

R&D Steering Committee
2009 Project Overview
Remington Facilities

1/09/09

Remington

Agenda

- Present 2009 R&D Project Budget Submission & Deliverables
 - Elizabethtown (Non-DoD)
 - Ilion
- Review Staffing/Manpower Status
- Establish List of Non-Budgeted Projects Backlog
- Review MPAS Draft CAR/1st Release for DAT Stock/Forend Tooling

Remington

CC 38050 (FA) Project Detail

[illegible][illegible]

Reinforcement

2009 F/A Project Scopes

M/887 Nitro Magnum Synthetic Pump Shotgun (2009)

This is broken up into two forms of activity in 2009.

1. This product is scheduled for introduction at the 2009 SHOT Show. DAT was successfully completed on Dec 12th. Initial focus for T&P product is to supply SHOT show, Press, Sales, and miscellaneous samples for mid January events and then refocus on T&P product build. Production will start immediately after a successful T&P test exit. Some R&D contingency funding (\$7,500) has been added in 2009 with some travel (\$3,600) to help support a successful transition into production.
2. Manufacturing production costs have risen above the original upper target of approximately \$144 per unit. In order to improve the profitability of this new product we will complete development and qualify the one piece barrel which will result in a \$6-\$8 per unit cost savings.

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2009 F/A Project Scopes

R-15 Extreme Hunting Rifle (2009)

This is a joint project between Remington and DPMS to develop a new hunting cartridge and AR-15 platform variant that will perform on par with a .308 Winchester cartridge. E-town will provide test and evaluation resources to support EET and production qualification testing. DPMS is responsible for the gun modifications to handle the new cartridge which is based on the .450 Bushmaster necked down to .30 caliber. Lenohe is responsible for the ammunition development.

MPAS Autoloading Shotgun Support (2010)

The MPAS is a new 12 Ga. autoloading shotgun which is being designed to handle the full breath of ammunition, from light 2 3/4" target loads to the heaviest 3 1/2" magnums utilizing a unique multi-port gas system design, IP which Remington now owns. Although an Ilian funded and managed program, E-town was tasked with development of the fire control and the synthetic stock system and fore-end. Money identified here is for travel to Ilian to continue this support through DAT build and formal DAT testing, which will be done at the E-town facility.

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2009 F/A Project Scopes

New Auto-Loading Rifle (NAR) (2011+)

A new autoloading CF rifle has been in development in E-town for the past three plus years. This project has been through several design iterations and has not advanced beyond the EET stage. The NPP requires a single platform capable of handling short, long, and magnum calibers. The focus up to now has been a single long action caliber (.35-06 SPRG). Funding for 2009 along with appropriate staffing will allow parallel activity to advance all three variants through EET and at least one variant successfully through DAT.

Capital funding at the manufacturing level will be required to bring this product to market, which is targeted for introduction in 2011. Progress in 2009 will likely be impacted due to reassignment of the primary engineering resource to DoD projects starting Jan. 1st 2009. A realignment of available resources for 2009 is needed to minimize impact on 2009 deliverables.

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2009 F/A Project Scopes

R-15/R-25 Synthetic Designs (2010)

The focus of this project is to develop new synthetic stocks and fore-ends for the AR platforms specifically designed for hunting. Deliverables for 2009 will be to develop the CAD 3-D models and rapid prototypes to get the designs approved by Marketing and ready for manufacturing. Capital funding at the manufacturing level will be required to bring these products to market.

M/770 Caliber Addition in .22-250

Marketing has received requests to add this varmint caliber to the M/770 line. An NPP has been with the premise that it would not require any significant development. Recent testing has indicated that changes will be required to the magazine box assembly and potentially the extractor/ejector at the very least to get this cartridge to feed and eject reliably. 2009 funding would support these development efforts and provide resources to complete a small scale DAT to qualify the changes. Plant funding would be required to bring this product through a T&P phase and into production. This is being addressed on a low priority basis.

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2009 F/A Project Scopes

Intrex Interchangeable Barrel Rifle (H&R Project)(2011)

The Intrex program is an H&R project targeted for introduction in 2011, with Elizabethtown resources leading this development effort. The concept is a single shot rifle with interchangeable barrels. The preferred development plan is to start with a new design which will allow cosmetic and differentiated design features to be incorporated separating and differentiating this product from the existing Handi-Rifle line. A less desirable approach would be to utilize the existing platform and develop the means to allow barrel interchangeability by the user without factory fitting. 2009 funding for this program will result in the delivery of two "Proof of Concept" prototypes followed by a 5 gun prototype build and then a 10 gun build for a small scale DAT class test. Based on the recent DoD personnel realignment the initial deliverables for 2009 may be impacted. At this time the deliverable objective of 10 DAT guns may not be attainable due to current resource levels.

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2009 F/A Project Scopes

New Bolt Action CF Rifle (2011+)

Marketing has identified the need for a next generation bolt action centerfire rifle in their 3 year strategic plan. Past activity up to this point has been exploratory only. All major competitors' products have been studied with the goal to establish product features, design goals, functional performance and aesthetics for this product. With the recent enhancements to the M700 line with product variants like the XHR and the new adjustable fire control the timing of this project may be adjusted based on other product needs. For now it is identified as a beyond 2011 introduction. Funding and activity in 2009 would focus on the EET phase only and would consist of 2 iterations, an initial "Proof of Concept" phase consisting of 2 prototypes, followed by a redesign effort and another 5 gun EET evaluation. Funding would support build of these prototypes in addition to ammunition for evaluation. Recent CoD initiatives and the realignment of resources to support these efforts will impact planned activity on this project for most of if not all of 2009.

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2009 F/A Project Scopes

Unspecified Development Projects

This funding is targeted for unidentified project activity. Funding includes project and travel estimates and for now is spread out evenly throughout the year on a monthly basis. A formal approval process will need to be followed to access this funding for any new projects. This process is as yet undefined. Recent lion activity around development of a 1911 pistol and subsequent competitive and development testing planned in E-town may require some of this set aside funding.

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CC 38052 (R&T) Project Detail

2000-2001														2001-2002		2002-2003		2003-2004		2004-2005		2005-2006		2006-2007		2007-2008		2008-2009		2009-2010		2010-2011		2011-2012		2012-2013		2013-2014		2014-2015		2015-2016		2016-2017		2017-2018		2018-2019		2019-2020		2020-2021		2021-2022		2022-2023		2023-2024		2024-2025		2025-2026		2026-2027		2027-2028		2028-2029		2029-2030		2030-2031		2031-2032		2032-2033		2033-2034		2034-2035		2035-2036		2036-2037		2037-2038		2038-2039		2039-2040		2040-2041		2041-2042		2042-2043		2043-2044		2044-2045		2045-2046		2046-2047		2047-2048		2048-2049		2049-2050		2050-2051		2051-2052		2052-2053		2053-2054		2054-2055		2055-2056		2056-2057		2057-2058		2058-2059		2059-2060		2060-2061		2061-2062		2062-2063		2063-2064		2064-2065		2065-2066		2066-2067		2067-2068		2068-2069		2069-2070		2070-2071		2071-2072		2072-2073		2073-2074		2074-2075		2075-2076		2076-2077		2077-2078		2078-2079		2079-2080		2080-2081		2081-2082		2082-2083		2083-2084		2084-2085		2085-2086		2086-2087		2087-2088		2088-2089		2089-2090		2090-2091		2091-2092		2092-2093		2093-2094		2094-2095		2095-2096		2096-2097		2097-2098		2098-2099		2099-2100		2100-2101		2101-2102		2102-2103		2103-2104		2104-2105		2105-2106		2106-2107		2107-2108		2108-2109		2109-2110		2110-2111		2111-2112		2112-2113		2113-2114		2114-2115		2115-2116		2116-2117		2117-2118		2118-2119		2119-2120		2120-2121		2121-2122		2122-2123		2123-2124		2124-2125		2125-2126		2126-2127		2127-2128		2128-2129		2129-2130		2130-2131		2131-2132		2132-2133		2133-2134		2134-2135		2135-2136		2136-2137		2137-2138		2138-2139		2139-2140		2140-2141		2141-2142		2142-2143		2143-2144		2144-2145		2145-2146		2146-2147		2147-2148		2148-2149		2149-2150		2150-2151		2151-2152		2152-2153		2153-2154		2154-2155		2155-2156		2156-2157		2157-2158		2158-2159		2159-2160		2160-2161		2161-2162		2162-2163		2163-2164		2164-2165		2165-2166		2166-2167		2167-2168		2168-2169		2169-2170		2170-2171		2171-2172		2172-2173		2173-2174		2174-2175		2175-2176		2176-2177		2177-2178		2178-2179		2179-2180		2180-2181		2181-2182		2182-2183		2183-2184		2184-2185		2185-2186		2186-2187		2187-2188		2188-2189		2189-2190		2190-2191		2191-2192		2192-2193		2193-2194		2194-2195		2195-2196		2196-2197		2197-2198		2198-2199		2199-2200		2200-2201		2201-2202		2202-2203		2203-2204		2204-2205		2205-2206		2206-2207		2207-2208		2208-2209		2209-2210		2210-2211		2211-2212		2212-2213		2213-2214		2214-2215		2215-2216		2216-2217		2217-2218		2218-2219		2219-2220		2220-2221		2221-2222		2222-2223		2223-2224		2224-2225		2225-2226		2226-2227		2227-2228		2228-2229		2229-2230		2230-2231		2231-2232		2232-2233		2233-2234		2234-2235		2235-2236		2236-2237		2237-2238		2238-2239		2239-2240		2240-2241		2241-2242		2242-2243		2243-2244		2244-2245		2245-2246		2246-2247		2247-2248		2248-2249		2249-2250		2250-2251		2251-2252		2252-2253		2253-2254		2254-2255		2255-2256		2256-2257		2257-2258		2258-2259		2259-2260		2260-2261		2261-2262		2262-2263		2263-2264		2264-2265		2265-2266		2266-2267		2267-2268		2268-2269		2269-2270		2270-2271		2271-2272		2272-2273		2273-2274		2274-2275		2275-2276		2276-2277		2277-2278		2278-2279		2279-2280		2280-2281		2281-2282		2282-2283		2283-2284		2284-2285		2285-2286		2286-2287		2287-2288		2288-2289		2289-2290		2290-2291		2291-2292		2292-2293		2293-2294		2294-2295		2295-2296		2296-2297		2297-2298		2298-2299		2299-2300		2300-2301		2301-2302		2302-2303		2303-2304		2304-2305		2305-2306		2306-2307		2307-2308		2308-2309		2309-2310		2310-2311		2311-2312		2312-2313		2313-2314		2314-2315		2315-2316		2316-2317		2317-2318		2318-2319		2319-2320		2320-2321		2321-2322		2322-2323		2323-2324		2324-2325		2325-2326		2326-2327		2327-2328		2328-2329		2329-2330		2330-2331		2331-2332		2332-2333		2333-2334		2334-2335		2335-2336		2336-2337		2337-2338		2338-2339		2339-2340		2340-2341		2341-2342		2342-2343		2343-2344		2344-2345		2345-2346		2346-2347		2347-2348		2348-2349		2349-2350		2350-2351		2351-2352		2352-2353		2353-2354		2354-2355		2355-2356		2356-2357		2357-2358		2358-2359		2359-2360		2360-2361		2361-2362		2362-2363		2363-2364		2364-2365		2365-2366		2366-2367		2367-2368		2368-2369		2369-2370		2370-2371		2371-2372		2372-2373		2373-2374		2374-2375		2375-2376		2376-2377		2377-2378		2378-2379		2379-2380		2380-2381		2381-2382		2382-2383		2383-2384		2384-2385		2385-2386		2386-2387		2387-2388		2388-2389		2389-2390		2390-2391		2391-2392		2392-2393		2393-2394		2394-2395		2395-2396		2396-2397		2397-2398		2398-2399		2399-2400		2400-2401		2401-2402		2402-2403		2403-2404		2404-2405		2405-2406		2406-2407		2407-2408		2408-2409		2409-2410		2410-2411		2411-2412		2412-2413		2413-2414		2414-2415		2415-2416		2416-2417		2417-2418		2418-2419		2419-2420		2420-2421		2421-2422		2422-2423		2423-2424		2424-2425		2425-2426		2426-2427		2427-2428		2428-2429		2429-2430		2430-2431		2431-2432		2432-2433		2433-2434		2434-2435		2435-2436		2436-2437		2437-2438		2438-2439		2439-2440		2440-2441		2441-2442		2442-2443		2443-2444		2444-2445		2445-2446		2446-2447		2447-2448		2448-2449		2449-2450		2450-2451		2451-2452		2452-2453		2453-2454		2454-2455		2455-2456		2456-2457		2457-2458		2458-2459		2459-2460		2460-2461		2461-2462		2462-2463		2463-2464		2464-2465		2465-2466		2466-2467		2467-2468		2468-2469		2469-2470		2470-2471		2471-2472		2472-2473		2473-2474		2474-2475		2475-2476		2476-2477		2477-2478		2478-2479		2479-2480		2480-2481		2481-2482		2482-2483		2483-2484		2484-2485		2485-2486		2486-2487		2487-2488		2488-2489		2489-2490		2490-2491		2491-2492		2492-2493		2493-2494		2494-2495		2495-2496		2496-2497		2497-2498		2498-2499		2499-2500		2500-2501		2501-2502		2502-2503		2503-2504		2504-2505		2505-2506		2506-2507		2507-2508		2508-2509		2509-2510		2510-2511		2511-2512		2512-2513		2513-2514		2514-2515		2515-2516		2516-2517		2517-2518		2518-2519		2519-2520		2520-2521		2521-2522		2522-2523		2523-2524		2524-2525		2525-2526		2526-2527		2527-2528		2528-2529		2529-2530		2530-2531		2531-2532		2532-2533		2533-2534		2534-2535		2535-2536		2536-2537		2537-2538		2538-2539		2539-2540		2540-2541		2541-2542		2542-2543		2543-2544		2544-2545		2545-2546		2546-2547		2547-2548		2548-2549		2549-2550		2550-2551		2551-2552		2552-2553		2553-2554		2554-2555		2555-2556		2556-2557		2557-2558		2558-2559		2559-2560		2560-2561		2561-2562		2562-2563		2563-2564		2564-2565		2565-2566		2566-2567		2567-2568		2568-2569		2569-2570		2570-2571		2571-2572		2572-2573		2573-2574		2574-2575		2575-2576		2576-2577		2577-2578		2578-2579		2579-2580		2580-2581		2581-2582		2582-2583		2583-2584		2584-2585		2585-2586		2586-2587		2587-2588		2588-2589		2589-2590		2590-2591		2591-2592		2592-2593		2593-2594		2594-2595		2595-2596		2596-2597		2597-2598		2598-2599		2599-2600		2600-2601		2601-2602		2602-2603		2603-2604		2604-2605		2605-2606		2606-2607		2607-2608		2608-2609		2609-2610		2610-2611		2611-2612		2612-2613		2613-2614		2614-2615		2615-2616		2616-2617		2617-2618		2618-2619		2619-2620		2620-2621		2621-2622		2622-2623		2623-2624		2624-2625		2625-2626		2626-2627		2627-2628		2628-2629		2629-2630		2630-2631		2631-2632		2632-2633		2633-2634		2634-2635		2635-2636		2636-2637		2637-2638		2638-2639		2639-2640		2640-2641		2641-2642		2642-2643		2643-2644		2644-2645		2645-2646		2646-2647		2647-2648		2648-2649		2649-2650		2650-2651		2651-2652		2652-2653		2653-2654		2654-2655		2655-2656		2656-2657		2657-2658		2658-2659		2659-2660		2660-2661		2661-2662		2662-2663		2663-2664		2664-2665		2665-2666		2666-2667		2667-2668		2668-2669		2669-2670		2670-2671		2671-2672		2672-2673		2673-2674		2674-2675		2675-2676		2676-2677		2677-2678		2678-2679		2679-2680		2680-2681		2681-2682		2682-2683		2683-2684		2684-2685		2685-2686		2686-2687		2687-2688		2688-2689		2689-2690		2690-2691		2691-2692		2692-2693		2693-2694		2694-2695		2695-2696		2696-2697		2697-2698		2698-2699		2699-2700		2700-2701		2701-2702		2702-2703		2703-2704		2704-2705		2705-2706		2706-2707		2707-2708		2708-2709		2709-2710		2710-2711		2711-2712		2712-2713		2713-2714		2714-2715		2715-2716		2716-2717		2717-2718		2718-2719		2719-2720		2720-2721		2721-2722		2722-2723		2723-2724		2724-2725		2725-2726		2726-2727		2727-2728	
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References

2009 R&T Project Scopes

Marlin/H&R Synthetic Component Initiative

E-town will leverage their expertise in synthetic materials to evaluate cost, quality, and functional issues in current Marlin and H&R products. Todd Cook will interact with engineering and manufacturing in both locations to understand opportunities and establish development priorities and then work to offer solutions to identified issues. Funding allocated for this project will be used for testing and generating prototypes parts to aid in this process. Funding to implement solutions at the plant level will be the responsibility of the manufacturing locations.

Marlin/H&R Metallurgical Initiative

This is a parallel project to the one above but will focus on metallurgical components and will be driven by E-town's metallurgist Marlin Jiranek. A secondary goal will be to generate a database of materials used at the various Remington companies with the goal to standardize on these materials used for various classifications of parts (bolt heads, screws, fasteners, sears, etc.). This will aid purchasing departments in material procurement by leveraging greater volume which should result in cost savings and improve material availability.

Remington

2009 R&T Project Scopes

New Generation Recoil Jack Development

Shooting jacks are used extensively at the manufacturing plants and in R&D during product development. They are a significant factor in determining firearm malfunction rates and yet in many cases are the source of misleading functional data, especially in the case of autoloading firearms. The current jacks have been in use for many years and were developed in the early 1900's. Conclusive data has been generated to show that they are not good duplicators of the human shoulder. This project will focus on characterizing gun dynamics as shot from a spectrum of shoulders to determine design parameters. The ultimate goal is to develop an improved shooting jack that better simulates the human shoulder, is adjustable for light and heavy conditions, and is more repeatable and robust. The goal is to generate a working prototype by year end.

Remington

2009 R&T Project Scopes

Shot Material Detector (Ra)

This is a continuation of an existing project which was initiated by the ammunition group. With the recent advances in non-toxic shot such as Wingmaster HD and other non-lead based shotshell products a handheld device is needed in the field by game wardens and other regulatory personnel. Existing devices cannot discriminate between existing materials and can lead to wrong conclusions in the field. Mike Pendleton has studied existing technologies and has developed a design which if proven to work will fill this role, resulting in a potential new product for Remington. This unit has the potential for sales in most states and fills a current need in the waterfowl hunting world and in areas where lead in rifle ammunition has been restricted for big game hunting. Given regulatory trends the need for units such as this will only grow. The goal for 2009 is to build and test 1-2 prototype units to confirm "Proof of Concept".

Remington

2009 R&T Project Scopes

Venom Fire Control

The Venom project is a Research initiative that was a spin off of technology developed during the EtronX program. Remington developed a proprietary fire control system under contract by Combined Systems Inc. (CSI) for a non-lethal launch platform that was designed by CSI for military applications. The system utilizes a Remington EtronX primer to initiate larger projectiles such as smoke bombs, flash bangs, etc. which are propelled at approaching personnel to deter them prior to engagement with lethal hardware. The system is fully developed and 40 units have been made which will undergo field testing in early 2009. If approved an initial order of up to 250 units could follow. Remington would contract out the build of the fire control at a cost of approximately \$300 and sell them to CSI at a 10X markup. It should be mentioned that this entire development was funded by CSI. A small amount of funding is included here for potential travel to continue support of this project.

Remington

Illion R&D Project Detail

[illegible]

128 *Journal of the Philosophy of Education Society of Great Britain* 35 (2004), 127–139

[illegible]

References

2009 Ilion R&D Project Scopes

M/887 Nitro Magnum Synthetic Pump Shotgun(2009)

The 28" black firearm is scheduled for introduction at the 2009 SHOT Show. Full production to begin 2nd quarter 2009.

Five more versions will be introduced throughout 2009:

- 887 Nitro Mag SPS 12/26" guns
- 887 Nitro Mag--SPS Waterfowl 12/28"
- 887 Nitro Mag--SPS CAMO (12/24")
- 887 Nitro Mag Turkey/WF Combo 12/28" & 22"
- 887 Nitro Magnum Tactical (12/18.5")

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2009 Ilion R&D Project Scopes

MPAS (Multi-Port-Autoloading Shotgun)(2010)

The MPAS is a new 12 Ga. autoloading shotgun which is being designed to handle the full breath of ammunition, from light 2 ¼" target loads to the heaviest 3 ½" magnums utilizing a unique multi-port gas system design.

This project is being designed, funded and built in Ilion. E-Town will provide testing and other support.

The Timeline will be finalized in January 2009, tentatively Design Acceptance in April 2009 and Production 1st Quarter 2010.

Remington

2009 Ilion R&D Project Scopes

NPP's (New Product Proposals) Commercial – 2009

These NPPs result from customer requests via the Firearms Marketing group. The Development group completed 96 NPPs in 2008 and would expect to see about the same number in 2009.

NPP's (New Product Proposals) LE/MPD – 2009

These NPPs result from customer requests approved by the LE Firearms Marketing group. The group completed 44 LE NPPs in 2008 and would expect to see about the same number in 2009.

NPP's (New Product Proposals) H&R – 2009

These NPPs result from customer requests approved by the H&R Firearms Marketing group. We received no NPPs in 2008 but would expect to see about 25 in 2009.

Remington

2009 Ilion R&D Project Scopes

Intrex Interchangeable Barrel Rifle (H&R Project)(2011)

The Intrex program is an H&R project targeted for introduction in 2011. Elizabethtown engineering resources will lead this development effort. Production will be in Ilion with development in 2009 and 2010 and production in 2011.

New Auto-Loading Rifle (NAR) (2011)

A new autoloading CF rifle has been in development in E-town. Production will be in Ilion with development in 2009 and 2010 and production in 2011.

Remington

Staffing/Project Assignments

[illegible]

Abbreviations
 PH - Pseudo-Hypoxanthine
 X - Guanylate

Resin Inlay

Staffing Status

- Elizabethtown
 - Commercial Design Engineering Group – Down 5 heads vs 1/1/08
 - 4 engineers reassigned to DoD development group
 - 1 engineer promoted to Director DoD group
 - R&T Engineering Group - Down 1 vs 1/1/08
 - 1 metallurgist resigned eff. 1/05/09
- Ilion
 - Product Development Engineering Group – Down 2 heads vs 1/1/08
 - 1 engineer reassigned to production
 - 1 engineer promoted to DoD production manager

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Recruiting Status

- Recruiters
 - Identified/contracts under legal review
- Advertising
 - Ads running in targeted geographical areas
1/11/09
 - SHOT Show Booth visibility planned
 - Industry websites
 - Remington website
 - Industry publications being evaluated

Remington

Unfunded Project Backlog

Capture point for unstaffed, unfunded programs for future addition/prioritization

- USA (Unsingle-Autoloading) Target Shotgun
 - External design developed by L. Butler
 - Marketing product evaluation completed
 - Market/Business Plan developed (attached)
 - High Spot economics developed
 - Development proposal received from Butler and reviewed
 - Next step: Meeting with Butler at SHOT to respond (Trull/Dwyer)

Remington

Unfunded Project Backlog

- 1911 Line Extensions/Caliber Additions
 - ~ Direction needed ASAP as to future product plan
- Others??

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MPAS Capital Release

- Authorization required for \$396,000 in capital expense from 2009 budgeted CapEx (\$2.5 MM project total)
- Tooling expenditure for production fore end, overmolded stock and grip cap molds
- Required to finalize functional performance and cosmetic aspects (Post DAT)

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MPAS Metrics

- Current development status – pre-DAT
- DAT scheduled for April '09
- Current project economic metrics (to follow)

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