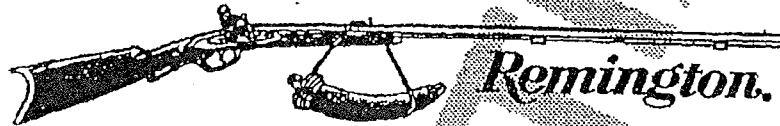


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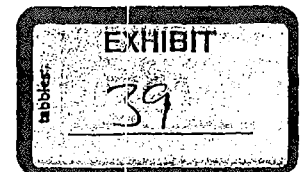


Remington Arms Company, Inc.

Corporate Research and Development

Annual Report - 1994

Subject to Protective Order - Williams v. Remington



ETE00024415

Site

Selection

Betty McIntosh of the Coopers & Lybrand accounting firm was contracted to assist in the site selection process. Criteria used in the selection included tax structure, economic incentive, and proximity to a commercial airport. The selection process resulted in three potential sites for the new facility:

a) Elizabethtown, KY., b) Huntsville, AL, and c) Columbus, GA. The Elizabethtown location was selected primarily because of a useable existing building. Approximate costs were \$775K for building and 4 acre lot, \$200K for 20 +/- acres which surrounds the facility, and \$300K for 40 +/- acres located across the road from the facility.

Personnel

Current full-time headcount numbers for the Elizabethtown R&D organization total 26 and is broken down as follows:

Analysis	1
Electrical Design	1
Management	4
Materials	4
Mechanical Design	2
Product Test	1
Project Management	10
Secretarial	1
Support	2

Contract staffing headcount totals 5 with focus in secretarial and technical projects of short duration. Additional full-time staffing will occur in nearly all areas to bring total projected full-time headcount to approximately 45 by 4Q95.

Of the 26 full-time staff 10 were transferred from the Ilion, New York firearms manufacturing plant and 4 were transferred from the Lonoke, Arkansas ammunition manufacturing plant. Presently, all personnel are reporting to the Elizabethtown R&D location. Physically, all personnel except the Explosive Physicist are located in Elizabethtown, KY. There are no plans to relocate the physicist to the Elizabethtown site principally due to the significant cost of relocating the associated laboratory.

Office Facility

Remodeling of the office facility is roughly two months behind the original scheduled completion of late 4Q94. This is primarily due to the decision to bid the sub-contracting jobs as opposed to doing the jobs on a time and materials basis. A 30 percent cost reduction is anticipated from the bidding process. The lab facilities are targeted for completion in 2Q95. Every effort will be made to make the lab partially functional at an earlier date however continued use of the Hion/Lonoke lab facilities is anticipated through 2Q95. The rifle/pistol test range is currently in the planning stages with an anticipated construction start date in early 2Q95. Passive Bullet Traps has been contracted to assist with the design of both the lab facility and the firing range.

A minimally configured CAD system has been setup and is currently functional. This initial configuration offers only 5 seats while the fully configured system will offer 13 seats. Complete configuration will occur with the completion of the office remodeling job.

All personnel have PC workstations setup and functional on their desktops. Networking of these workstations will occur with the completion of the office remodeling. The current plan is to network these units with the system R. Kump (Remington CIO) is configuring for the entire company.

Ammunition

Explosives Lab

Leadfree primer work from late 2Q94 through year end included 13 experimental lead-free mix trials through a five round ballistic test for Pressure-Time and Pressure-Velocity. These tests were conducted at ambient, -20 degree F, and 150 degree F environmental conditions. Positive results were noted.

Process Hazards Review and Report for the primer assembly operation is complete. Work continues on the Process Hazards Review for the pilot mix house. Completion of this effort will bring the R&D Explosives Lab 100% online.

The R&D Explosives Lab completed a competitive analysis on a series of Chinese made primers for International Marketing as well as a competitive assessment of available lead-free and non-toxic primers.

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The Explosives Lab continues in its support of manufacturing related problems and process improvements. An alternative process was introduced for tellurine manufacture and an alternative solvent was offered in the cobmeal cleaning process.

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Pistol

Four Golden Saber Hunting Bullets completed Trial and Pilot in 1994. The product offering will include .44 Mag, 357 Mag, 380, and 9mm.

Industrial Shotshell

Work has begun on expanding the demand for the 8 Gauge shotshell and industrial firearm. Plans for the firearm include adding a muffler and enhancing the ability to "aim" the product. Customer sites have been visited to assist in the formation of a "requirements list" for a replacement firearm.

Plastics

Work has begun in conjunction with Interlakes to reduce the plastics used in shotshell manufacture. Improvements in both the shotshell wad and the packaging trays should be achievable. The areas of focus include raw material procurement, tooling, and sourcing.

R&D plastics expertise assisted with the resolution of an ongoing problem with the printing on the outside shotshell hull. A contaminant was determined to be present on the plastic surface which caused the ink not to properly adhere to the hull surface.

Electric Primers

Early electric primer work is underway by initially demonstrating engineering feasibility via a semiconductor initiator. These initial primers are unique when compared to 1940's military vintage primers in that they were constructed with semiconductor bridges. These bridges were a development of Sandia Labs and are currently used primarily in the deployment of the automobile airbag. Their principle advantage being the near-zero time to detonation. Technical results of this experiment were very successful with cost being the remaining significant issue to work through.

Clay Targets

Work is underway with Old Hickory Clay Mine to develop an environmentally friendly clay target. Results thus far are encouraging with the potential of offering not only an environmentally friendly product but at a lower component cost than the current target. Additional work is ongoing with the development of a mold similar to that used to make ceramic tile. Prototype targets will be available 1Q95.

Firearms

Rifle

Work is proceeding on the new Rimfire product. Competitive analysis of like guns is complete and magazine feed design is underway. Prototype availability is targeted for mid-3Q95.

Design work on the Model 700 DM (Detachable Magazine) complete. Product is announced and in full production.

Redesign is underway on a connectorless version of the Model 700 Bolt Action Rifle fire control.

Model 700 300 Ultra Mag design work terminated. Consideration is being given to rescheduling the product for introduction in 1996.

Shotgun

A comprehensive study was performed to determine the strength characteristics of the Model 1187 shotgun barrel steel. This study included metallurgical analysis as well as analytical and statistically significant experimental examination of burst thresholds. Competitive products were examined in a non-statistical experiment in an attempt to correlate strength characteristics to steel type.

Design and drawings are complete on the 20 gauge synthetic shotgun stock. Basically, the 12 Gauge synthetic design was modified to mate with the 20 Gauge 1100 Sportsman model shotgun to be introduced in Walmart.

Two working prototypes of a Home Defense electronic 12 gauge shotgun are complete. One model uses conventional percussion ammunition with a solenoid based hammer release system. The second gun is fully electronic making use of the electric primers developed in Lonoke.

Testing was performed on a prototype Drug Enforcement Agency model 1187 shotgun. It was determined that a unique barrel would be required to meet DEA specifications relative to the mix of loads required to operate the action. Projected volumes did not justify the introduction of another barrel so the project was canceled.

Work is currently underway to find alternative sources for model 870, 1100, and 1187 shotgun barrels. Both domestic and overseas sources are being examined with potential sources being in the former Soviet Union, South Africa, Canada, France, Czech Republic and Israel.

Work continues in conjunction with Beretta on a new over/under shotgun swap for our Model 700 DM product. Anticipate receipt of prototype shotgun in 2Q95.

Black Powder

Design and test is complete on the Eliphalet 1816 Commemorative Muzzleloader. This involved the development of the user manual, certificate of authenticity, and history of Remington Arms brochure. A shipping test was performed using traditional ground / air transportation methods and recommendations made to improve deficiencies in the packing material.

Design and drawing package for the Inline Muzzleloader will complete in 2Q95.

Pistol

Redesign of the XP100 pistol stock was completed to address the problem of cracking on the higher caliber models - specifically the 7-08 and .35 Rem. A recall was instituted for all wood stock XP100s and the stock replaced with the new design. This product has been discontinued for 1995.

Accessories

Software

Negotiations are currently underway for a vendor ballistics software package. While the package would be a novel offering the demand is expected to be small. In addition, support services for the product would need to be worked out within Remington.

Cleaning Kits

Vendors are being identified in India and Pacific Rim for a high quality cleaning kit.

GPS Product

Negotiating with Taiwanese and Malaysian companies for a low cost unit. Walmart has expressed an interest in a less than \$200 retail product.

Support Services

Legal

Technical support toward firearm and ammunition related litigation is being provided to corporate counsel on an as needed basis.

Instrumentation

Significant time has been expended on redefining the instrumentation and techniques used to make accurate high pressure measurements on shotshell chamber pressure.

Consultation

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Technical relations have been established with the local university (University of Louisville) to expand our access to expertise in the areas of metallurgy, kinematics, and rapid prototyping.

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