



STEEL RODS, ONE and  $\frac{3}{4}$  inches in diameter, are the start of a massive wall at the Missile Site Radar at Nekoma, N.D. The rods, foreground, seemingly dwarf the construction tower being erected, background. It's all a matter of perspective. The picture was taken through the rods. The construction tower actually rises 60 to 70 feet in the air. The small figure in gantry at left of tower, just above the horizon, is a man at work. (Herald Photo by Art Raymond)

# Air

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Nekoma, ND - Where anti-ABM demonstrators made their signs in the dirt and planted trees last May 16, today there is the roar of construction.

Steel rods rise into the air, massive walls of concrete up to 10-foot thick are being poured and men in the thousands sweat in the sun.

Demonstrators would never recognize the site now as Morrison-Knudsen workers and associated sub-contractors push ahead in their rush toward the winter season.

William Gilfillan, project manager for M-K, said the push today is to get the two sites, here and at Concrete, ND, enclosed before winter sets in on the North Dakota upper prairie.

They'll probably make it, says Gilfillan. Dr. Alan H. Meldrum, Grand Forks, civil engineer for the US Army Corps of Engineers, agrees. He keeps a daily log on Critical Path Studies which measures progress - or lack of it.

Gilfillan said his giant combine and associated sub-contractors, "overall" are "about where we ought to be," explaining construction is behind in some areas and ahead in others.

"There are no problems - at least nothing we've lost control of," Gilfillan said. "To get a job of this magnitude off the ground takes a lot of effort."

And he's right, of course. Tons upon tons of concrete have been poured; miles and miles of steel have been laid and tied into base foundations; almost all of the yard upon yard of earth excavation has been completed.

A layman can see where earth has been moved from gaping holes; where shafts have been sunk to house deadly missiles; where steel and forms have been erected for laying of concrete; he can get windburned and dusty, hot and sweaty; he can visualize the muscle needed to pull this, lift that; he can hear the trucks roar and see dozers gouge.

But, he cannot understand the technical data; the engineering know-how; the nuclear intelligence; the science of ballistic trajectories; the genius of the electronic and computer complex which put all of this together. Nor should he want to.

Hundreds, about 1,350, of workers bustle about like ants. To stand on the rim of excavations at the MSR (Missile Site Radar) here and at the PAR site (Perimeter Acquisition Radar) near Concrete, ND, is to view what seems to be a mass of confusion. Workers go this way and that, each wearing a color-coded helmet for identification. But to move down into the mass, one discovers that each person is doing a specific job in an orderly process.

The massiveness of the job is overwhelming. It's never been done before. The \$137,858,850 job is a first. The Grand Forks Site, official designation for the northeast North Dakota job, is the first antiballistic missile construction in the Safeguard system.

The holes where the MSR and PAR are being built are over a block long and nearly as wide. They sink into the earth in varying depth but probably to about 60 feet. A lot of dirt was hauled to make those holes.

Near the MSR at Nekoma is located the missile farm. This hole is large by any standard but those of the MSR and PAR. At the missile farm, M-K workers have excavated a huge bowl some 30 feet deep. Shafts of 63 feet depth are sunk from there for each missile. The number of Spartan and Sprint missiles at the farm is classified information.

Unique engineering and construction is going into the job. For example, the shale base was compacted to 98 percent. Compactness for highways normally runs to somewhere about 75 to 80 percent. One person put it like this: "That's like taking a rock, crushing it to fine powder and then saying, "Now make this as hard as it was before you crushed it."

Walls, shock resistant and nuclear-blast proof, are 10 feet thick. A "cocoon" of concrete will envelope the MSR and PAR facilities. Contractors laid a mud slab...that is, a thin veneer of concrete about four inches thick as a base from which to work. Then came the laying and tying of steel rods up to one and three-eighths inches thick to form the skeletal framework for the concrete.

As the subcontractor for concrete mixed batch after batch, temperatures climbed. Heat is dangerous for green concrete. It doesn't cure properly and becomes weakened. Ice was called for. In the hot days of last week, 600 pounds of ice was added to each seven cubic yards of mix in an 8-yard batch truck. Experts figured more than 45 tons of ice were being used each day. Now there are plans to install a water cooling system to reduce water temperature. Ice still will be necessary but the amount needed will be drastically cut.

Safeguard facilities in the Langdon-Walhalla area include a MSR with associated Spartan and Sprint launching facilities; a PAR site and two Remote Launch Sites for the Sprint Missile.

Double shifts are working six days a week on all construction areas at the two sites - except one. In that one area, triple shifts are being worked.

The big push today is to get the structures enclosed so work can proceed during winter months.

Gilfillan said work will go ahead in winter months regardless. But to work outside in frigid temperatures reduces efficiency, increases the necessary safety precautions and thus boost costs. Inside work is easier and more comfortable for workers and reduces the chance of error.