Musudan-ri Missile Test Facility
North Korea

February 15, 2002 – March 26, 2009

Musudan-ri Missile Test Facility

North Korea

This unclassified imagery presentation provides a current and historical overview of the Musudan-ri missile test facility. It visually illustrates the type of analysis that can be derived using current and historic DigitalGlobe satellite imagery and open source information.

***All handheld images & drawings within this brief are from www.globalsecurity.org**

Musudan-ri Missile Test Facility Overview

N Hamgyong Province, North Korea
40-51-21N 129-39-55E

Range Control Building

Launch Tower & Pad

Rocket Engine Test Stand

Missile Assembly Building

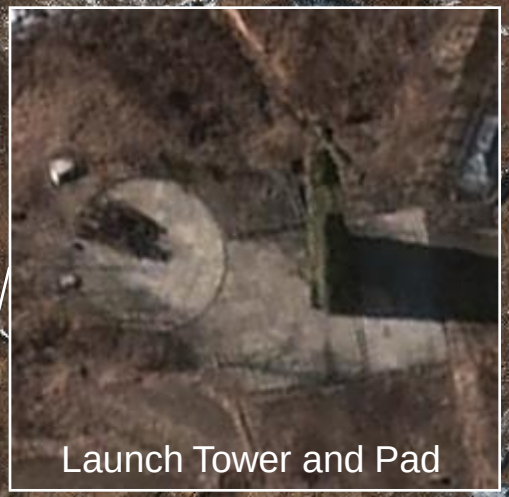
The Musudan-ri missile test facility has been the test site for a variety of North Korean missiles. Major facility components consist of a missile assembly building, engine test stand, range control building, tracking facilities and a launch pad. The roads within and around the facility are not paved. The facility is located within the North Hamgyong Province, approx 19 miles southeast of the town of Kilchu & 28 miles northeast of port city of Kimchaek.

DigitalGlobe/AEgis Technologies ImageScape
Perspective View of Musudan-ri

AEgis

Musudan-ri Missile Test Facility Overview

Missile Assembly Building



Launch Tower and Pad

Rocket Engine Test Stand

DigitalGlobe's QuickBird
Image February 8, 2009

Musudan-ri
Rocket Engine Test Stand
Overview

The Musudan-ri engine test stand was created for the development & thrust measurement of long range ballistic missile engines. The stand is capable of holding the boosters in an upright position during the entire firing sequence.

Static Test Tower

Security Entry Control Checkpoint w/ Guard shack

Test Control Building

Possible Communications Building

Offices / Barracks

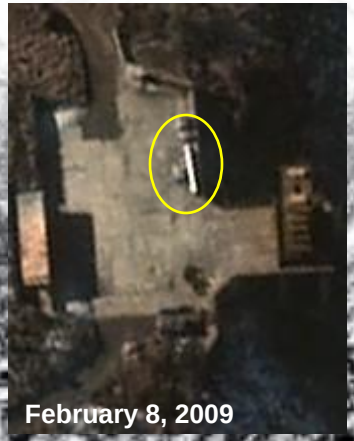
DigitalGlobe's QuickBird Image December 14, 2007

Musudan-ri Engine Test Stand: Recent & Historical Activity

Tanker trucks and cylindrical objects present.

Tanker trucks and cylindrical objects removed.

Grain being dried on the concrete appears orange in color.



Cylindrical objects present.

More cylindrical tanks present along with personnel & support vehicle.

A review of the rocket engine test stand on DigitalGlobe imagery coverage from February 15, 2002 to February 26, 2009 revealed a variety of activity,including: drying grain on the concrete, the presence of cylindrical storage tanks and the arrival/departure of multiple support vehicles and personnel.

An additional support vehicle and personnel present.

Support vehicle and personnel not present.

STATIC TEST TOWER

Musudan-ri
Missile Assembly Building Overview

The Musudan-ri missile assembly building is (according to globalsecurity.org) capable of handling two Taepodong-2 class three stage launch vehicles, in addition to several vertical test cells in the high bay portion.

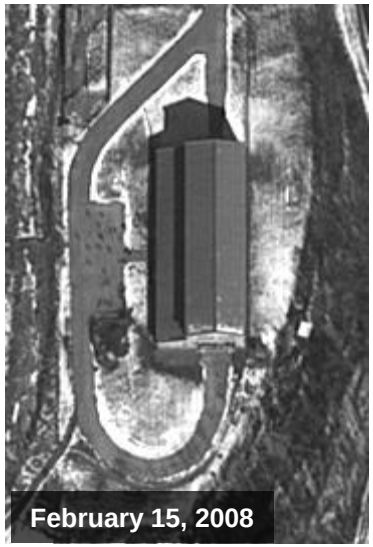
Probable
Officer / Guard
Quarters

Horizontal
Assembly Building

Security Entry
Control Checkpoint
(Complete w/ Guardshack)

DigitalGlobe's QuickBird
Image February 8, 2009

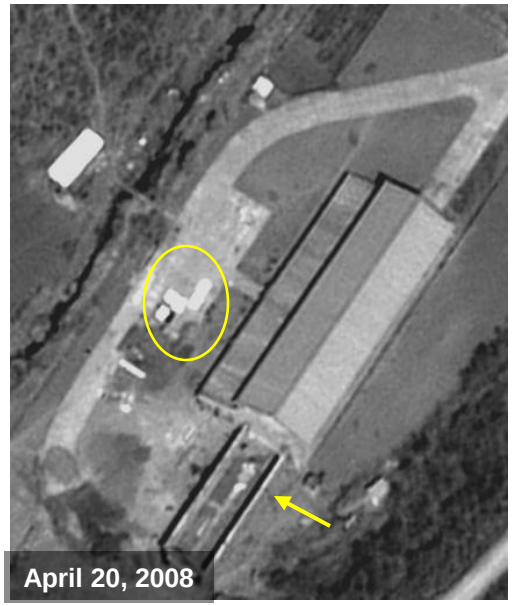
Missile Assembly Building Renovation & Expansion



22 personnel present outside the building

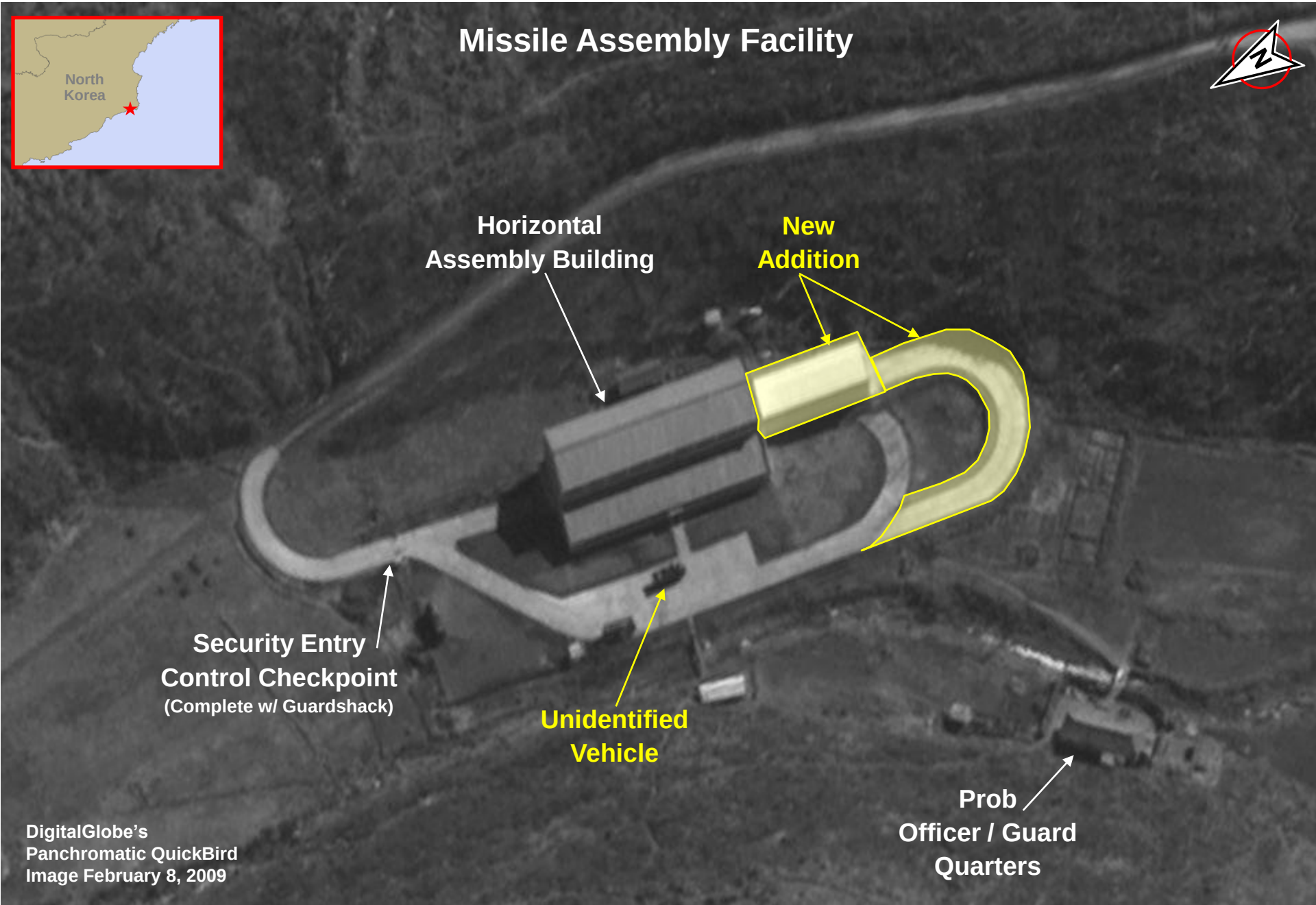
South end of access road removed in preparation for new addition. Buildings' new foundation identified.

Walls in place on the new addition. One person identified at the construction site.



Construction continues. Supplies identified on the hardstand.

A historical review of DigitalGlobe imagery beginning in February 2008 revealed that the missile assembly building was extended by an additional 28 meters on its southern side and the ringed access road expanded. According to Janes Defence Weekly, both changes allow for the assembly of larger missile systems.

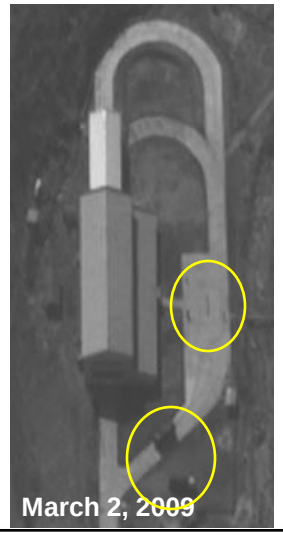

North Korea
Missile Assembly Facility
Horizontal Assembly Building
New Addition
Security Entry Control Checkpoint
(Complete w/ Guardshack)
Unidentified Vehicle
Prob Officer / Guard Quarters
DigitalGlobe's Panchromatic QuickBird Image February 8, 2009

Musudan-ri Missile Assembly Building: Recent Activity

Support vehicle present on hardstand

Support vehicle and 18 personnel present on hardstand

Two support vehicles present. 30 troops observed in military formation at the south end of the drive-way



Two support vehicle & four personnel present.

Four support vehicles present

DigitalGlobe's QuickBird Image March 26, 2009

Musudan-ri Launch Tower & Pad

The Musudan-ri Ballistic Missile Launch pad consists of a 30-meter umbilical tower with a top-mounted gantry crane, a flame blast bucket, a launch blockhouse with a connecting access tunnel, two semi-buried liquid fuel storage buildings, a concrete apron/pad and multiple small support buildings.

This high-resolution 3D model of the launch pad was built by AEgis Technologies in partnership with DigitalGlobe to visually simulate the launch tower and the surrounding terrain.

DigitalGlobe/AEgis Technologies
Perspective View of Musudan-ri

AEgis

Musudan-ri
Launch Tower & Pad Overview

Security Entry
Control Checkpoint
Complete w/ Guardshack

Blast
Bucket

Launch
Blockhouse

Gantry crane clearly
visible within the
shadow

Prob Original
TEL Launch Pad

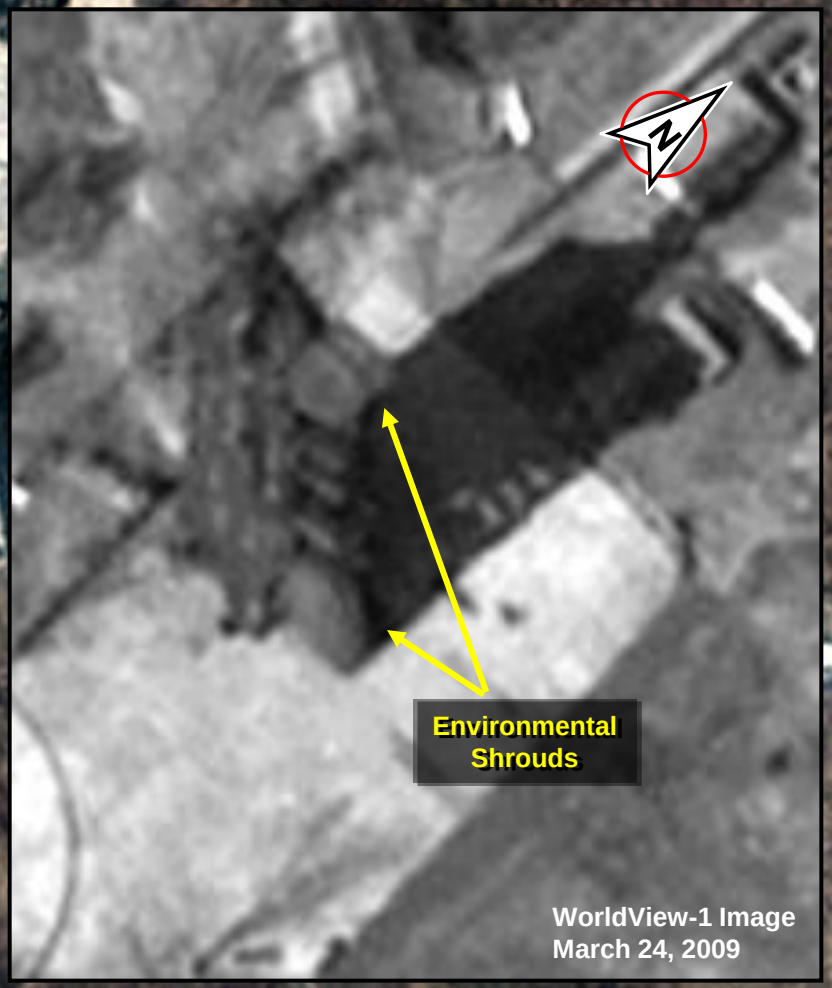
Combined Umbilical
Tower / Gantry Crane

DigitalGlobe's QuickBird
Image May 24, 2006

DigitalGlobe's QuickBird
Image December 14, 2007

Recent Musudan-ri Launch Tower & Pad Activity

Six personnel seen standing at base of the launch tower



Environmental shrouds have been placed at the top and bottom of the gantry. Support vehicles present.

Musudan-ri Launch Pad Activity: March 26, 2009

Probable Canopy/Environmental Shroud

Four vehicles identified near missile assembly building on March 25th then seen near launch tower on March 26th.

Support Equipment & Personnel

Support Vehicles & Personnel

DigitalGlobe's QuickBird Image March 26, 2009

Previous Musudan-ri Launch Pad Activity: 2006

An imagery review of the launch complex from previous DigitalGlobe imagery during late June, 2006 revealed similar activity at the launch pad and missile assembly building prior to the July 5, 2006 Paektusan/TaepoDong-2 missile launch.

According to Janes Defence Weekly, in 2006 the Paektusan-2 sat on the launch pad (within the launch tower) for approximately 20 days before being launched.

Support vehicles at base of tower in preparation for launch

DigitalGlobe's QuickBird Image
June 22, 2006