinansiruyut stroitelstvo na Ukraine ustanovki likvidatsii topliva raket SS-24," Interfax, No. 21, 4 October 2000.

4 October 2000

ICBM REMOVAL FROM SILOS CONTINUES, FUNDING REQUESTED TO RECULTIVATE BLOWN-UP SILO AREAS

Interfax reported that on 4 October 2000 the 36th RS-22 [NATO designation SS-24 'Scalpel'] intercontinental ballistic missile (ICBM) was removed from its silo in Kirovohrad Oblast, leaving only 10 RS-22 missiles still in silos in Ukraine. Deputy Defense Minister and 43rd Missile Army Commander Colonel General Volodymyr Mykhtyuk stated that the remaining missiles would be removed by December 2001. Interfax also reported that Deputy Commander of the 43rd Missile Army Major General Vladislav Bushuyev sent a request to the US Department of Defense for \$2.75 million to recultivate missile silo sites in Mykolayiv Oblast that were blown up after the disposal of R-12 [NATO designation SS-4] and R-14 [NATO designation SS-5] missiles.

—"Another ICBM removed from silo in Ukraine's Kirovograd region," Interfax, 4 October 2000. "Ukraine needs \$2.75 million to do away with missile silos," Interfax, 4 October 2000.

11 December 2000

NEW AGREEMENT ON SS-24 ELIMINATION MODIFIES START PROVISIONS

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On 11 December 2000 the United States, Russia, Ukraine, Belarus, and Kazakhstan signed an agreement in Geneva to provide for the two-phased elimination of SS-24 ICBMs in Ukraine.

18 December 2000

WASHINGTON GROUP INTERNATIONAL NAMED MAIN CONTRACTOR FOR SOLID ROCKET FUEL ELIMINATION PROJECT

UNIAN reported on 18 December 2000 that the US Defense Threat Reduction Agency named Washington Group International Inc., formerly known as Morrison Knudsen, as the main contractor to eliminate solid rocket fuel from 56 ICBMs in Ukraine.[1,2] Washington Group will be responsible for developing, constructing, and operating the fuel-extraction equipment, as well as training personnel to safely extract the fuel. For more information on the project, see the 7/1/2000, 8/4/2000 and 10/4/2000 entries in this section.

— "Kompaniya Washington Group International Inc (WNG) poluchila kontrakt v 87 mln. dol. na unichtozheniye yadernykh vooruzheniy Ukrainy," UNIAN, No. 51, 18-24 December 2000. "Washington Group Awarded Contract Worth \$76 million for Cooperative Threat Reduction Project in Ukraine," Washington Group International, www.wgint.com, 21 December 2000.

20 January 1999

UKRAINE PLANS TO BUILD SATELLITE LAUNCH VEHICLES

Former RS-20 [SS-18 'Satan'] ICBM manufacturer Yuzhmash plans to form a consortium called Yuzhkosmos to build satellites and rockets. Approximately 10 other Ukrainian companies and scientific research institutes are expected to join. According to Volodymyr Horbulin, presidential national security advisor and secretary of the National Security Council, 150 SS-18s, originally scheduled for dismantlement, will be re-designed and used as satellite launch vehicles. Ukraine plans to test the first launch vehicle in 1999. Regular launches should begin in 2001.

— "Ukraine Forms New Unit to Sell Space Technologies," Reuters, 20 January 1999. Vladimir Platonov, "Vladimir Gorbulin: "My stoim na poroge kommercheskogo buma v kosmose," *Zerkalo Nedeli*, 23 - 29 January 1999, p. 4.

26 February 1999

UKRAINE DESTROYS LAST SS-19

On 26 February 1999 the last RS-18 [NATO designation SS-19 'Stiletto'] intercontinental ballistic missile in Ukraine was destroyed at the ICBM neutralization facility of the Pivdenmash (Yuzhmash) Production Association in Dnipropetrovsk. The missile was the last of 111 RS-18s destroyed under the the Cooperative Threat Reduction program. Together with the earlier destruction of 130 missile silos and 13 launch control centers, the elimination of the final RS-18 resulted in the complete elimination of the Ukrainian RS-18 ICBM system.

— UNIAN, 26 February 1999; in "Ukrainian Official on Destruction of SS-19 Missiles," FBIS Document FTS19990228000789. M2 Presswire, 3 August 1999; in "United States and Ukraine extend Nunn-Lugar Cooperative Threat Reduction agreement," Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>.

September 1999

NO DECISION YET ON LAST 46 RS-22 ICBMs

General Mykola Honcharenko, head of the Armed Forces Verification Directorate, said in September 1999 that Ukraine had not yet decided how to dispose of the last 46 RS-22 [NATO name SS-24 'Scalpel'] missiles remaining on

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Ukrainian territory. All of the missiles have been removed from their silos, and, according to agreements with Russia and the United States, are supposed to be dismantled by 5 December 2001. START I envisions the creation of a museum at one of the silo installations, but Honcharenko said creation of a museum would depend upon the availability of funds. Liquidation of the RS-22s and the TU-160 [NATO name 'Blackjack'] strategic bombers is the last stage of the CTR program in Ukraine. See the 9/20/99 entry below for more on possible plans for the RS-22s. — "Seychas net okonchatelnogo resheniya po ispolzovaniyu konkretnoy tekhnologii dlya utilizatsii MBR SS-24," UNIAN, No. 38, 23 September 1999.

20 September 1999

UKRAINE CONVERTS ICBMs INTO LAUNCH VEHICLES

In an effort to become competitive in the international space launch market and gain much-needed revenues, the Ukrainian National Space Agency is expanding its launcher programs, *Space News* reported on 20 September 1999. One project focuses on restoring trust in the Zenit launcher. Its reputation was tarnished by the crash of a Zenit-2 during a September 1998 test. Successful tests of Zenit rockets were carried out in March and July 1999. In addition, Ukraine is developing alternatives to Zenit rockets by converting ICBMs scheduled for dismantlement into satellite launch vehicles. Ukraine's RS-20s [SS-18 'Satan'] are being re-designed for this purpose. On 31 May 1997, Cosmotras, a joint Russian-Ukrainian space company, was established to develop and operate the Dnepr space launch complex, which would launch converted RS-20s (to be called Dneprs). Founders include the Pivdenne State Design Bureau, the Central Research Institute of Machine-Building (Korolev, Moscow Oblast, Russia), Khartron Scientific and Production Association, Pivdenmash Production Association, the Special Mechanical Engineering Design Office (St. Petersburg, Russia), the Design Bureau of Transport Machinery, and Askond. A Dnepr successfully carried a UoSAT-12 spacecraft, produced by the British company SSTL, into orbit on 21 April 1999. Ukraine also plans to convert RS-22s [SS-24 'Scalpel'] into three- or four-stage launch vehicles called Space Clippers. While pursuing these projects, Ukraine reports that it is taking steps to ensure compliance with international export control standards.

— Viktor Zaborsky, "Can Ukraine's Launch Market Survive?" *Space News*, 20 September 1999, p. 19. Stanislav Konyukhov and Stanislav Us, "Dnepr Program: High Reliability," *Military Parade*, No. 4, 6 October 1999, pp. 58-59. Vladimir Utkin, Alexander Osadchenko, and Pavel Braslavsky, "Combat Vehicles Converted into Civil-Use Launch Vehicles," *Military Parade*, No. 4, 6 October 1999, p. 56.

10 October 1999

SEA LAUNCH PROGRAM INAUGURATED

On 10 October 1999, a Ukrainian Zenit rocket launched a Hughes communications satellite into orbit. Ukraine thereby, in cooperation with the United States, Russia, and Norway, initiated the "Sea Launch" program aimed at lifting payloads into space from an ocean-based platform. This was the fourth Zenit launch this year. The next launch is planned for January 2000. Of the 34 Zenit launches carried out thus far, 29 have been successful. In addition to Hughes, the companies involved include the US-based Boeing Corporation, Russia's Energiya, Norway's Kvaerner, Ukraine's Pivdenmash Production Association, and Ukraine's Pivdenne State Design Bureau. According to Volodymyr Horbulin, secretary of the National Security Council, Ukraine's participation in the project was made possible by its accession to the MTCR.

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—Roman Woronowycz, "Sea Launch Finally Takes Off," *The Ukrainian Weekly*, No. 43, 24 October 1999.
 "Sleduyushchiy start v ramkakh mezhdunarodnogo proyekta "Morskoy start" zaplanirovan na yanvar 2000 goda," UNIAN, No. 42, 18-24 October 1999. "Prisoyedineniye Ukrainy k RKRT dalo vozmozhnost uchastiya v mezhdunarodnom proyekte "Morskoy start" - V. Gorbulin," UNIAN, No. 42, 18-24 October 1999.

November 1999

PAVLOHRAD CONSIDERED AS SITE FOR STORAGE AND EVENTUAL DESTRUCTION OF REMAINING RS-22 MISSILES

According to Leonid Shiman, director of the Pavlohrad Chemical Plant, Pavlohrad is being considered as a site for the storage and eventual destruction of Ukraine's 54 remaining RS-22 [NATO name SS-24 'Scalpel'] missiles, including the 46 missiles deployed in silos as well as "8.5" disassembled missiles stored at the Pavlohrad plant. In 1997, the government decided that the RS-22s would be stored at the Mykhaylenki arsenal. However, a 1998 government resolution banned construction of further storage sites for the missiles at the Mykhaylenki facility. Instead, the missiles will be disassembled and stored pending dismantlement at the Pavlohrad plant's storage facilities, although as of May 2000 16 RS-22s were still being stored at Mykhaylenki. Shiman expects that all missiles will be disassembled by the end of 2001. This method of storage will be safer than the originally proposed Mykhaylenki plan, under which the missiles would have been stored fully assembled. According to Shiman, once the missiles are dismantled, the rocket fuel will be mixed with conventional explosives, producing a less polluting explosive for commercial use. Pavlohrad will formally bid for the contract by the end of 1999, Shiman said. He was confident that the process would be completed by the end of 2001. Dismantlement funding is provided under the framework of the Nunn-Lugar Cooperative Threat Reduction Program.

— Sergey Zgurets, "Strategicheskkiye raket [sic] SS-24 dolzhny byli vzorvat Ameriku. No budut vzryvat rudu," UNIAN, No. 46, 15-21 November 1999. Sergey Zgurets, "Raketnyye 'voynny' mestnogo masshtaba," *Den*, www.day.kiev.ua, 9 December 1999. "American Companies to Help Elimination of Ukrainian Strategic Missiles," Interfax, No. 3, 25 May 2000.

1 October 1998

UKRAINE DESTROYING SS-24 MISSILES

Under the START I treaty, Ukraine is dismantling its 46 SS-24 missiles, which were the most modern strategic missiles during the Soviet era. As of August 1998, six of these missiles were destroyed, followed by four more in September. Ukraine plans to dismantle the remaining SS-24 missiles by December 2001. The destruction of missiles and silos is being implemented with financial aid from the United States. Funding for the destruction of missile silos is also being provided by Germany.

— UNIAN, 1 October 1998; in "Ukraine Destroys Ballistic Missile Silo Under START-1 Treaty," Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>. STB TV, 17 August 1998; in "Ukraine Dismantles SS-24 Missiles," Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>. "Last SS-19 Silo To Be Destroyed Shortly," *The Ukrainian Weekly*, 13 September 1998, p. 3. UNIAN, 22 September 1998; in "Germany to Help Liquidate Missile-launching Silos," Lexis-Nexis Academic Universe, <http://web.lexis-nexis.com>.

3 December 1998

DESTRUCTION OF SS-19 MISSILE SILOS COMPLETED

Ukraine destroyed the eight remaining SS-19 silos in November 1998. Ukraine inherited 130 SS-19 missiles from

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the former Soviet Union. The liquidation process began in January 1996 when Ukraine agreed to become a non-nuclear weapon state and destroyed the first missile silo in a special ceremony. Since then, the dismantlement has been proceeding in accordance with the START I treaty. The program received significant financial assistance from the United States. Ukraine intends to obtain additional finances for re-cultivation of the former missile silos areas. — Interfax, 3 December 1998; in "Ukraine May Ask US For Aid To Reclaim Former Missile Silos," FBIS Document FTS19981203001683. "Ukraine To Destroy Last SS-19 Missile Silo in Nov.," Reuters; in *Russia Today*, www.russiatoday.com, 21 August 1998.

13 March 1997

UKRAINE AND RUSSIA PLAN TO USE SS-18s IN SPACE LAUNCHES

Russia and Ukraine are planning to convert deactivated SS-18 missiles into space launch vehicles. While international agreements call for the destruction of SS-18 ICBMs, the two countries have signed a memorandum in which they plan to convert the missiles into launchers for spacecraft. The converted rocket, named Dnieper, must first be equipped with an additional booster unit, but may be prepared for the first launch by the end of 1998. A Russian Space Agency source claimed that several Ukrainian and Russian research organizations plan to create an international company which would produce the converted rockets and manage their commercial activity. The new company and Microsoft have already tentatively agreed to put 22 satellites into low-earth orbits from the year 2000 to 2001, at a total cost of \$9 billion, or \$11 million per launch. The \$1 billion Dnieper conversion project seems appropriate for the Microsoft project, because of its relatively low cost. Prior to the collapse of the Soviet Union, Ukraine had produced over 308 SS-18 missiles at the Pivdenmash (Yuzhmash) Production Association. —Veronika Romanenkova and Viktor Gritsenko, ITAR-TASS, 13 March 1997; in "SS-18 to Be Converted into Space Booster Rocket," FBIS-SOV-97-072. Ustina Markus, "Ukraine, Russia Sign Conversion Memorandum," *OMRI Daily Digest*, vol. 3, no. 32, 14 February 1997.

13 March 1997

UKRAINE AND RUSSIA PLAN TO USE DECOMMISSIONED SS-18s IN SPACE LAUNCHES

6 May 1997

US GRANTS UKRAINE \$47 MILLION TO DISMANTLE SS-19 SILOS

The United States will grant Ukraine \$47 million to dismantle SS-19 ICBM launch silos. An agreement to this effect was signed in Washington by US Secretary of Defense William Cohen and Ukrainian Minister of Defense Oleksandr Kuzmuk. According to Cohen, the money will allow Ukraine to implement the "bold, progressive choice" that it made in 1993 when it declared itself a non-nuclear weapon state. Cohen also noted that Ukraine "has set the world an example of peaceful disarmament." Kuzmuk stated that any preconceived notions that he and members of his delegation held of the United States were "gone with the wind." The funds will be allocated within the framework of the Nunn-Lugar Program.

—Igor Borisenko, "Missiles Gone with the Wind," *Trud Ukraina*, 6 May 1997, p. 1; in "Defense Minister Welcomes Secretary Cohen Visit," FBIS-SOV-97-126.

16 May 1997

UKRAINE TO DESTROY SS-24 ICBMS WITH CTR FUNDING

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Ukrainian President Leonid Kuchma announced on 16 May 1997 that, with US aid, Ukraine would destroy all SS-24 ICBMs that remained in Ukraine after the nuclear warheads were transferred to Russia under the Trilateral Statement. Earlier reports indicated that Ukraine might want to use the missiles to launch satellites on a commercial basis. The US-Ukraine Binational Commission announced the decision in a joint statement, and Kuchma and US Vice-President Al Gore signed the statement at ceremonies held on 16 May 1997. At the end of their session, Gore and Kuchma met briefly with President Clinton, who said he was "quite encouraged" at progress made on both security and economic issues.[1] First Deputy Minister of Defense and Chief of the General Staff Oleksandr Zatynayko said that the dismantlement program is expected to cost \$47 million, and will be covered by US Cooperative Threat Reduction funds. In a press release, Senator Richard Lugar (R-Indiana) said that the plans announced by Kuchma and Gore take "the process of peaceful disarmament an important step further," and that "recent developments in Ukraine mark a signal success for the Nunn-Lugar Cooperative Threat Reduction programme, substantially strengthening the security of each American."

— "U.S. to Help Ukraine Get Rid of SS-24 Missiles," *Deseret News*, www.desnews.com, 17 May 1997. "Ukraine to Dismantle ICBMs," *Disarmament Diplomacy*, May 1997, pp. 43-44.

November 1997

MORRISON KNUDSEN AWARDED CONTRACT TO DISMANTLE SS-24s

The Morrison Knudsen Corporation has been awarded a contract by the Defense Special Weapons Agency to dismantle Ukraine's SS-24 missiles. The multi-million dollar project will involve designing, building, and operating missile storage and disassembly facilities in Pavlohrad, Pervomaysk and Mikhailenky. Morrison Knudsen's Environment-Government Group will be responsible for actually dismantling the SS-24s, which still contain traces of chemicals and fuel in their housings, despite earlier removal of warheads. The new project, part of the Cooperative Threat Reduction Program, is expected to be completed by November 2001.

— "MK Hires on to Dismantle Soviet SS-24s. New Contract Arises from Work Already in Progress," *Idaho Statesman*, 12 November 1997; in Inquisit Agent Report. "Company Dismantling SS-24," *Eastern Economist*, 24 November 1997, p. 16.

7 November 1997

US CONGRESSMEN THORNBERRY AND SNYDER VISIT MISSILE SITES

According to a Department of Defense press release, Congressmen Mac Thornberry (R-Texas) and Vic Snyder (D-Arkansas) visited missile sites in Ukraine and Russia that are being dismantled under the Cooperative Threat Reduction Program. The press release noted that by late 1997, some 66 SS-19 silos and 58 SS-19 missiles had already been destroyed. By the end of 1998, all 132 SS-19 silos in Ukraine are scheduled to be eliminated under the program. In addition, the CTR program is engaging in initial steps to destroy all SS-24 launchers and missiles in Ukraine.

—US Defense Department Press Release, "Congressmen Visit Missile Sites in Russia, Ukraine," Washington, USIA Text, 7 November 1997; in NAPSNet Daily Report, www.nautilus.org, 10 November 1997.

December 1997

UKRAINE HAS DISMANTLED 68 SS-19s

According to Major General Mykola Honcharenko, Chief of the Verification Team for Ukraine's Armed Forces, 68

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SS-19 ICBMs and 107 silos for them have been destroyed as of December 1997. Honcharenko also stated that the remaining 62 SS-19s and 20 silos will be destroyed in 1998.

— Interfax, 16 December 1997; in "Official Cites Nuclear Missile, Silo Destruction Figures," FBIS-TAC-97-350. Agence France-Presse, 17 December 1997; in "Ukraine Will Destroy Remaining SS-19 Missiles in 1998," Inquisit Agent Report.

4 January 1996

GROUP OF DEPUTIES DEMAND PREVENTION OF MISSILE SILOS DESTRUCTION

A group of deputies from the Verkhovna Rada sent a letter to President Leonid Kuchma and Speaker Oleksandr Moroz asking them to prevent the destruction of the missile silos for economic, environmental, and military reasons. Ukrainian Republican Party Chairman Bohdan Yaroshynskyi, Ukrainian Conservative Republican Party Chairman Stepan Khmara, two deputies from the Congress of Ukrainian Nationalists, and 7 non-aligned deputies signed the document. Khmara called the dismantling an "ominous conspiracy." The Chairman of the Verkhovna Rada Standing Committee for Foreign Affairs and Relations With Other CIS States Borys Oliynyk also spoke out against the silos' destruction.

—"Kuchma Urged To Prevent Missile Silo Destruction," UNIAN, 1/4/96; See also "Current Events," UKRINFORM, 1/8/96.

5 January 1996

WILLIAM PERRY PARTICIPATES IN DESTRUCTION OF PERVOMAYSK SILO

US Secretary of Defense William Perry, Russian Defense Minister Pavel Grachev, and Ukrainian Defense Minister Valeriy Shmarov participated in the destruction of silo No. 110 in Pervomaysk, which once held a six-warhead SS-19 targeted at the United States. While in Pervomaysk, Perry attended a ceremony marking the transfer of housing built with CTR funds to Ukrainian strategic forces officers.

—"Rizdvanyan Feerverk," HOLOS UKRAINY, 1/10/96, p. 4; See also Valeriy Druzenko, "Yaderna Polityka: Vid Bazuvannya Do Likvidatsii Z Mozhlyvym Sylosuvannyam?," HOLOS UKRAINY, 1/13/96, p. 4; Boys Klimenko, "Defense Ministers Witness Demolition Of Missile Silo In Ukraine," *The Ukrainian Weekly*, 1/14/96.; "Perry Watches Ukraine Destroy Silo," Reuters, 1/5/96.

13 January 1996

UKRAINE WILL DESTROY 64 SILOS BY 1998

Ukrainian Defense Minister Valeriy Shmarov reportedly announced that Ukraine will destroy 64 ICBM silos by 11/98 in accordance with the START I Treaty. According to Shmarov, Ukraine has already destroyed 20 silos. Earlier, *The Ukrainian Weekly*, reported that Ukraine must destroy 130 silos by 11/98 in accordance with START I. According to the Rada Decree of 11/18/95, Ukraine must destroy 36% of its silos in compliance with SALT I. Major-General Nikolai Ovcharenko, the head of the Ukrainian Defense Ministry's verification center, reported that Ukrainian experts are planning peaceful uses for the other 64% of the silos.

—"64 ICBM Silos Slated for Destruction," *The Ukrainian Weekly*, 1/21/96, p. 1. INTERFAX, 1/3/96.

March 1996

MOST HARDENED UNDERGROUND MISSILE SILOS ARE IN PERVOMAYSK AND KHMELNYTSKY

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Pervomaysk and Khmelnytskyi reportedly have the world's most hardened underground missile silos. Each missile silo is housed in an area of about 1 sq/km.

—CISNP Discussions with Canadian Government Official, 3/96.

5 March 1996

BECHTEL WILL DESTROY SS-19 SILOS

The US firm Bechtel has a CTR contract to destroy SS-19 missile silos in Pervomaysk and Khmelnytsky.

—CISNP Communication With Michael Elleman, Staff Scientist of Lockheed Martin Company, 3/5/96. See also Serhiy Zhurets, "Nuclear Disarmament," *NARODNAYA ARMIYA*, 3/20/96, p. 1, in FBIS-UMA-96-065-S, "CIS Regional and Security Matters: Ukraine," 3/20/96.

20 March 1996

FOUR MISSILE SILOS DESTROYED; 60 MORE WILL BE DESTROYED SOON

Colonel Oleksandr Serdyuk, the head of Ukrainian Strategic Forces, said that the firm Bechtel will be responsible for the destruction of Ukraine's missile silos, as well as all of the auxiliary structures used for military needs.

According to *NARODNAYA ARMIYA*, 4 missile silos have been destroyed so far and 60 silos are slated to be destroyed in the next two and a half years.

—Serhiy Zhurets, "Nuclear Disarmament: An Expensive Matter, Since Not Every Missile Silo Can Become a Gold Mine," *NARODNAYA ARMIYA*, 3/20/96, p. 1, in FBIS-UMA-96-065-S, 3/20/96.

20 May 1996

MINISTRY OF INDUSTRY CALLS FOR COOPERATION WITH IRAN AND CHINA

Deputy Prime Minister for Industry Anatoliy Kinakh called for increased cooperation with Iran in the fields of space activity and rocket manufacturing. Ukraine and China signed an agreement on the peaceful exploration of space in 12/95 and in early 5/96 signed a contract to sell the \$1 million research station IMITATOR to China.

— TEHRAN IRNA, 20 May 1996, in "Iran: Tehran, Kyiv Explore Areas Of Technical Cooperation," FBIS-NES-96-101, 20 May 1996. UNIAN, 6 June 1996, in "Ukraine: PRC to Buy Ukrainian-Made Equipment for Space Exploration," FBIS-SOV-96-089, 6 June 1996.

21 May 1996

UNITED STATES CONCERNED ABOUT RUSSIA AND UKRAINE SELLING TECHNOLOGY TO CHINA

The United States recently warned Ukraine and Russia against selling strategic missile technology to China after information surfaced that China was attempting to obtain SS-18 missiles or components from those two countries. Ukraine and China signed an agreement on the peaceful exploration of space in 12/95 and in early 5/96 signed a contract to sell the \$1 million research station IMITATOR to China.

— Steven Erlanger, "United States Warns Three Nations on Missile Technology Sale," *New York Times*, 22 May 1996, p. A9. IRNA, 20 May 1996; in "Iran: Tehran, Kyiv Explore Areas Of Technical Cooperation," FBIS-NES-96-101, 20 May 1996. UNIAN, 6 June 1996; in "Ukraine: PRC To Buy Ukrainian-Made Equipment For Space Exploration," FBIS-SOV-96-089, 6 June 1996.

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5 June 1996

UNITED STATES ALLOCATES \$43 MILLION FOR DESTRUCTION, CLEANUP

Ukrainian Defense Minister Valeriy Shmarov, Russian Defense Minister Pavel Grachev, and US Secretary of Defense William Perry met at the Pervomaysk missile base to plant sunflowers over the former missile silo that they detonated in 1/96. The US government at this time announced that it has agreed to allocate \$29.7 million for clean-up operations at destroyed silos and other related projects and \$13.4 million for the destruction of the nuclear infrastructure. Other reports state that a portion of the \$43 million will be used to build housing for retired Ukrainian strategic rocket forces.

—Ustina Markus, "Russian, US Defense Secretaries Continue Ukrainian Visit," *OMRI Daily Digest*, 6/5/96; "Nikolaev Region," UNIAN, 6/4/96, in "Ukraine: Shmarov, Perry Visit Former Missile Base, Sign Agreement," FBIS-SOV-96-108, 6/4/96.

24 June 1996

UKRAINE HAS DISMANTLED 80 SS-19s

Ukraine has dismantled 80 of a total of 130 SS-19 ICBMs deployed on Ukrainian territory.

—Olha Vaulina and Oleksiy Dashkivskyy, "Cheap Reduction--Expensive Satisfaction," *HOLOS UKRAINY*, 6/24/96, p. 5, in FBIS-SOV-96-145, 6/24/96.

23 August 1996

GERMAN GOVERNMENT ALLOCATES DM 3.5 MILLION FOR SILO DESTRUCTION

Ukrainian Deputy Defense Minister and Commander of the 43rd Missile Army Colonel General Volodymyr Mykhtyuk signed an intergovernmental Ukrainian-German protocol with German Ambassador to Ukraine Dr. Eberhard Heiken, according to which Ukraine will destroy five ICBM silos by the end of 1996 using 3.5 million Deutsche marks allocated by the German government. In 1994, Germany allocated DM 1.1 million in equipment and services to jointly develop environmentally safe silo destruction technologies and in 1995, Germany allocated DM 2 million for the same purpose. From these efforts, Ukrainian and German specialists developed the hydroabrasive cutting method which was used to eliminate one Ukrainian silo in 12/95. The Ukrainian-German protocol also outlines specific funding agreements and silo destruction related work requirements to destroy six silos in 1997 and six silos in 1998. Ukraine is to eliminate 36 percent of all its missile silos within seven years.

—Raisa Stetsyura, *ITAR-TASS (Moscow)*, 8/23/96, in "German Funds to Help Kiev Destroy 5 Nuclear Missile Silos," FBIS-SOV-96-166, 8/23/96; "Ukrainian-German Protocol on Assistance in the Nuclear Disarmament of Ukraine Signed," *NARODNA ARMIYA*, 8/29/96, p. 1; in "Mykhtyuk & FRG Ambassador Sign Nuclear Disarmament Accord," FBIS-UMA-96-192-S, 8/29/96.

28 August 1996

KUZMUK INFORMS LUGAR 90 SS-19 ICBMS DECOMMISSIONED

During a meeting in Kyiv between Ukrainian Defense Minister Oleksandr Kuzmuk and US Senator Richard Lugar, Kuzmuk said that 90 SS-19 ICBM missiles out of the 176 ICBMs formerly stationed in Ukraine have been dismantled, and the facility for fully neutralizing and recycling the SS-19s has been put in operation at Yuzhnoye (Pivdenne) plant in Dnipropetrovsk. (information on Pivdenne dismantling facility--see Ukr. 3)

—UNIAN (Kyiv), 8/28/96, in "Kuzmuk Informs US Senator of Disarmament Program," FBIS-SOV-96-169, 8/28/96.

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1995

GERMAN GOVERNMENT ALLOCATED DM2 MILLION FOR DESTRUCTION OF MISSILE SILOS IN UKRAINE

In 1995, German government allocated 2 billion Deutsche marks for the destruction of Ukrainian missile silos. Using the environmentally safe method of hydroabrasive cutting, which was jointly developed by Ukrainian and German specialists, Ukrainian military experts eliminated one silo in 12/95.

—"Ukrainian-German Protocol on Assistance in the Nuclear Disarmament of Ukraine signed," *NARODNA ARMIYA*, 8/29/96, p. 1; in "Mykhtyuk & FRG Ambassador Sign Nuclear Disarmament Accord," *FBIS-UMA-96-192-S*, 8/29/96

16 January 1995

MISSILE SILOS TO BE SALVAGED

Valeriy Shmarov stated that Ukraine is planning to salvage strategic missile silos this summer. These unoccupied silos will not be blown up since they are located near populated areas. According to the START I Treaty, missile silos can be disposed of either by blowing them up or by excavating to a depth of no less than eight meters; this means that, for the SS-19 and SS-24 silos, the top third of the silo will have to be dug out. Germany and the United States are providing Ukraine with the financial resources to eliminate the silos.

—"In Ukraine," *Post-Soviet Nuclear and Defense Monitor*, 1/16/95, Vol.2, No. 11, p. 12.

26 January 1995

GERMAN OR AMERICAN METHODS WILL BE USED IN SILO DISMANTLING

Ukraine is planning to begin the process of dismantling the missile launch sites during summer 1995, but it is uncertain whether the American or the German method will be used. The American method uses explosives while the German process entails cutting up the silos and then concreting the lower portion of the launchers. The German method seems to be preferable, according to the Defense Ministry, since many of the launch facilities are located in populated areas.

—UNIAN (Kyiv), 1/26/95, in "Ministry Works on Missile Silo Destruction Plans," *FBIS-SOV-95-018*, 1/26/95.

14 March 1995

PAVLOHRAD MECHANICAL PLANT DOES NOT PRODUCE SS-24s

American observers at the Pavlohrad Mechanical Plant have confirmed that SS-24s are no longer being produced at this site.

—UNIAN (Kyiv), 3/14/95, in "US Inspectors at Pavlohrad Missile Plant," *FBIS-SOV-95-069*, 3/14/95.

30 March 1995

CTR SENDS EQUIPMENT TO UMAN

CTR funds provided bulldozers, dump trucks, and tractor trailers to Uman worth a total of \$3,327,433 for silo elimination.

—"Weapons Of Mass Destruction," *GAO Report to Congressional Committees*, 9/95, p. 16.

4 May 1995

EQUIPMENT PROVIDED BY CTR PROGRAM WAS SENT TO KYIV AND DNIPROPETRIVSK

The CTR program provided \$3,311,889 for vehicles, copiers, computer equipment and supplies, a tractor trailer,

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fuel containers, and other miscellaneous equipment sent to Kyiv and Dnipropetrovsk from 3/1/94-5/4/95. All the equipment was designated for neutralization facilities connected to strategic nuclear arms elimination.

—"Weapons Of Mass Destruction," *GAO Report to Congressional Committees*, 9/95, p. 16.

18 November 1995

UKRAINE WILL DESTROY 36 PERCENT OF ITS SILOS AND USE OTHERS FOR PEACEFUL PURPOSES

The Verkhovna Rada passed a decree, according to which Ukraine must destroy 36% of its silos in compliance with SALT I. Major-General Mykola Ovcharenko, the head of the Ukrainian Defense Ministry's verification center, reported that Ukrainian experts are planning peaceful uses for the other 64% of the silos. An Interagency Commission on the Utilization of Missile Launch Silos For Peaceful Purposes must develop proposals for the peaceful utilization of the silos and submit them to the Cabinet of Ministers.

—Oleksandr Serdyuk, "What Fate Awaits The Missile Silos?" *NARODNAYA ARMIYA*, p. 1, 1/24/96; Interfax, 1/3/96.

26 November 1995

CONSTRUCTION OF JOINT UKRAINIAN-AMERICAN MISSILE NEUTRALIZATION SITE BEGAN

Construction of a missile "neutralization" site at the Southern Design Bureau (Yuzhnoye, Pivdenne) in Dneprodzerzhynsk has begun. Destruction of rocket motors and fuel tanks was scheduled to begin in 10/95. It is expected that SS-19 "Stiletto" ICBMs will be dismantled at a rate of three per month. American assistance includes construction of the actual facility, incinerators, heavy equipment, industrial tools, diesel fuel, and gasoline. Ukraine's contribution to the project includes the design of the facility, a significant portion of the construction, building the missile storage site, and cranes.

—"Work begins on site to stamp out 'Stiletto's', *Jane's Defense Weekly*, 11/26/95, p. 10.

1 October 1994

CTR FUNDS PROVIDE EQUIPMENT TO PERVOMAYSK

CTR funds provided saws, drills, jacks, an air compressor, and other miscellaneous equipment to Pervomaysk worth a total of \$67,113 for missile silo elimination.

—"Weapons of Mass Destruction," *GAO Report to Congressional Committees*, 9/95, p. 16.

13 October 1994

GERMANY WILL PROVIDE EQUIPMENT FOR DESTRUCTION OF MISSILE SILOS

Ukraine and Germany signed a protocol on the elimination of underground missile silos; this protocol falls under the general nuclear disarmament cooperation framework signed on 6/10/93. Germany will provide the equipment needed for the liquidation of the silos. A timetable for the destruction will be drawn up shortly after the process begins, in accordance with the START I Treaty. Germany already has a similar agreement with Russia. Ukrainian officials stated that it was important that German funds be used to pay Ukrainian salaries and to purchase Ukrainian-made equipment.

—UNIAN, 10/13/94, in "Protocol with Germany to Liquidate Strategic Missile Silos," FBIS-SOV-94-199, 10/13/94.

9 December 1994

FATE OF MISSILE FUEL FROM DISMANTLED SS-19 IS UNCERTAIN

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American defense contractors from the Morrison-Knudson Corp. are working with Ukrainian experts at the Yuzhmash (Pivdenmash) factory to destroy the first seven of 130 SS-19s. A new plant is being built to clean out and cut up these 60-foot missile shells. The US Defense Nuclear Agency decided to contract with a Ukrainian firm because its local presence would facilitate the process and also because the Yuzhmash (Pivdenmash) plant, which produced 60% of Soviet strategic missiles, has experience with Ukrainian rocket fuel. Once the toxic fuel is removed, the rockets shells will be steam cleaned in order to remove the fuel residue of amyyl and heptyl. The shells will then be available for reuse as fertilizer canisters, fuel tanks, or agricultural silos. The fate of the rocket fuel is still uncertain; the United States wants to incinerate the fuel due to its extreme toxicity, but Ukraine prefers to find an industrial use for it. However, Ukraine lacks a suitable storage site for the recovered fuel.

—Jane Perlez, "US and Ukraine Cooperate to Destroy Nuclear Arsenal," *The New York Times*, 12/9/94, pp. A1, A6.

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