

MARTIN HAS MISSILES TOO NEAR DEVELOPED AREA, EXPERTS SAY

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By Jim Leusner And Christopher Quinn

SERIES: MISSILES IN BOOMTOWN

This is the first of four special reports.

There is a secret place near Orlando where workers make weapons of war. Security cameras keep silent sentry over hundreds of armed missiles in metal sheds protected by mounds of earth.

There is another place near Orlando where tourists throng to forget everyday worries. From across the globe they journey each year, packing hotels, shops and restaurants.

Only a chain-link fence separates these two places - one potentially so dangerous, the other seemingly so safe.

Martin Marietta Corp. can store 1.4 million pounds of warheads, rocket motors and finished missiles in what it calls the Remote Area, 1,578 mostly wooded acres that were isolated when the company set up shop in south Orange County in 1956.

But the Remote Area is anything but remote today. More than 30,000 motorists daily use a part of International Drive that is one-fifth of a mile from part of Martin's munitions stockpile. In contrast, the company's main plant and most of its 4,500 employees are three times farther from the Remote Area's nearest warheads or rocket motors.

As many as 420 highly flammable, 1,000-pound rocket motors can be kept in metal storage buildings near a dozen businesses on land that Martin developed and along roads it built - south International Drive and Hawaiian Court.

The motors are one-half mile from the 27-story Peabody Hotel, one-third of a mile from the Heritage Inn and one-quarter of a mile from the Denny's, Red Lobster and McDonald's restaurants. Martin is half-owner of the Peabody, which is across International Drive from the Orange County Convention and Civic Center.

In another part of the Remote Area, as many as 500 armed Patriot missiles, each 17 feet long, can be stored in a building less than a half-mile from Williamsburg. The community of 5,000 people is just south of the Bee Line Expressway, a road built on land donated by Martin.

Building and storing missiles so near people is unique in the U.S. defense industry. As development has encroached, other missile makers have moved to isolated areas, such as deserts and mountains, or asked local governments to keep growth away. Martin has brought growth closer by selling hotel and restaurant sites near the Remote Area - sales that totaled \$45.5 million in the past 12 years.

Martin officials said that the missile work poses no danger whatsoever outside the Remote Area.

Safety precautions exceed the federal government's requirements and make a fire or explosion unlikely, said Robert Keymont, Martin's vice president of production and operations. Missiles and their components are kept farther from the public than the Defense Department requires, Keymont said.

Yet the distance between lethal weaponry and the public worries rocket-motor experts such as retired

professor Richard Sforzini of Auburn University in Alabama and professor Jim Swithenbank of the University of Sheffield in England.

They and three other experts believe that a fire could ignite Martin's solid-fuel rocket motors, causing them to take off and spew 5,000-degree flames as they skipped across the ground. These experts, all noted in their field, believe that a fire could ignite finished missiles and possibly send warheads designed to knock out tanks and jets flying into houses and hotels miles away.

Sforzini and Swithenbank, who together have 60 years' experience in missile research and have worked for defense contractors and the military, said the buffer between the missile plant and public should be at least several miles.

EXPERTS FEAR MISSILE MOTORS COULD TAKE OFF

The experts agreed that people living as far as 10 miles from the Remote Area could be at risk if a fire ignited the missiles. That zone includes Walt Disney World, Orlando International Airport and downtown Orlando.

Dennis Smith, who oversaw the Remote Area for eight years, disagreed. He said that even if the unlikely happened and a fire ignited the solid fuel in the rocket motors, the danger would be confined to the area because the motors would burn in place and not take off. Smith has 24 years' experience working with military explosives.

The Remote Area has been free of serious injuries and damage, according to the company, and dozens of Defense Department inspections have given Martin glowing ratings for safety and security.

Martin, however, has privately expressed concern about the potential danger. In a 1986 memorandum to the Army, the company discussed reducing the chances of an "untoward event" that might cause "adverse community reaction."

The memo is among documents obtained by The Orlando Sentinel during a one-year investigation into the safety of Martin's missile-assembly work. The newspaper collected information from a variety of sources, including Defense Department records obtained through eight requests under the federal Freedom of Information Act.

The missile work is so hush-hush that community leaders have little idea of what goes on at the Remote Area. They have not asked a lot of questions, partly because the area is cloaked in a shroud of national security.

Orange County Commissioner Vera Carter and former Commissioner Lee Chira were among the officials who approved commercial development near the Remote Area in the late 1970s and early 1980s. When asked if they knew details of Martin's missile-making operation, both said they thought the company built only unarmed missiles and did not handle explosive materials.

"All of this information is very shocking to me as a civic leader," said Chira, a developer. "I feel embarrassed by not knowing about it. I pride myself on knowing these things."

Another former commissioner, Allen Arthur, who served from 1974 to 1982, said he and his colleagues

had no idea that Martin had large stockpiles of volatile materials. The company's work was "kind of off limits to us," he said.

Martin officials said the company has built 120,700 missiles in the Remote Area. They will not disclose how many rocket motors, warheads and finished missiles are in the area's 32 storage buildings but stressed that the number is far below what the federal government allows. Defense Department records show, however, that the storage buildings have been at capacity at times in recent years.

Defense Department officials, knowing how close the once isolated Remote Area is to densely populated areas, tried at first to withhold some public documents from the Sentinel, including maps and inventories, for fear that terrorists would use the information.

"Someone could pinpoint a storage facility and fire a grenade launcher from an expressway down there," said Greg Gorman, an Army contracting officer at the Picatinny Arsenal in northern New Jersey. He oversaw one of Martin's missile contracts that ended last month.

Ernest Eaton, a Defense Department audit administrator stationed at Martin, agreed. "I personally feel it is sensitive," he said of the records. "As close as we are to some areas . . . someone could lob something over a fence."

Today's special report discloses for the first time what's over the fence and potentially dangerous to the public. Other reports this week will examine deficiencies in fire protection and security, how Martin is driving the defense and tourism industries closer together, and the hazards of shipping armed missiles on Central Florida's most congested roads.

FIRE COULD MEAN DISASTER

The danger, quite simply, is fire.

If flames ever reached rocket motors, warheads or the finished missiles, they could ignite disaster, according to the experts. The source of fire could be accidental, like a lightning bolt. Or the source could be intentional, from the hand of a terrorist or vandal.

The experts said that even a stray spark from a brush fire could ignite the motors, which are packed with solid fuel that is virtually impossible to extinguish.

The motors - similar to space shuttle boosters but much smaller - provide the propulsion for the Hellfire and Patriot missiles made by the Remote Area's 125 employees. Last month the employees completed production of Copperhead missiles, which had warheads but no motors because they are fired from cannons. The three programs add up to \$3.5 billion in contracts for the company's Electronics and Missiles Group and help make the entire corporation the nation's eighth largest defense contractor.

Each missile has a warhead with the explosive force of 14 to 70 pounds of TNT. Unlike nuclear warheads, Martin's warheads are not radioactive and are designed to destroy tanks and jet airplanes. Martin officials said they could not disclose the destructive force of the missiles because of national security.

The largest missile is the Patriot, which is propelled by a half-ton rocket motor that has a range of 38 miles. Martin can store as many as 1,070 of those motors and hundreds of smaller ones for the Hellfire.

The motors, rather than the warheads, are the biggest threat to International Drive tourists, Williamsburg residents and anyone else in this part of booming south Orange County, the experts said.

"That's an extremely dangerous situation. I'd want to be 10 miles away," an expert said of the proximity of missiles and people.

This expert, considered to be among the top U.S. rocket scientists, analyzed the potential hazard for the Sentinel on the condition he not be identified. He and other experts said they feared losing Defense Department contracts if they spoke openly about Martin.

If one motor burned, it could ignite any others stored with it and possibly shoot them into other missile storage buildings, triggering a catastrophic chain reaction, the experts said.

"The propellant could break up and spew pieces of unused propellant all over the landscape. It could be pretty lethal," said Sforzini, the retired Auburn professor. He has worked with, or been a consultant for, the Army, Morton Thiokol Inc., the Air Force and the National Aeronautics and Space Administration. Martin officials strongly disagree that there is any risk to the public. The key point in their argument is their belief that the rocket motors would burn inside storage buildings - and not budge.

Smith, who moved last year to Martin's plant in Huntsville, Ala., said the motors would not become propulsive if they caught fire.

Jim Drake, an engineering supervisor with the Defense Department's Explosives Safety Board in Washington, said it's highly unlikely that rocket motors would take off if they ignited in storage. The board sets safety distances for places like the Remote Area.

The leading expert who insisted on anonymity said, "The biggest worry is propulsiveness. They're going to go in random directions." He has more than 20 years' experience in rocketry and has worked for several U.S. agencies and defense contractors.

Swithenbank, head of the chemical engineering and fuel technology department at England's Sheffield University, agreed: "They would go every which way."

Morton Thiokol, the company that makes the motors and sells them to Martin, says the motors could take off. In fact, a warning is stamped on the wooden crates that the motors are shipped and stored in until assembly: "MAY BECOME PROPULSIVE."

What makes the motors propulsive, according to the experts, is that they are long tubes of solid fuel with a tunnel through the middle. When the fuel burns, it shoots flames and super-hot gases down through the tunnel, giving the missile thrust.

Martin's motors are even more propulsive because they are stored with exhaust nozzles attached, the experts said.

Rocket motors work much like a garden hose with a spray attachment that shoots water farther by building pressure inside the hose. A nozzle at the end of the motor forces the flames and gases to escape through a small exit, allowing greater pressure to build inside the tunnel.

Swithenbank was astounded when told that Martin stores rocket motors with nozzles attached. It is not done in England, he said.

THE LIGHTNING FACTOR

INGREDIENTS FOR DANGER: NOZZLES ON MOTORS, LIGHTNING, TREES

Accidental fires are common in Central Florida, the nation's lightning capital. On average, lightning hits each square mile 50 times a year. That means that the 2 1/2-square-mile Remote Area would get an average of 125 strikes annually.

Last year, Orange County had more than 1,000 grass and woods fires, and fire officials said more than 40 percent were sparked by lightning.

Martin officials said they have protected the plant from lightning by grounding each building in the Remote Area. A state-of-the-art lightning detection system warns the company when a thunderstorm is within 100 miles.

Workers stop transporting warheads and rocket motors outside when lightning is within five miles, but the assembly of missiles continues because the buildings are grounded.

The Remote Area is mostly pine trees, brush and grass. The 85 buildings there are surrounded by grass, and some are covered with it. The grass and brush become a tinderbox during droughts and the dry winters. Several brush fires started in the Remote Area in the last three years and were put out before reaching munitions.

Some large defense contractors that store flammable and explosive materials make sure the surrounding land is clear of most brush and trees. Hercules Inc. has a rocket motor plant covering 11 square miles in the Utah desert. United Technologies builds rocket motors in the Coyote Mountains in California, and the terrain is grassy, rolling hills with few trees.

For more than 60 years, the industry has known that woods and explosives don't mix.

That lesson was learned in 1926 when lightning struck an explosives storage building at a Navy arsenal in Lake Denmark, N.J. The building exploded, starting a two-day fire that swept across seven square miles, destroying more than 100 buildings and 3.2 million pounds of ammunition, warheads and other explosives. It caused \$47 million in damage, killed 21 people and injured 52 more. Steel fragments rained down 30 miles away, and houses five miles away were rocked from their foundations.

Trees helped spread the fire, according to news accounts at the time and a government report.

Martin spokesman Neal Linkon said the trees are an "additional buffer" and do not add to the fire risk in the Remote Area. Paths have been cut through trees to keep a fire from spreading, and trees are kept away from buildings, Linkon said.

Rocket motors and warheads are stored in wooden crates before assembly, a practice that would help spread fire in an accident, according to a study of the Lake Denmark disaster.

If a crate were to burn, flames would be hot enough to ignite the motors, according to the experts.

HOW MANY MISSILES STORED?

Although government documents show the total weight of rocket motors, warheads and finished missiles that can be kept in the Remote Area, pinpointing how many actually are there is difficult. Martin officials said the weight has been far below the government-approved limit but would not be specific, citing security concerns. During an interview, Smith and other top company officials took Sentinel reporters into bunkers near the Peabody Hotel. Some were nearly empty; others were half-filled with Patriot rocket motors.

Company spokesman Phil Giaramita said Martin decided three years ago that it might be storing too many warheads and cut the amount by 57 percent.

Martin moved all warheads out of storage buildings near the Peabody when the hotel opened in 1986 but continued storing rocket motors there.

Twice in the past two years, Martin sent Copperhead warheads to Patrick Air Force Base in Brevard County because the company reached a self-imposed storage limit for warheads. The limit, which does not include rocket motors because they are not as explosive as warheads, is one-third of what the government allows.

Defense Department records show how much Martin can store in the assembly and storage buildings. Most are approved for 20,000 or 60,000 pounds of warheads, rocket motors or finished missiles. The records show that over the years the buildings have been at or near capacity, leading Martin to build new ones as recently as 1988.

In January 1986 the company asked to build more storage buildings because one holding Patriot missiles "is now reaching the limit and all other magazines at Martin Marietta's remote area are full to capacity." In an August 1985 memo, another defense contractor, Raytheon Co., told the Defense Department "that all available storage facilities at Martin Marietta are fully utilized." Martin builds the Patriot missile for Raytheon.

Since those memos were written, Martin has erected buildings to store another 157 tons of warheads, rocket motors and missiles.

MARTIN SAYS SAFETY IS NO. 1

There is no mistaking how strongly Martin officials insist the Remote Area poses no danger to its neighbors.

"Public safety is paramount in all of the activities throughout Martin Marietta Corporation. In Orlando, all ordnance storage areas are located at safe and sufficient distances from commercial developments," the company stated in a memo responding to questions from the Sentinel.

"We can guarantee that no other issue is more important to us than employee and community safety. We spare no expense in our efforts to ensure such an environment. Where necessary to meet our own

rigorous standards, we enforce limits more stringent than those required under law."

Martin is among a handful of contractors chosen by the Defense Department to monitor its own quality control in weapons programs. Martin won the honor for having "a track record of high-quality production," according to the Army Missile Command.

The company has won numerous awards for outstanding safety, security and quality in missile production.

Army inspector John Warren praised the company, saying it has "the finest ordnance operation that I have witnessed in my 35 years of ordnance experience."

Many current and former Martin workers said in interviews that the Remote Area is safe.

"It wouldn't bother me to sit right outside that plant . . . and build a house on their front yard and live there with my family," said Ercel Jones, a Martin security guard. "They would not jeopardize any lives . . . they would not operate that way. Believe me."

Gary Bortz, a former missile mechanic laid off by Martin last fall, said, "I've handled explosives now for 10 years, and I feel safer here than out on the street."

John Pent, a retired missile mechanic who worked at Martin for 30 years, said, "I felt it was extremely safe. The storage of your explosives in that area is safer than any area in the United States."

ARE FEDERAL SAFETY STANDARDS SAFE?

When asked about the potential threat to people outside the Remote Area, Martin officials repeatedly pointed out that the warheads, rocket motors and missiles are farther from the public than the federal government requires.

The Defense Department uses a table of distances to decide how far munitions should be stored from roads and buildings. The distances increase with the amount and type of explosives stored. The table is based on the estimated force of an explosion.

The table does not consider that rocket motors would take off in a fire, the experts said. It assumes the propellant would burn in place. Relying on the table of distances, the experts said, makes the storage of rockets in the Remote Area appear safe.

Martin officials said the earth piled on three sides of storage buildings would help contain a fire or explosion.

But the scientist who is considered to be among the nation's foremost rocket motor experts said those berms could force an ignited motor skyward instead of letting it skip across the ground. Using the mounds "is exactly the wrong thing to do," he said.

Local government agencies do not have the authority to investigate storage of rocket motors or other safety concerns in the Remote Area because the Defense Department regulates work done there. Those agencies could not scrutinize what was built on Martin's land just outside the Remote Area because the company is exempt from the state's development review law.

Greg Gologowski, director of development review for the East Central Florida Regional Planning Council, said the safety issues hinge on "a question of whether or not you have faith in the (federal government's) standards for these things."

Gologowski did not know how many flammable and explosive missile components Martin uses or how close they are to developed areas until told by the Sentinel.

County Commissioner Carter and former Commissioner Chira also said they were unaware.

"I assume they build them one at a time and ship them out right away," Carter said of the missiles. Chira said, "We knew missiles were being built. We didn't know they were loaded missiles. If we're building bombs in this community, we need to know about it."

Spokesman Linkon said, "We have never attempted to hide our line of work."

The company has given tours and described in detail for community leaders the work done in the Remote Area, Linkon said. "We are unable to provide specific names of county officials we talked with during the 1970s and '80s," he said, because the company kept no records.

Chira and Carter suggested annual public hearings so people could discuss potential dangers of the missile plant. That way, Chira said, Martin could "put the facts on the table . . . They are a good corporate, community neighbor.

But, on the other hand, we should know what goes on for the safety of the community. And they should come forward with a full report."

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