# *Project Proposal to Build a New TPO Single-ply Roofing Manufacturing Facility*

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## Abstract

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This project involves a decision for GAF Material Corporation on whether to build a new single-ply roofing manufacturing plant, and where to geographically locate the plant based on the analysis of a financial model. The scope of the project includes identifying options for manufacturing equipment and operating locations, selecting an option based on the financial model, and conducting preliminary engineering as required to deliver a +/- 10% cost estimate to complete the project as well as detailed timeline for construction, hiring, and start-up of the new facility.

After identifying multiple geographic options and potential sites for the facility, the field was quickly narrowed to two locations: Mount Vernon, Indiana and Gainesville, Texas. Further financial analysis indicated that the Gainesville option offered a better return on investment due to freight savings to the southern portion of the country, particularly the southwest. Engineering was conducted to secure a +/- 10% estimate of a project cost of $26.8 million to build the Gainesville facility, with an Internal Rate of Return of 29% and a Net Present Value of $28.6 million. Completion of the project is 17 months from approval. Based on the data, GAF senior management has accepted the project and authorized the project to move forward with a completion date of September 2007.

## Acknowledgements

I would like to thank the team members that offered their commitment and support through this project. I would also like to thank members of senior GAF management for giving me the opportunity to lead this high profile project that is key to the growth of the company. I also thank the engineering firm of Lockwood Greene for their diligence in completing the detailed engineering for the project and cost estimate. The list of contributors to this project is very long – I have included a list of the major contributors in the "Project Bright Team" roster in Appendix B of this report. Lastly, I thank my family for being so supportive of the long hours and hectic travel schedule that completion of this project demanded.

I would also like to recognize the University of Southern Indiana graduate program for helping me to develop the tools necessary to manage this project and reach a successful outcome. Key curriculum used included Project Management, Industrial Management, Economic Evaluation of Industrial Projects, Interpersonal Communication within Organizations, Organizational Behavior and Human Resource Management, and Leadership Skills.

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## Proprietary and/or Confidential Statement

During the graduate capstone project thesis, the student(s) major project efforts was/ were focused on examining their respective company's financial and operational information and competitive competencies. As a result, in order to provide real significant contributions to this organization, this competitive information were incorporated into the evaluation and decision making aspects of this project. In order to protect and safeguard this information, sections of this thesis may have been edited to either delete this information or provide proxy data utilized so as to demonstrate the methodology utilized in this endeavor. Information in tables, figures, or in the appendices may also have been modified for this reason.

## I. Background

### A. Introduction

As North America's largest roofing manufacturer, GAF Materials Corporation (GAF) offers a variety of roofing systems to fit a multitude of different applications. The company currently operates 27 manufacturing locations which range from traditional and high end roofing shingles to single-ply Thermoplastic Poly-olefin (TPO) roofing membranes, which gives the company the most diverse product line in the roofing industry. Because the company offers many different solutions, it represents the best value to the roofing contractor and property owner as there is no tendency toward a "one size fits all" solution. Combined with GAF's focus on educating contractors and property owners, the company is committed to being the "best and safest choice" in the industry.

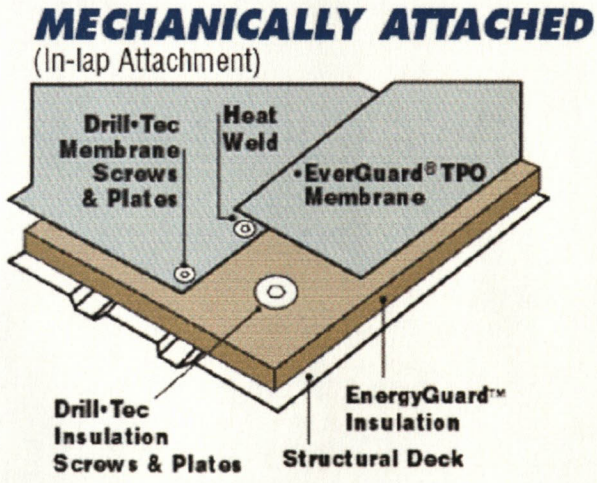
A large part of GAF's quest for continuous improvement comes through new technologies. One of these relatively new technologies is in single-ply roofing systems designed for low slope roofing application. In particular, GAF has committed to be a leader in TPO single-ply membranes due to the benefits that this type of systems offers, including being environmentally friendly and providing unsurpassed performance.

### B. General information on TPO Single-ply Roofing Membranes

To begin to understand what a TPO Single-ply roofing membrane is, one should first start with a general concept on single-ply roofing systems. As indicated by the

term single-ply, these types of roofing constructions have a single layer of waterproofing medium that is installed directly over the roof deck or insulation. These types of roofing systems are designed as low-slope roofing products, which indicates that they would be applied in roofing situations where the slope of the roof is less than two inches on twelve inches. Typical applications are in large flat roof buildings such as schools, manufacturing facilities, warehouses, large office buildings, and shopping malls. Single-ply membranes are also installed in residential applications on a limited basis on flat roof sections, but this represents a very small proportion of the single-ply market. A typical cross section of a single-ply roof can be found in Figure 1.

**Figure 1 – Typical Cross section of single-ply roof**




Source: GAF Materials Sales and Marketing Material

Single-ply membranes made their first appearance in the mid 1970s in the form of EPDM (ethylene propylene diene monomer) rubber roofing systems. EPDM roofing systems are still prevalent today although they are losing ground to newer technologies such as TPO and PVC membranes. EDPM roofing systems are the least

inexpensive to install on a low slope roof, but they are prone to leakage due to the glued seaming process and tend to become brittle and crack with age.

In the mid 1980s, the next generation of single-ply roofing came along in the form of a PVC membrane. PVC offered two major advantages over EPDM, one being the energy savings it could provide due to the high solar reflectance offered by the white membrane, and the other being a heat weldable seaming process that solved the problem of leaking seams.

PVC and TPO membranes both fall into a broader group of products known as thermoplastics. The defining characteristic of a thermoplastic membrane is that relatively weak bonds between their long-chain molecular structures allow the product to soften when heated and return to the original state upon cooling. Thermoplastic membranes can thus be welded together at the seams using hot air (typically 600-1100° F) which produces a very strong continuous bond along the seam, and is also very quick to install. Thermoset membranes such as EPDM do not allow reheating and must be bonded together using adhesive or tapes. This makes installation much more time consuming and the system itself much more prone to leakage.

There are two significant problems with PVC roofing systems. PVCs are by nature very rigid; to make PVC membranes flexible for use in roofing applications requires the addition of a large amount of a plasticizer. These plasticizers are usually liquid in nature and leech out of the product over time. As the plasticizer levels in the product decrease, the membrane becomes increasingly brittle, to the point where it cracks or shatters on the roof. The time that this process takes varies according to the

membrane formulation, climatic conditions on the roof, installation method, etc., but in general should be at least 15-20 years of usable life. There have been some recent advances in the use of polymeric plasticizers that do not exhibit this performance; such technology is very expensive and as such not widely used. Even the use of the newer plasticizer technology does not overcome the second and more significant major issue with PVCs.

Led by the "green" movement in Europe, the environmental impact of PVCs is something that is becoming increasingly problematic for PVC roofing manufacturers. PVCs give off dangerous chlorine gases, dioxins, and acids when exposed to high heat or flame and have long been under attack by environmental groups. Most major automotive manufacturers are promoting the fact that they have phased out PVCs from their products for this reason. Although the PVC roofing market is still a relatively good size market, it has not seen growth consistent with the single-ply market in general due to these concerns.

TPOs are designed to address these issues. TPOs have EPDM-like characteristics, heat weldable seams, are environmentally friendly, and do not require plasticizers since they are inherently flexible. The best way to understand this difference is to think back to the 1980s when automobile dashboards were prone to cracking after several years of exposure to sunlight. This is a classic case of PVC plasticizer migration and the resulting failures. Most automotive dashboards are now made with TPOs and as such do not show these cracking issues.

TPO is an acronym for "thermoplastic poly-olefin". The meaning of the term "thermoplastic" has already been discussed; "poly-olefin" is a term that refers to a

polymer formed by chemical linking of double bond carbon molecules. Materials such as polypropylene, polyethylene, and isobutylene fall into this class. Most TPO roofing membranes are polypropylene based, using specially developed co-polymers that are engineered specifically for roofing applications.

In addition to TPOs being environmentally friendly, they also have good resistance to heat and Ultra-Violet degradation (or UV, damage caused by ultraviolet component of sunlight), can be made in many different colors (although the predominant color is white), and have overall good chemical resistance. Unlike PVCs, TPOs are not inherently flame retardant and require the addition of flame retardants to get the desired fire retardant performance. In the early days of TPOs these flame retardants were halogen in nature, but environmental concerns have caused a migration to the mineral flame retardants that are in use today.

TPO has been used for underground cable and waterproofing applications since the late 1970s. TPO membranes for roofing applications first appeared in Europe and the United States in the late 1980s. For the first 8-10 years of their existence, the growth was relatively slow due to a general hesitancy for the roofing market to embrace new technologies. When roofing contractors and manufacturers are being asked to warranty a roof for 20 or 30 years, they are very cautious in installing a product with a limited history of performance. Growth since the late 1990s is another story; this will be discussed later in this paper.

Both TPOs and PVCs offer another benefit over EPDM and asphalt based roofing systems in their highly reflective nature. With concerns over global warming, heat island effects, and high energy costs, many cities and states in the country are

implementing "cool roof" policies that require roofing products to meet solar and UV reflectance guidelines as issued through the Energy Star program developed by the United States Department of Energy.

On a sunny summer day, a black roof (EPDM / asphalt) can reach temperatures in excess of 170 ° F. Under the same conditions, the reflective white surface of TPO can be as low as 110 ° F, cutting the heat island effect and reducing cooling costs and energy usage. According to studies conducted by the Department of Energy, these savings could offset up to 50% of the original cost to install the roof, based on Oak Ridge National Laboratory energy cost data and GAF Marketing data.

The increasing focus on energy efficiency is leading to legislation regarding the use of roofing products with high reflectivity ratings, such as TPOs. One of the most important examples of this is the adoption of Title 24 in the state of California in 2005. Title 24 (also known as the California Building Energy Efficiency Program), mandates cool roofing systems to be used in most circumstances in commercial construction. The legislation defines a cool roof as a roofing product with a thermal emittance of at least 0.75, as tested per the Cool Roof Rating Counsel standards. This legislation is extremely important to the growth of TPO single-ply roofing products which demonstrate emittance values of at least 0.80. As other states look for ways to control energy usage and costs, it is expected that similar legislation will be looked into for other geographic areas, particularly in more southern states that have higher average temperatures.

In summary, TPO roofing membranes are the best product available in the single-ply roofing market. They are easy to install, environmentally friendly, energy

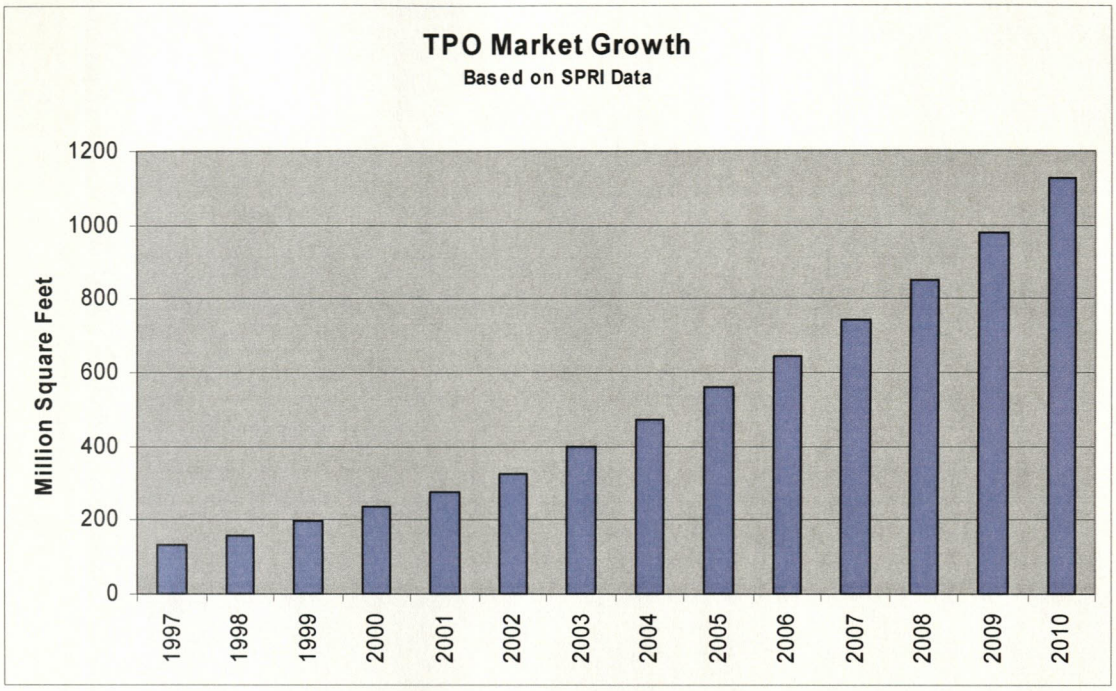
efficient, long term performers, and competitively priced. These factors combine into tremendous growth potential for TPOs, as discussed in the following section.

**C. Market analysis and growth outlook**

The growth in the last 10 years in the TPO singly ply roofing market has been astounding, and future growth projections are equally astounding. In North America, SPRI (Single-ply Roofing Industry) is the official technical and governing body for single-ply roofing membranes, and compiles and publishes sales data collected from participating members. SPRI is a neutral trade organization made up of a cross section of roofing manufacturers, architects and specifiers, contractors, consultants, and other industry professionals. SPRI keeps statistical data on single-ply trends, promotes technology, offers technical assistance in problem solving, and provides a forum for communication between various facets of the industry. GAF is a major supporter and active participant in SPRI, which permits access to historical and projected sales information.

Data from SPRI indicates that the outlook for TPO roofing membranes shows an expected trend of continued rapid growth. The TPO market has been growing by double digits every year since the late 1990s. Growth is projected to continue at a 15% annual rate through the end of the decade, as shown in Figure 2.

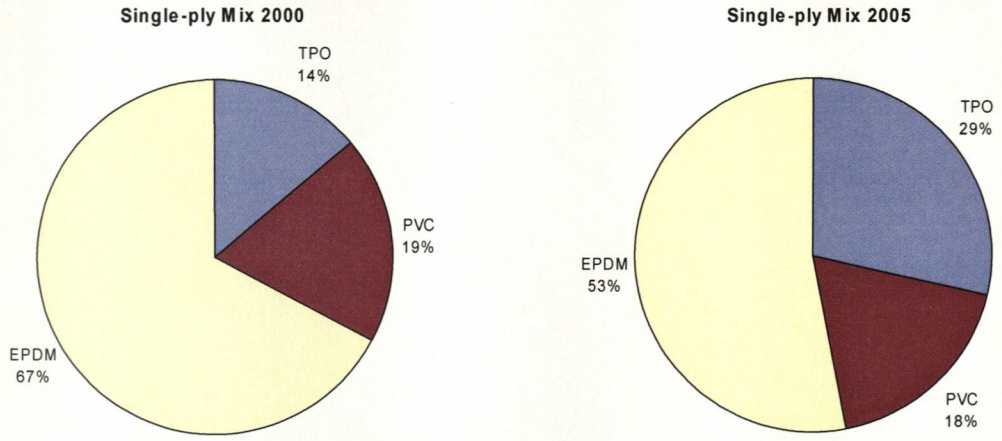
**Figure 2 – TPO Actual and Projected Growth**




Source: SPRI Annual Reporting Data

A good portion of this growth is coming from new construction and general growth in single-ply demand. However, a larger part of the growth is coming from an increasing acceptance of the benefits of TPO products. This is causing a shift away from other types of roofing membranes. The projected future growth rate includes the impact of new legislation like California Title 24. Figure 3 show the breakdown of the single-ply roofing market in 2000 vs. 2005 and reflects the shift toward TPO membranes.

**Figure 3 – Product mix of single-ply roofing, 2000 vs. 2005**




Source: SPRI Annual Reporting Data

In general, demand for PVC and EPDM membranes as remained relatively flat during this period, while TPO membranes have averaged an 18.8% growth rate during the same period. The outlook is for TPO to continue to grow share and for EPDM and PVC products to remain flat or begin to lose volume within the next five years.

The general forecast is for demand for TPO to be well over 1 billion square feet per year by 2010. To support this growth, roofing manufacturers will need to add capacity on a fairly regular basis. Industry capacity for TPO membranes in 2005 was in the order of 560 million square feet, with an additional 250 million square feet of capacity becoming available in 2006. It is fairly well known that many manufacturers are reviewing their present capacity requirements and deciding when and where to add capacity to meet this demand. The primary purpose of this project is to respond to GAF's capacity requirement needs and develop an economic capacity expansion plan for the future.

**D. GAF Mount Vernon, Indiana TPO Manufacturing Facility**

GAF Materials entered the TPO singly ply roofing market in 1997, offering a privately labeled line of TPO membranes sold under the GAF EverGuard brand. Since the products were not manufactured in house, GAF found it difficult to compete on price with companies such as Carlisle and Stevens that did manufacture their own products. Despite these difficulties GAF grew their TPO business, and with an eye on the rapidly growing demand for TPO roofing membranes, GAF decided to begin work to build a TPO manufacturing plant in 1999.

GAF selected Mount Vernon, Indiana as the site for the new plant. The Mount Vernon location allowed the new plant to leverage some infrastructure from an existing facility. Mt Vernon also offered an excellent workforce with a strong work ethic, a general knowledge of plastic processing in the area, and a central location to service the entire country with TPO products.

In building the new facility, GAF wanted a state of the art facility that would employ the best equipment available and offer the best products in the industry. The key to achieving this goal was to identify the best extrusion equipment available. At the time there were only two other TPO extrusion operations in the United States. Both of these production lines had been built by Davis-Standard, an American company based in Connecticut. GAF's quest to build the best resulted in looking for other companies that might offer superior technology to Davis-Standard; three other potential suppliers were identified.

One of these companies was a German company named Berstorff. Berstorff is headquartered in Hanover, Germany and has a U.S. presence in Florence, Kentucky.

Berstorff had built some roofing extrusion lines in Europe, but only focused on rubber and compounding operations in the U.S. Drawing on their successes in Europe and their desire to break into the American roofing single-ply equipment market, Berstorff demonstrated a clear understanding of the manufacturing process and that their equipment capabilities and process knowledge was superior to the competition. GAF awarded the contract to Berstorff to provide the key process portions of the production equipment. This proved to be a key decision in GAF distinguishing itself in the single-ply market and offering the best product in the industry.

GAF broke ground on the facility in May of 2000, and began the start-up process in November of 2000. Total project cost was $20.2 million. The product began shipping in February of 2001. Despite the fact that GAF was the "new guy" in the single-ply world, the quality and performance of the membrane was quickly noticed and the product took off. GAF is still recognized as providing the best performing product in the industry and continues to grow market share.

Since 2001, production volumes in the plant have been steadily increasing, with the plant running at capacity. With growing demand for TPOs as well as new product offerings in the TPO market, GAF decided to start planning new TPO capacity in mid 2005.

**E. Formation of the project team**

The first step in the quest for new capacity project was to appoint a project team. The author of this paper, as plant manager of the Mount Vernon TPO

operation, was asked to lead the team as project manager, with the end goal of making a recommendation to GAF management as to the direction for acquiring new capacity. The recommendation was to provide direction on project cost estimate and timing, and include a formal presentation to senior GAF management.

To support the project, assignments were made from various functional areas of the GAF organization, including Marketing, Sales, Purchasing, Engineering, Logistics, Transportation, Real Estate, Human Resources, Finance, Research and Development, Quality, and Manufacturing. A listing of the project team can be found in Appendix A of this report. (Note that the Lockwood Greene members of the project team did not get involved until much later in the project. Once involved they performed the preliminary process and facility engineering function based on the site selection, reporting to the Project Manager). The team held a kick-off meeting on September 26, 2005, and focused on the first goal of selecting a location for the new production line. One of the key decisions that resulted from this meeting was that the new line must have a capacity greater than the existing Mount Vernon line in order to meet forecasted demand for the next 4 years. It was also decided to purchase the main manufacturing equipment from the same vendor that supplied the equipment in Mount Vernon (Berstorff), with the goal of having consistency between the operations and products.

## II. Site selection

### A. Geographic alternatives considered

The Sales and Marketing groups were polled for what was important to them in servicing the customer and where the future growth in the TPO market was expected to be. They indicated that growth on the west coast was expected to be significant partially due to Title 24 in California. Growth across the southern portion of the country, particularly centered around Texas is also expected to be strong.

Based on the feedback from the Sales and Marketing group along with some other GAF criteria, three potential geographic areas for building a new plant were identified, namely Las Vegas, Phoenix, and the Houston/Dallas corridor. The fourth option was to build a second manufacturing line in the Mount Vernon location. This option would be the lowest cost to build and would likely offer operational efficiencies by leveraging existing infrastructure, so it quickly became the "defender".

### B. Narrowing field and identifying specific sites

The team began the process of identifying potential sites. Criteria for undeveloped sites included at least 10 acres of property with access to railroad and sufficient access to utilities to support the production equipment. For sites with existing buildings, the building must be a minimum of 100,000 square feet, with a minimum ceiling height of 25 feet clear (portions of equipment actually require 40 feet but the entire building does not need to be that tall), have a railroad siding, sufficient utilities and column spacing to support production equipment.

In the early phases of the site selection search, a major competitor announced that they were building a TPO plant in Utah with the goal of servicing the west coast. GAF Sales and Marketing group did an analysis on the impact of this capacity and came to the conclusion that the market demand on the west coast was not forecast to be strong enough to support 2 new plants within the next 5 years. If GAF were to pursue the 2 western options, we would be forced to ship product back east to fully utilize the capacity of the new production line. The cost of doing this combined with the high cost of shipping raw materials to the west pushed the group to make a quick decision to eliminate the Las Vegas and Phoenix options. The focus then shifted to identifying potential sites in the Dallas / Houston corridor.

Working with a commercial real estate broker from Texas, the team was able to identify 35 sites with existing buildings of sufficient size in the Dallas / Houston area. Each site was then compared to the various criteria that fit the project needs. During this process, Hurricane activity in the gulf coast changed the Houston real estate market almost overnight, and it was decided to focus on the properties that were closer to the Dallas area.

During the site selection period, the GAF finance group contacted the project team and requested that the team consider a GAF owned facility in Port Arthur, Texas. This plant shut down several years prior and had been sitting vacant ever since. The idea was to utilize the existing asset for the new project, solving two problems at one time. A careful review of the Port Arthur facility indicated that the cost of building the required infrastructure (namely rail service and fire protection) was not feasible and the site would not be able to meet the project needs.

The next step was to narrow down the sites in the Dallas area. Each site was compared to the selection criteria, and the list of 23 potential sites was reduced to 9 sites that would provide a reasonably good fit. The project manager along with a representative from corporate engineering went to Texas to look at the potential sites in early December, 2005. Based on this trip, the list of potential sites was narrowed to 4 sites, with a clear leader located in Gainesville, Texas, about an hour north of Dallas. The actual tabulation with comparative analysis can be found in Appendix B.

The project team then convened to review the 4 potential sites in more detail. Senior management representation on the team immediately decided that 2 of the properties were to be immediately eliminated based on cost, which reduced the field to 2 candidates; the Gainesville and McKinney sites.

Both of these sites were capable of meeting the requirements of the project. Performing a closer comparative analysis quickly made Gainesville the clear leader. Benefits of the Gainesville site over the McKinney site were evident in total real estate cost, access to highway and transportation, existing electrical power, likelihood for incentives, the design of the existing railroad access, future expandability, and a general layout that is conducive to the production process. The McKinney site, while slightly larger in size, is broken up into multiple buildings and does not have much re-usable infrastructure (such as electrical power, usable railroad access, storage silos) when compared with Gainesville. The location of the McKinney property is in a more congested area and does not offer the excellent highway access found in Gainesville.

An additional visit to the 2 sites was conducted that included the Director of Engineering and the Vice President of Real Estate. During this visit a consensus was reached that Gainesville was the selection and the McKinney site was eliminated. More information on the Gainesville site can be found in Appendix C of this report.

**C. Final site selection**

The decision still had to be made to choose between building a new plant in Gainesville and installing the second line in the existing Mount Vernon facility. The team decided to use a Kepner-Tregoe decision analysis method to reach this decision.

The Kepner-Tregoe Decision Analysis process is an analytical decision making model in which various attributes that can be applied to multiple options are ranked or weighted in some fashion, and then each decision alternative is given a score for each attribute, the weighting applied, and a score developed for each alternative. The alternative with the highest score is the recommended decision. The process is designed to take subjectivity out of the decision process, although different functional groups within the organization will tend to assign different weights to different attributes according to their individual priorities.

The first part of this analysis involved getting the project team together and listing the attributes that would be factored into the decision. The team then reviewed each attribute as to whether it was a "must" or a "want". Each "want" was then rated a 1, 2, or 3 (3 being highest priority). As mentioned above, getting a consensus on the rating for each "want" was a challenge, since there were a variety of priorities. After many hours of deliberations, the group developed the following attribute table:

**Table 1 – Attribute Rating Table**

| Musts | Wants – Level 3 | Wants – Level 2 | Wants – Level 1 |
|---|---|---|---|
| Min 100k SF space | Maximize profitability | Minimize upfront capital | Room for future processes |
| Meets equipment requirements | Proximity to SW market | Low risk start-up | Room for future expansion |
| Railroad access | Build ASAP | Ease of permitting | On-site warehousing |
| Meets Minimum IRR | Minimize operating costs | On site truck storage and staging | Likelihood of economic incentives |
| Storage for flammable products | Close to major trucking routes | Skilled workforce | Boxcar unloading capabilities |
| Good work force | | | |

Source: GAF Project Bright Team Decision Analysis

The team then verified that both options met the "musts" criteria. After confirming that both options were viable, assignments were made to the various functional groups to gather information to evaluate the "wants" for both options.

At the next team meeting, held in early February, 2006, the information gathered by the functional groups was organized in a table as shown on the following page.

**Table 2 – Location Performance Table**

| Wants | Mount Vernon | Gainesville |
|---|---|---|
| Maximize profitability | IRR = Best | IRR = Good |
| Proximity to SW market | Low | High |
| Build ASAP | 15 months | 17 months |
| Minimize operating costs | Lower overhead but higher storage and transportation | Higher overhead / lower storage and transportation. Net million savings* |
| Close to major trucking routes | Mediocre, not close to highway | Good, relatively close to highway and Dallas |
| Minimize upfront capital | Best | Good |
| Low risk start-up | Low risk | Moderate risk |
| Ease of permitting | Very Good | Good |
| On site truck storage and staging | Marginal | Good |
| Skilled workforce | Excellent | Good |
| Room for future processes | Good | Excellent |
| Room for future expansion | Good | Excellent |
| On-site warehousing | Marginal | Excellent |
| Likelihood of economic incentives | Poor | Excellent |
| Boxcar unloading capabilities | Poor | Poor |

*Note that a few of these numbers were updated since the initial decision analysis with more accurate numbers. This did not change the outcome as the adjustments were minor.

Source: GAF Project Bright Team Decision Analysis

Although most of this information is self-explanatory, the operating cost numbers require some additional explanation. One of the tasks completed by the project manager was to compare overhead operating costs for the two options. This was done based on the existing operating overhead for the Mount Vernon plant, and factoring in the output rating of the new production line. In general, Mount Vernon was estimated to have an annual operating overhead advantage based largely on not duplicating the salaries of plant management and support. This annual overhead

savings was offset by savings in Gainesville due to the larger size of the building eliminating the need for using offsite warehousing as is required in Mount Vernon. Gainesville also offered an annual freight advantage on product shipments to the south and west. The net of these items gives Gainesville an annual cost advantage.

Completing the decision analysis involves assigning a rating for each attribute to each alternative, and then applying weighting factors to compile a score. This information can be found in Appendix D of this report. The results indicate Gainesville to be the best option with a total score of 118 against Mount Vernon's score of 96. The team conferred with the results and the Gainesville option was selected.

The Gainesville site contains a 180,000 square foot building on a 25 acre site. The building was built in 1986 and expanded in 1989. The plant had previously been a plastic film extrusion operation and contained a very similar process to the GAF process. As such there is a fair amount of infrastructure existing on the site that can be re-used by GAF. This includes resin silos, cooling towers, electrical equipment and switch gear, etc. The building itself lends itself well to the GAF process and had sufficient clear height and elevated penthouse areas to house the TPO equipment without modification to the building roof. The building is overall in good condition but does require some reconditioning of offices and common areas. Overall the site exceeded expectation for finding an existing building to meet our needs and represented a good value for the project.

## III. Development of Cost Estimate and Timeline

### A. Selection of engineering company

During the time that the site selection activities were in progress, engineering companies were contacted by the project manager and requested to submit proposals for conducting the preliminary engineering for the selected site and to develop a +/- 10% cost estimate for completion of the project. The scope of this contract assumed a decision on the site selection and proceeding to do the engineering on only that site. Once the decision was made to proceed on the Gainesville site, the focus turned to estimating project cost and timing.

Lockwood Greene was selected as the engineering company. The decision was based on their competitive pricing to complete the project, their general knowledge in the plastic extrusion field, and their specific knowledge of the Mount Vernon production line. Lockwood Greene had preformed the process engineering in 1999 when the Mount Vernon plant was built. Two key members of the 1999 project team were still in place at Lockwood Greene which further supported their selection. Lockwood Greene submitted resumes for their proposed project team. Upon review and approval of the GAF project manager, the contract was awarded, and the kickoff meeting was held in early February, 2006.

### B. Timeline for completion and milestones

The original project timeline, which was driven by product demand and the desire to have the new plant operational in the third quarter of 2007, required the +/-10%

estimate to be complete by the end of March, 2006. This would allow the final submittal of the project for approval in mid-April, with a decision by senior GAF management at the end of April. This matched Lockwood Greene's timeline well as they estimated 8 weeks to complete the engineering on the Gainesville site.

The timeline was then pushed up due to the real estate situation on the Gainesville property. Competitive offers on the site required GAF to close the Gainesville acquisition quickly. Senior management and GAF ownership were not comfortable closing this deal without good project cost numbers on which to base the decision. The project team was instructed by senior management to provide cost numbers in the +/- 20% range by February 22nd, after only three weeks of engineering. The engineering team met to re-prioritize activities in order to be able to meet this deadline.

By re-prioritizing efforts and working closely with equipment suppliers, the team developed a cost estimate with a +/- 20% accuracy level. The project manager presented these numbers to senior GAF management, and the decision was made to proceed on the Gainesville site and move the project forward.

The real estate agreement on the Gainesville site gave GAF 45 days to back out of the contract without penalty. Counting from the middle of February, this made the final decision date in very early April. Accordingly GAF senior management advised the project team that they must have the final project submittal at a +/-10% accuracy level on March 22nd, about 2 weeks ahead of the original schedule. As engineering entered the final push, the team was not sure that there would be sufficient time to develop the 10% accuracy level.

## C. Engineering issues and process

The process of designing a job of this magnitude is very structured, and there are many steps that need to be performed sequentially. In general, the process begins with the generation of piping and instrumentation diagrams, process flow diagrams, and general layouts. From these documents an equipment list is generated, and all utility, flow, and electrical take-offs are listed. Specifications have to be developed for all pieces of equipment and budgetary pricing sourced for each. There are also specifications developed for all plant piping, electrical feeds, control architecture, data wiring, utility feeds, etc.

Engineering on the Gainesville site also proved to be a challenge. The age of the building combined with the large amount of process piping, tanks, electrical conduit, and structural members left behind by the previous owner had to be considered. These items all needed to be removed before new construction could begin, and there is very little documentation available. There are also challenges on bringing the building up to current codes. The Americans with Disabilities Act of 1990 is one good example that will require significant changes in the building in order to comply with the codes. Other codes worthy of mention are the fire protection code and international building code – both of these codes had significant cost effects on this project.

## D. Project timeline

One of the key tasks conducted during preliminary engineering was the development of a detailed project timeline. The project tasks and durations were loaded into Microsoft Project 2003, and relationships designed between the tasks were defined to determine the final project schedule. This schedule can be found in Appendix E of this report. In general, the timeline shows a project completion date of August 31, 2007. The completion date was defined as the date that the manufacturing equipment is turned over to the production department.

The critical path for the project (shown in red on the timeline) can be looked at in two phases, tasks completed prior to final project approval, and tasks completed post project approval. Critical tasks that were completed prior to project approval come from two different timeline paths which converge to meet the required project approval date of March 28, 2006. These two paths consist of the GAF project team timeline and the preliminary engineering timeline.

The project team timeline (see Appendix H) focused on the activities and inputs that were required from GAF project team members. Major activities included the formation of the project team, generating potential locations for the new capacity based on sales forecasts, making the final decision on location, and securing funding to conduct necessary preliminary engineering and generate a project cost and timeline. The end goal of this timeline was to present the project to senior management and gain approval to move forward on the project by March 28$^{th}$.

The critical path for this phase of the project, shown in red on the timeline, was to develop potential plant locations based on sales forecasts, analyze the various options, and make the final decision on site selection. Once this is complete it is critical to

conduct the necessary engineering to have the final cost and timing estimates by March 16th. This allowed the official project request for funding to be presented to the executive committee for approval on March 22nd.

It was the responsibility of the Project Manager to make sure that these critical dates were met. Weekly project update meetings were held with the team, and this portion of the project was completed on schedule.

The timeline found in Appendix E of this report also has critical path items from the engineering side of the project that were required in the pre-approval phase. These items included generation of process flow (PFDs) and piping and instrumentation drawings (P&IDs), utility takeoff and tabulations, instrument and equipment lists, and obtaining budgetary pricing for equipment. These items culminated in the generation of a capital cost estimate for renovation and construction of the Gainesville manufacturing facility. As with the GAF team tasks, it was the responsibility of the Project Manager to keep these tasks on schedule. This was accomplished by weekly scheduled engineering team meetings to review progress, daily conversations with the engineering project manager for Lockwood Greene, and the Project Manager allocating approximately 30% of his time during this period to be on site at Lockwood Greene offices or the Gainesville site.

The two timelines converge at the approval point for the project. The end date for this phase of the project was dictated by the GAF executive committee. March 22nd was specified as the date to present the project to the executive committee, and the timelines were designed around this date. Both of the timeline paths successfully converged as planned, and the project was presented for approval on schedule.

In the post approval phase of the project, the critical path is the purchase and delivery of the main process equipment from Berstorff (same major extrusion supplier as used in Mount Vernon). Due to the roughly a one year lead time from order placement through all equipment arriving on site for this equipment, it creates slack in all other project activities during the delivery timeframe. Once the Berstorff equipment is on site, the remaining critical path items become the installation of the Berstorff equipment, final piping and electrical hook-up of the equipment, and completion of the fire protection system in the production area.

Once the equipment installation is mechanically complete, scheduled for June 15, 2007, the checkout and start-up phase begins. All tasks during this phase are focused on the end goal of producing a saleable product and transferring the equipment to the production team by September 1, 2007. All tasks during this phase of the project are critical.

It is expected that the project timeline will be continuously updated and efforts made to level resources, especially in the areas of the timeline that have slack in their completion dates and will not impact the overall project schedule. Regular checks of both critical and non-critical activities will be conducted by the project engineering team to ensure that tasks are being completed on schedule, and that any variances to the schedule due to resource leveling needs are documented and communicated to all team members.

### E. Hiring and training timeline

To match up with the project timeline, the project manager generated a hiring and training schedule with the goal of having the necessary salaried and hourly personnel in place to meet the needs of the project and start-up. This timeline can be found in Appendix F of this report. In general, the goal is to have all production related personnel hired and trained by the end of May, 2007, and have all shipping and receiving personnel hired and trained by the end of July, 2007. Key salaried staff members are hired at various points along the project timeline with the expectation that many of the plant operating systems and procedures can be developed in advance of the actual start-up based on the Mount Vernon operation.

## IV. Putting it All Together

### A. Capital process at GAF

The capital process at GAF is based on a form known as an AFE (Authority for Expenditure). This is a paper document that is circulated for approval as required by the total cost and type of the project. This document contains project cost and payback information, background information, an engineering safety worksheet, business objectives, list of deliverables, a summary of alternatives considered, a summary of potential risks to the project, a spending forecast for the project, and a rolled up estimate of project costs. For larger projects such as this, other supporting information is attached, which can include detailed economic analysis, project timelines, rate ramps, and a project initiation statement (see next section). A project of this size must be approved by senior level management from all functional groups

within the company, senior officers of the company, and the company shareholder (owner).

GAF normally uses a minimum acceptable internal rate of return for a project to be accepted, using a discount rate and a tax rate as specified by corporate finance. However, in doing a large strategic project such as a new manufacturing plant, the minimum rate of return for the project drops to around 20%.

**B. Developing the project initiation sheet**

On large projects like a new plant, there are obviously many different functional areas that must be involved in the decision of what the project scope covers. Doing this in advance of the final project submittal allows surprises from being discovered in the middle of the project and reduces any misunderstandings between the functional group.

The process that was followed by GAF on this project allowed any differences to be worked out in advance of project approval. Basically a third party is brought in under the direction of the project manager. In this case the third party was a team from Kepner-Tregoe, a well known process and management systems consultant. This team takes about a week to sit down with each individual that has a stake in the project, and covers all functional areas. They follow an in depth procedure to record the wants and concerns of each person and functional group. They then sit down with the project manager for a day to review these wants and questions and understand where any gaps or misunderstandings are. Working with the project manager, a draft

of a project initiation statement that is as specific as possible in defining the project scope is generated, along with a list of questions for discussion.

The final piece of completing the project initiation sheet is to gather all of the stakeholders together in one location to review the draft document and the questions. As the team works through the list, any questions or items that require discussion are recorded on flip charts. Once the team has worked all the way through the project statement, the team then focuses on the flip chart lists. Each item is examined briefly and given a priority. Low priority items are sidelined for future discussion. Medium priority items are discussed and action items generated as necessary. All high priority items are discussed in detail and assigned to the appropriate functional participants as appropriate.

For this project, after working through the draft documents, the list of items on flip charts was 65 items long. By working through this list together, many items were answered along the way, duplicates eliminated, low priority items sidelined, and assignment made. Through this process, the list was reduced to 12 follow up items and appropriate assignments made. These items were then processed by the project team through resolution.

The outcome of this exercise was complete buy in from the team. Many items were addressed upfront or clarified that could have potentially created friction later in the project. It was interesting to see the kinds of concerns that each functional group had on items that were not obvious to others, and watch the process move along as people compromised and worked out their differences. The final project initiation sheet is included in Appendix G of this report.

### C. Preparing official funding requests

Now that the site selection had been made, the engineering estimate completed, timelines developed, and the team reviewed the project in detail through the generation of the project initiation sheet, the next step was to put together the information to present to the executive committee to request project funding. This task falls upon the project manager to complete. All of the documents as described in the "GAF capital process" section above must be generated or collected, and then checked for consistency. After making any adjustments to the package, the next step is to review with the director of engineering. After his review and some more minor modifications, a review meeting is held with the business manager, and then the package is distributed to the project team. After everyone has reviewed the documents, signatures are obtained by team members as required by the capital expenditure process. At this point, the project is considered ready for presentation to the executive committee to request project approval.

### D. Presenting to executive committee

The GAF executive committee is made up of senior officers of the company, including the Chief Operating Officer, Chief Financial Officer, Executive Vice-Presidents of Purchasing, Marketing, Manufacturing, and Sales, and is backed up by the Corporate Controller and Vice President of Human Resources. This project was presented to this group by the project manager, who had the director of engineering and the business director as back up.

The documents go to the executive committee in advance of the presentation so that questions can be prepared and they can discuss the project amongst themselves ahead of the presentation. Obviously this places increasing demands on the quality of the project request documents as it can make the presentation go much more smoothly.

The presentation occurred on March 22nd, and lasted just over an hour. In general the executive committee was pleased with the documentation and information provided, and most importantly the projected payback and project financials. Discussions centered around the risks and sensitivities of the project, countermeasures to ensure that critical path items stayed on track, and how the project would be organized and executed. In general the presentation went much more smoothly than anticipated, and a positive outcome was considered highly probable.

The last step in project approval is for the executive committee to present the project to the owner of the company. The owner, although not involved in day to day operations of the company, maintains a close interest in company financials, large capital projects, and the general direction of the company. He supports projects that have a favorable payback and are strategically key to the growth of the business. After reviewing this project in great detail, he gave his approval to proceed on the project on March 31, 2006. The timeline for reaching this approval can be found in Appendix H, and a cost estimate breakout is included in Appendix I of this report. The project return is based on revenue from incremental sales as a result of the new capacity, including sales of roofing system accessories and insulation. A sensitivity

analysis was completed to verify that a 10% increase in capital or a 5% decrease in sales pricing would not drop the project below the minimum acceptable rate of return.

## V. Conclusion

The decision to move ahead on this project is a good indication of GAF's commitment to be an industry leader in roofing technologies. The choice to add capacity for single-ply TPO roofing membrane reflects GAF's focus on offering technologically advanced and environmentally friendly roofing systems that represent the best value for contractors and property owners.

This approval of this project was accomplished on schedule through the efforts of a dedicated project team and a structured project organization. Tracking of the timeline using Microsoft Project software was a tremendous tool to ensure that the project was proceeding according to plan, and a good tool to understand the critical activities that needed to be performed to meet the required date for submittal to senior management. Kepner Tregoe decision management tools proved to be a valuable resource for making fact based decisions and limiting the effect of personal agendas in a group decision environment.

The generation and review of the Project Initiation Sheet (see Appendix G) was a valuable tool in gaining consensus from the GAF organization. Through this process, concerns and questions from all functional corporate groups were addressed in one document. Assembling all of the functional groups in one place to review the initiation sheets generated many more issues and much discussion, as well as solution to many issues. The end result of this exercise is acceptance and ownership of the

project by the various functional groups within GAF, as well as an expected reduction in misunderstandings later in the project implementation. This process is recommended for any future large scale projects at GAF, and should be considered part of the key project deliverables.

Weekly team meetings throughout the approval stage of the project were well received by the team and proved effective in keeping the team focused. Ultimately the regular communication and progress tracking resulted in the project approval documents being delivered on time for presentation to senior management. The involvement of multiple functional groups on the project team resulted in a project proposal that reflected priorities and addressed potential opportunities from all aspects of the GAF business community. This allowed senior GAF management to make a quick decision on approving the project. The feedback from the senior management team on the project presentation and submittal was very positive.

Going forward, a project engineering and construction team working under the project manager will take responsibility for meeting the timing and cost objective of the project. This team will be comprised of the Project Manager, a Construction Manager, two Project Engineers, and an Integration Engineer who will become the future Plant Engineer. As plant personnel are hired according to the hiring and training timeline, they will assume project responsibilities as well.

Progress will continue to be tracked using Microsoft Project software and the critical path method. The critical path for the post approval portion of the project is dictated by the lead time of the main process equipment, so it is important that the order for this equipment is placed per the project timeline. A fabrication and delivery

timeline will be obtained from the vendor shortly after order placement. Progress against this timeline will be monitored by implementing a periodic reporting structure and performing progress inspections, and plans will be generated to correct any deviations from the timeline.

The GAF project engineering and construction team will issue weekly status reports to the corporate team highlighting progress against plan and any issues or deviations that arise during the course of the project. Criteria will be developed for the level of deviation that requires an action plan to be developed; this could be any deviation that affects the project timeline outside of allowable slack for a given task, or could be any deviation that has a cost effect on the project beyond a given threshold. The Project Manager will conduct a monthly review for senior management that includes the corporate team, to report progress against the construction and start-up plan. A review system for any required change orders will be developed to ensure that proper approvals are gained before proceeding.

A much more detailed commissioning and start-up schedule will be developed closer to the mechanical completion date. This schedule will include resource allocations to ensure that resource loading is balanced and that the schedule is achievable. Additional resources from corporate engineering and other functional groups will be assisting during this phase. Reporting functions during this phase will be increased to keep all team members as well as senior management up to date. The importance of working together as a team will be continually emphasized, and a means of resolving conflicts developed to minimize friction between team members.

Successful implementation of this project will require careful coordination of GAF personnel and functional groups, many external vendors and contractors, local officials, and newly hired personnel. Communication and teamwork are vital to the success of the project and every effort will be made to include and empower the project resources in their efforts to meet the project objectives. Feedback will be considered along the way to improve the effectiveness of the project team. Upon successful completion of the project, the official closeout of the project will include a review of what processes and tools were key in reaching the goals (and conversely what didn't work so well). These findings will be collected by the Project Manager and distributed within the GAF organization to provide a guide for use in future large capital projects.

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# VII. Appendix

## Appendix A

## Project Member List

# GAF Materials "Project Bright" Team
## Project Manager: D. Pohli

**GAF Team Members**

| Department | Name | Project Responsibilities |
|---|---|---|
| Manufacturing | D. Pohli<br>H. Batters | Project Manager<br>Manufacturing operations |
| Quality | G. Gimson<br>J. Gregory | Product specifications and quality systems<br>Quality and manufacturing systems |
| Marketing | T. Ruffine<br>C. Reinartz | Marketing data<br>Financial analysis |
| Finance | J. Bishop | Financial data / advisor |
| Human Resources | E. Konrady<br>P. Meluso | Analysis for Hiring and Training<br>Executive Representative and Location Assessment |
| Sales | J. Calhoon<br>R. Head<br>M. Johannes<br>V. Anthony | Sales forecasting<br>Business director<br>Identify potential markets for new products<br>Executive representative |
| Purchasing | M. Naipawer<br>P. Grandinetti<br>C. Gruber | Raw Materials sourcing<br>Capital equipment purchasing<br>Executive representative |
| Engineering | B. Fagnant<br>K. Oetjen<br>R. Cook<br>D. Daniel<br>J. John | Director of engineering<br>Engineering support, equipment<br>Engineering support, site selection<br>Detail engineering support<br>Capital equipment financials |
| Research | E. Nebesnak<br>M. Sestrick | Product design / formulations<br>Executive representative |
| Real Estate | J. O'Keefe | Site identification |
| Transportation | J. Scarfi | Freight cost analysis |
| Logistics | R. Wilkey<br>P. Vollmar | Warehousing and inventory<br>Stocking and sourcing, space planning |

**Lockwood Greene Engineering Team Members**

| | Name | Project Responsibilities |
|---|---|---|
| Project Support | M. Thomas<br>R. Romantine<br>S. Achkar | Engineering Project Manager<br>Account manage<br>Executive representative |
| Process Design | D. Nickerson | Lead Process Engineer |
| Project Coordination | C. Bouchard | General Coordination, Cost Estimating and Timelines |
| Layout and Piping | D. Richardson<br>R. Marples<br>D. LaGamba | Layouts and Piping Design<br>Piping layout and design<br>Mechanical Design |
| Mechanical systems | M. Hirth<br>R. Boyd | HVAC and Building systems, fire protection |
| Structural | F. Sunday, P.E.<br>B. Courtney, P.E. | Structural analysis and engineering design |
| Electrical | B. Proski<br>Q. Carnevale | Electrical design and engineering |

There are many other individuals that provided administrative support throughout this project, and although too numerous to list they should be recognized for their diligent assistance in making this project a success.

Appendix B

Dallas Site Comparison

| BRIGHT - TPO/PVC | | | | |
|---|---|---|---|---|
| **DALLAS SITE COMPARISON** | | | | |
| 12/08/05 | | | | |
| | **1301 Loadmaster Circle Gainesville, TX** | **1710/1720 Couch Dr. McKinney, TX** | **2051 McKenzie Carrollton, TX** | **4301 Empire Road Fort Worth, TX** |
| **Lee & Associates Tab #** | 1 | 2 | 5 | 7 |
| **PRICE** ($ MM) | **4.5** | **5.3** | **7.97** | **7.01** |
| **COST PER SQ FT** ($) | 25 | 25 | 29 | 41 |
| **BUILDING SIZE** (Sq Ft) | 179,762 | 204,240 | **274,898** | 171,065 |
| **LOCATION** (Miles fr/ downtown) | 70 NNW, 2 hrs-Okla City | 35 NNE | 14 NNW | **11 WNW** |
| **NUMBER OF BUILDINGS** | 1 | **2 (400-500 ft apart)** | 1 | 1 |
| **BLDG MATERIALS** | Steel col & truss | **Wood Col / Beams & some steel truss** | Steel col & truss | Steel col & truss |
| **WORK REQUIRED?** | | | | |
| **Structural** | Raise roof at extruders | Raise roof at extruders | OK as is | Raise roof at extruders |
| **Crane** | Required over extruders, some existing may be usable | Required over extruders. 1 existing may be usable. | Required over extruders | Required over extruders |
| **Tracks** | **OK as is** | Some renovation | New switch, rail repair | New switch, new spur |
| **Ground Level Truck Doors** | Pave road to doors and/or add ramp & widen door at side | Add ramp and add or widen door at each building | Add ramp and add or widen door, drainage and slope issues | Add ramp and add or widen door |
| **Raw material unload at rail** | add or renovate existing | add | add | add |
| **Silos** | **OK as is? 4 silos** | add all new | add all new | add all new |
| **Demolition Required** | Minor | No | No | No |
| **Add Electrical power** | **OK as is** | Yes - Existing inadequate | Yes - Existing inadequate | Yes - Existing inadequate |
| **PERMIT REQ'D FOR SILOS?** | Unlikely | Potential | Potential | **Likely** |
| **INCENTIVES** | **Highly Likely** | Likely | Unlikely | Very Unlikely |
| **COLUMN SPACING** | 39X40 (ok as is) | 35X41 & 44X48 (ok as is) | 43X50 (ok as is) | 43X50 (ok as is) |
| **PROXIMITY to GAF** | Not Likely a concern | Not Likely a concern | Possibly a concern | **Likely a concern** |
| **TRAFFIC CONGESTION** | **None** | Some | Yes | Yes |
| **MAINT & LAB AREAS** | Existing | Maint yes , Lab No | No | No |
| **WAREHOUSE CAPACITY** | Adequate although column spacing makes racking difficult | Adequate | **Could bring other warehousing in-house** | Adequate |
| **OFFICE SPACE** | 7,200 sq ft - adequate | 11,240 sq ft - large | **33,751 sq ft - excessive** | 15,000 sq ft - very large |
| **BUILDING HEIGHT** (ft) | 24' with higher areas | 27' bldg 1, 33' bldg 2 | 31-35' | 30' |
| **EXPANDABILITY** | Yes | Minimal | No - but not necessary | **None** |
| **OTHER FACTORS/COMMENTS** | First class candidate if location is "correct" | Material movement - bldg to bldg - a problem? Use for competition with #1? | Seems too large unless bring warehousing in-house, also too expensive | Is bldg appearance too classy this close to GAF plant? also too expensive + high taxes likely |
| **COMMENTS** | Best candidate | Strong candidate | Eliminate - too large and too expensive | Eliminate - too expensive |

# Appendix C

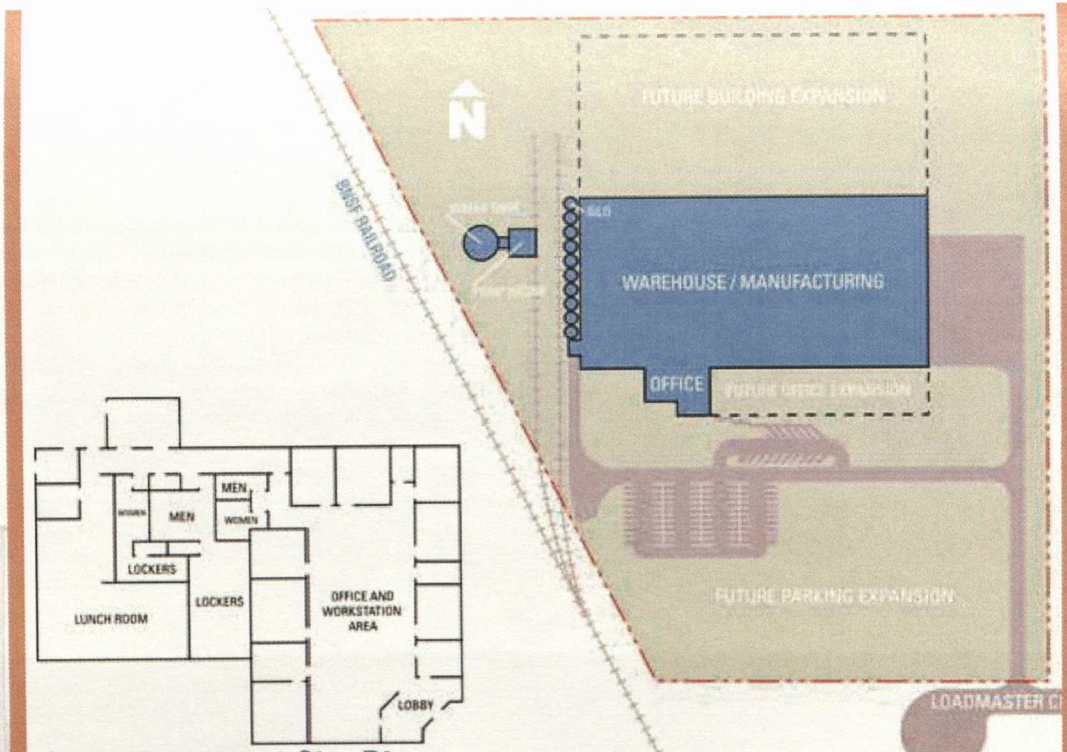
## Gainesville Sales Information

# 1301 Loadmaster Circle, Gainesville, Texas

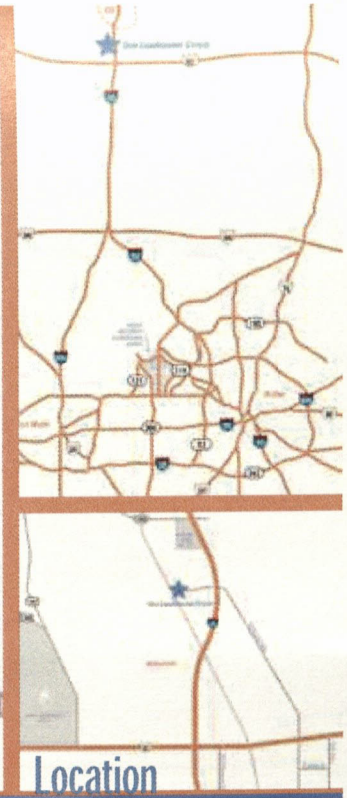
CUSHMAN & WAKEFIELD®
Global Real Estate Solutions℠

- 179,762 SF manufacturing / distribution facility on 25 acres of land
- 24' concrete tilt-wall construction
- 66,240 SF of elevated ceiling height of approximately 50'
- 7,200 SF of office space
- 150' truck court
- Seven (7) dock high loading doors with levelers and the ability to add more doors
- One (1) oversized drive in ramp
- Two (2) 14' x 14' grade level doors
- Additional land for building expansion to approximately 350,000 SF, additional trailer storage and additional personnel parking
- Five (5) 2500 KVA transformers
- Fully sprinklered
- Rail served by BNSF
- Conveniently located off of Interstate 35 (NAFTA Highway), one mile north of State Highway 82, 70 miles north of the DFW Metroplex and 10 miles south of the Texas / Oklahoma border in Gainesville, Texas (Cooke County)
- Built in 1986, expanded in 1989
- 300,000-gallon water tank for sprinkler system with 2,000 GPM at 125 PSI Patterson Pump
- Ten (10) resin silos
- Two (2) cooling towers
- Rail car pump

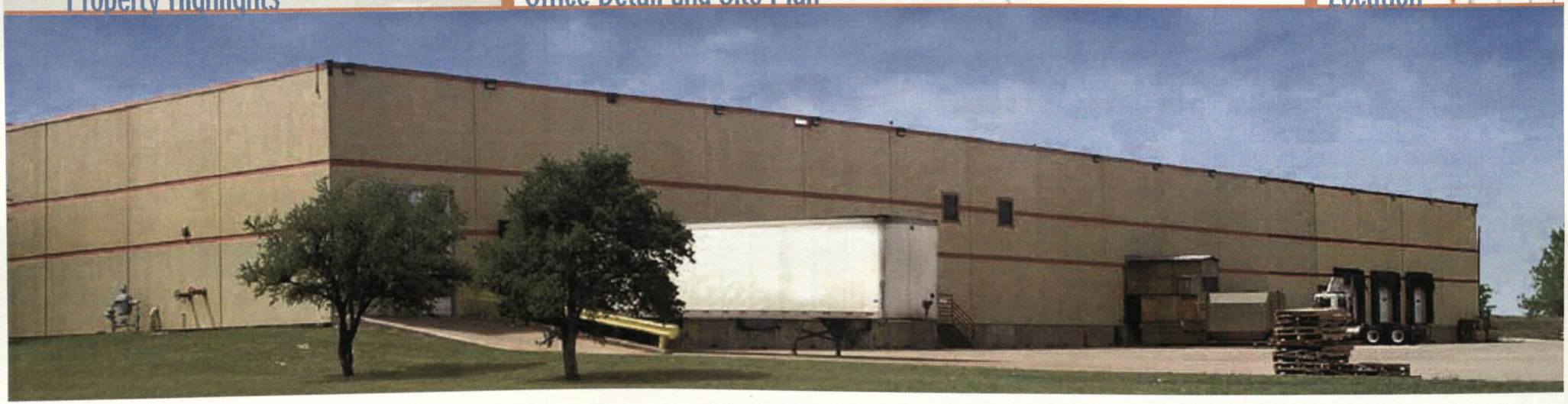
## Property Highlights

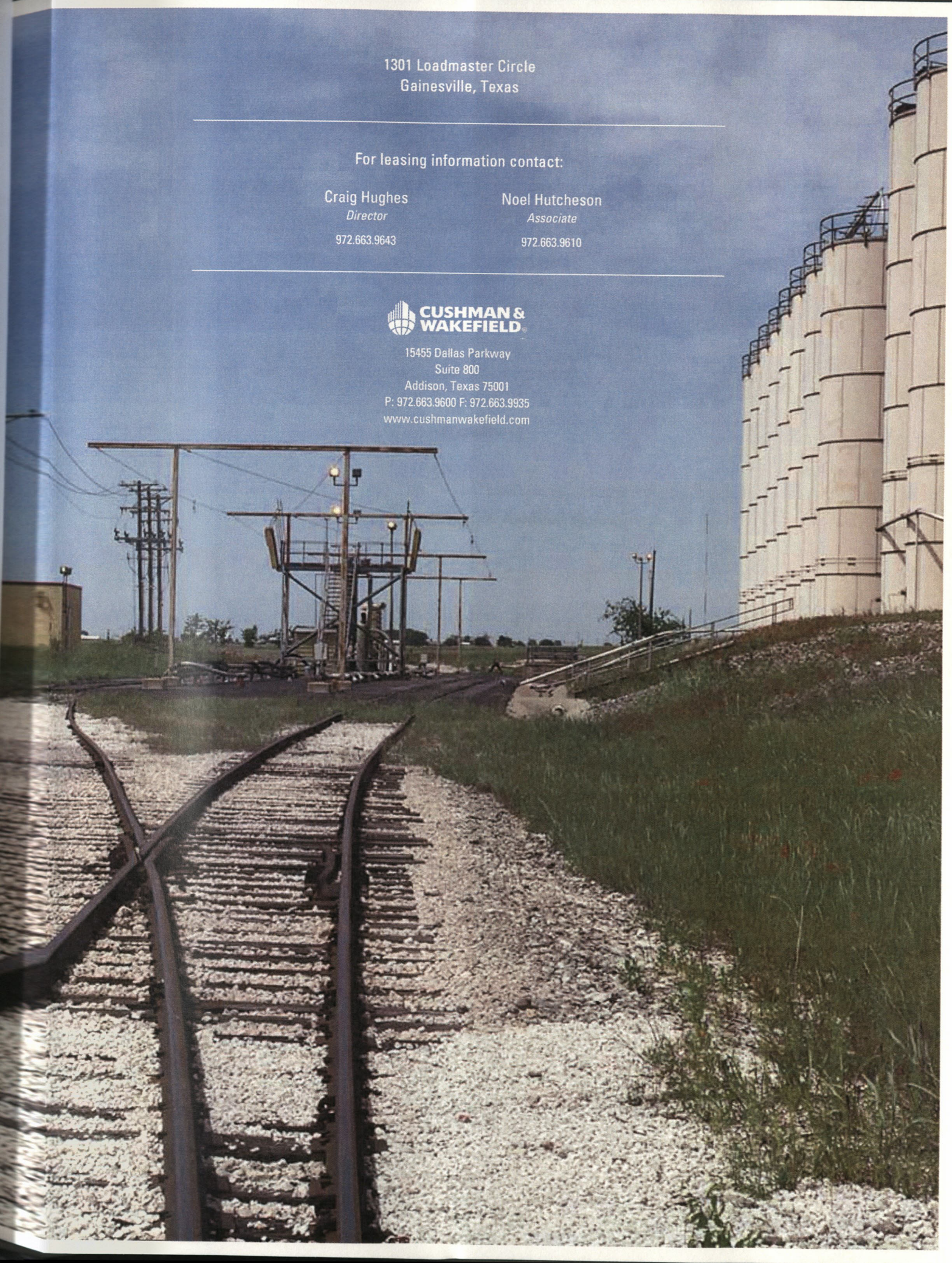



## Office Detail and Site Plan



## Location





1301 Loadmaster Circle
Gainesville, Texas

For leasing information contact:


Craig Hughes
*Director*
972.663.9643

Noel Hutcheson
*Associate*
972.663.9610

CUSHMAN & WAKEFIELD

15455 Dallas Parkway
Suite 800
Addison, Texas 75001
P: 972.663.9600 F: 972.663.9935
www.cushmanwakefield.com

Appendix D

Site Selection Decision Analysis Scoring

## Project Bright KT – Key Criteria for Site Selection

| Musts | Wants - 3 |
|---|---|
| • Must Add TPO/PVC Capacity<br>• Must Meet 100K Sq.Ft. Capability<br>• Must Meet Plant Building Requirements<br>• Must Have Access To Rail Transportation<br>• Minimum 20% IRR<br>• Must Have Hazmat Storage Capability<br>• Must Have a Good Workforce | • Maximize Profitability<br>• Strategic Platform for Single-Ply Leadership in Southwest Market<br>• Build as Rapidly as Possible<br>• Minimize Operating Costs<br>• Close Proximity to Major Truck Routes<br>**Wants - 2**<br>• Minimize Upfront Capital<br>• Low Risk Start-up<br>• Ease of Obtaining Permits<br>• On-Site Truck Storage/Staging Area<br>• Potential Skilled Workforce<br>**Wants - 1**<br>• Freedom PVC Capabilities<br>• Ability to Expand<br>• On-Site Warehousing of Additional Products<br>• Likelihood of Incentives<br>• Boxcar Unloading Capabilities |

**Musts Site Selection**

| Musts/Sites | Gainesville, TX | Mount Vernon, IN | Port Arthur, TX |
|---|---|---|---|
| Space Capability | Yes | Yes | Needs |
| Building Requirements | Yes | Yes | Needs |
| Access to Rail Trans. | Yes | Yes | No |
| Minimum 20% IRR | Yes | Yes | x |
| Hazmat Storage | Yes | Yes | x |
| Non-Union Workforce | Yes | Yes | x |
| Add Capacity | Yes | Yes | x |

**Wants – 3**

| Wants/Site | Gainesville, TX | Mount Vernon, IN |
|---|---|---|
| Maximize Profitability | 5 | 4 |
| Strategic Platform/Southwest | 5 | 1 |
| Build as Rapidly as Possible | 3 | 5 |
| Minimum Cost | 5 | 1 |
| Close to Major Trucking Routes | 4 | 3 |
| **Point Total** | **22** | **14** |
| **Weighed Point Total** | **66** | **42** |

**Wants – 2**

| Wants/Site | Gainesville, TX | Mount Vernon, IN |
|---|---|---|
| Ease of Obtaining Permits | 4 | 5 |
| Low-Risk Start-Up | 3 | 5 |
| Potential Skilled Workforce | 4 | 5 |
| On-Site Truck Staging/Storage | 3 | 2 |
| Minimize Upfront Capital | 3 | 4 |
| **Point Total** | **17** | **21** |
| **Weighed Point Total** | **34** | **42** |

**Wants – 1**

| Wants/Site | Gainesville, TX | Mount Vernon, IN |
|---|---|---|
| Freedom PVC Capabilities | 2 | 4 |
| Ability to Expand | 5 | 4 |
| On-Site Warehousing of Add'l Products | 5 | 2 |
| Likelihood of Incentives | 5 | 1 |
| Boxcar Unloading Capabilities | 0 | 0 |
| **Point Total** | **18** | **12** |

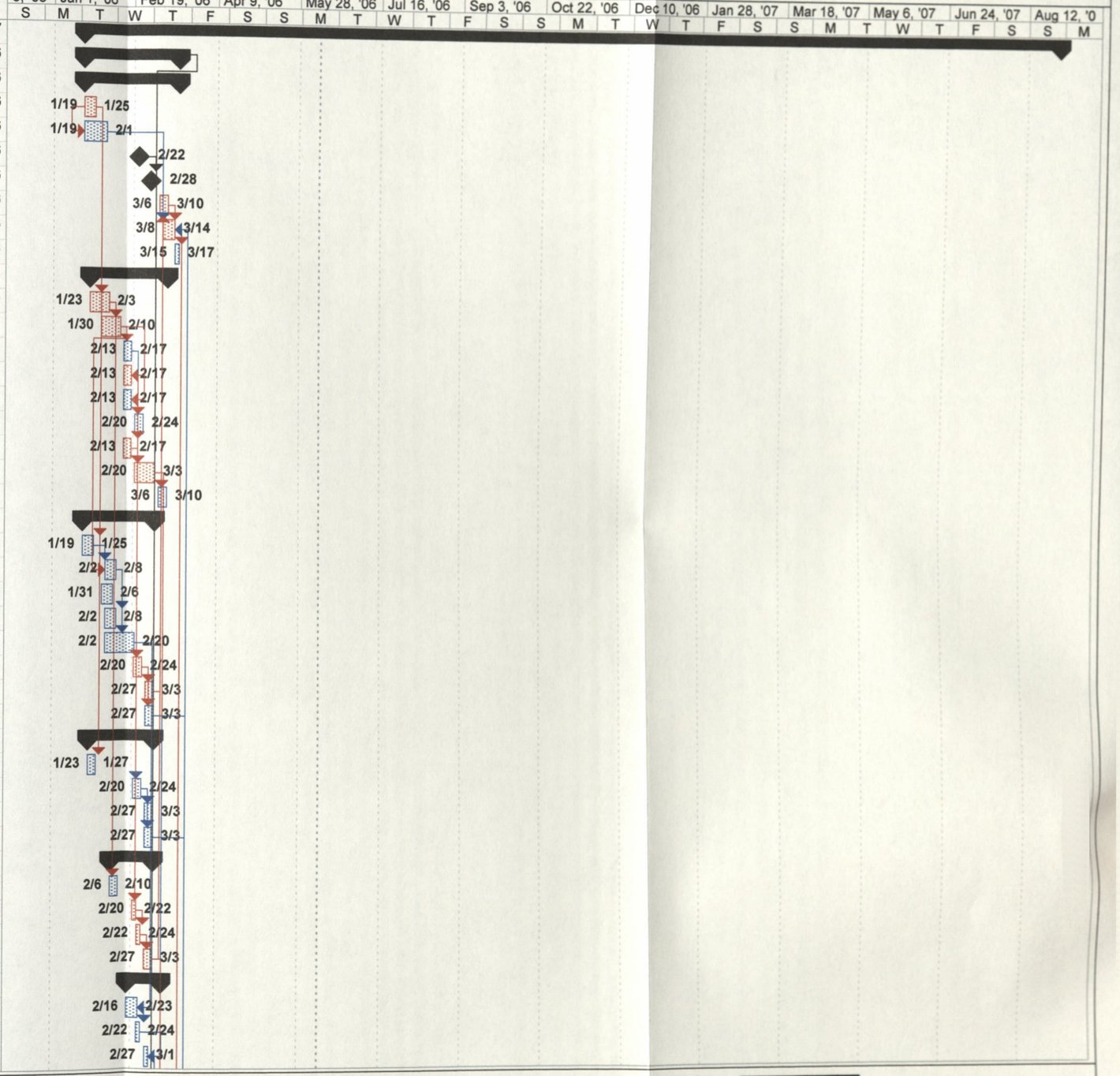
| Weighted Wants/Site | Gainesville, TX | Mount Vernon, IN |
|---|---|---|
| **Weighted Point Totals** | **66+34+18=118** | **42+42+12=96** |

# Appendix E

## Project Engineering and Construction Timeline

# Appendix E - Engineering and Construction Timeline, Pg 1

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 1 | **Project Bright** | **84.3 wks** | **Thu 1/19/06** | **Fri 8/31/07** | **Fri 8/31/07** |
| 2 | **Preliminary Engineering** | **8.3 wks** | **Thu 1/19/06** | **Fri 3/17/06** | **Wed 5/24/06** |
| 3 | **Project Admin. Activities** | **8.3 wks** | **Thu 1/19/06** | **Fri 3/17/06** | **Wed 5/24/06** |
| 4 | Kick-off - Confirm Project Objectives / | 1 wk | Thu 1/19/06 | Wed 1/25/06 | Wed 1/25/06 |
| 5 | Project Schedule | 2 wks | Thu 1/19/06 | Wed 2/1/06 | Wed 5/31/06 |
| 6 | OOM Site Comp. Estimate | 0 wks | Wed 2/22/06 | Wed 2/22/06 | Mon 6/5/06 |
| 7 | GAF Site Selection | 0 wks | Tue 2/28/06 | Tue 2/28/06 | Mon 6/12/06 |
| 8 | Input to Capital Estimate | 1 wk | Mon 3/6/06 | Fri 3/10/06 | Fri 3/10/06 |
| 9 | Final Report | 1 wk | Wed 3/8/06 | Tue 3/14/06 | Tue 3/14/06 |
| 10 | Incorporate Review Comments | 0.5 wks | Wed 3/15/06 | Fri 3/17/06 | Fri 6/9/06 |
| 11 | **Process Activities** | **7 wks** | **Mon 1/23/06** | **Fri 3/10/06** | **Tue 5/23/06** |
| 12 | PFD's | 2 wks | Mon 1/23/06 | Fri 2/3/06 | Fri 2/3/06 |
| 13 | Prelim. Equiment Info. | 2 wks | Mon 1/30/06 | Fri 2/10/06 | Fri 2/10/06 |
| 14 | Equipment List | 1 wk | Mon 2/13/06 | Fri 2/17/06 | Wed 5/24/06 |
| 15 | P&IDs | 1 wk | Mon 2/13/06 | Fri 2/17/06 | Fri 2/17/06 |
| 16 | Utility Requirements Tabulation | 1 wk | Mon 2/13/06 | Fri 2/17/06 | Fri 6/9/06 |
| 17 | Process Description | 1 wk | Mon 2/20/06 | Fri 2/24/06 | Fri 6/9/06 |
| 18 | Long Lead Equipment Specs | 1 wk | Mon 2/13/06 | Fri 2/17/06 | Fri 2/17/06 |
| 19 | Equipment Budgetary Pricing | 2 wks | Mon 2/20/06 | Fri 3/3/06 | Fri 3/3/06 |
| 20 | Estimate input | 1 wk | Mon 3/6/06 | Fri 3/10/06 | Fri 6/9/06 |
| 21 | **Layout and Piping Activities** | **6.4 wks** | **Thu 1/19/06** | **Fri 3/3/06** | **Tue 5/23/06** |
| 22 | Site Investiagtion | 1 wk | Thu 1/19/06 | Wed 1/25/06 | Wed 5/3/06 |
| 23 | Prelim. Layout Studies | 1 wk | Thu 2/2/06 | Wed 2/8/06 | Wed 5/10/06 |
| 24 | Berstorff Layouts Avaialble | 1 wk | Tue 1/31/06 | Mon 2/6/06 | Fri 6/9/06 |
| 25 | Pipe Specs | 1 wk | Thu 2/2/06 | Wed 2/8/06 | Fri 6/9/06 |
| 26 | Layout | 2.5 wks | Thu 2/2/06 | Mon 2/20/06 | Fri 5/19/06 |
| 27 | Duct, Chute & Major Piping Routing | 1 wk | Mon 2/20/06 | Fri 2/24/06 | Fri 2/24/06 |
| 28 | Take offs | 1 wk | Mon 2/27/06 | Fri 3/3/06 | Fri 3/3/06 |
| 29 | Design Basis | 1 wk | Mon 2/27/06 | Fri 3/3/06 | Wed 6/7/06 |
| 30 | **Electrical Power Activities** | **6 wks** | **Mon 1/23/06** | **Fri 3/3/06** | **Tue 5/23/06** |
| 31 | Site Investiagtion | 1 wk | Mon 1/23/06 | Fri 1/27/06 | Fri 6/9/06 |
| 32 | Load Calc and Feeder Design | 1 wk | Mon 2/20/06 | Fri 2/24/06 | Wed 5/31/06 |
| 33 | Sigle Line Diagrams | 1 wk | Mon 2/27/06 | Fri 3/3/06 | Fri 6/9/06 |
| 34 | Design Basis | 1 wk | Mon 2/27/06 | Fri 3/3/06 | Wed 6/7/06 |
| 35 | **Instrumentation & Controls Activities** | **4 wks** | **Mon 2/6/06** | **Fri 3/3/06** | **Tue 5/23/06** |
| 36 | Controls Architecture Drawing | 1 wk | Mon 2/6/06 | Fri 2/10/06 | Tue 5/23/06 |
| 37 | Instrument List | 0.5 wks | Mon 2/20/06 | Wed 2/22/06 | Wed 2/22/06 |
| 38 | Instrument Data Sheets | 0.5 wks | Wed 2/22/06 | Fri 2/24/06 | Fri 2/24/06 |
| 39 | Instrument Pricing | 1 wk | Mon 2/27/06 | Fri 3/3/06 | Fri 3/3/06 |
| 40 | **Civil/Stuctural/Architectural Activities** | **2.9 wks** | **Thu 2/16/06** | **Wed 3/8/06** | **Tue 3/14/06** |
| 41 | Building Layout | 1 wk | Thu 2/16/06 | Thu 2/23/06 | Wed 5/24/06 |
| 42 | Platform Definition | 0.5 wks | Wed 2/22/06 | Fri 2/24/06 | Fri 5/26/06 |
| 43 | Steel Defintion | 0.5 wks | Mon 2/27/06 | Wed 3/1/06 | Wed 5/31/06 |

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Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
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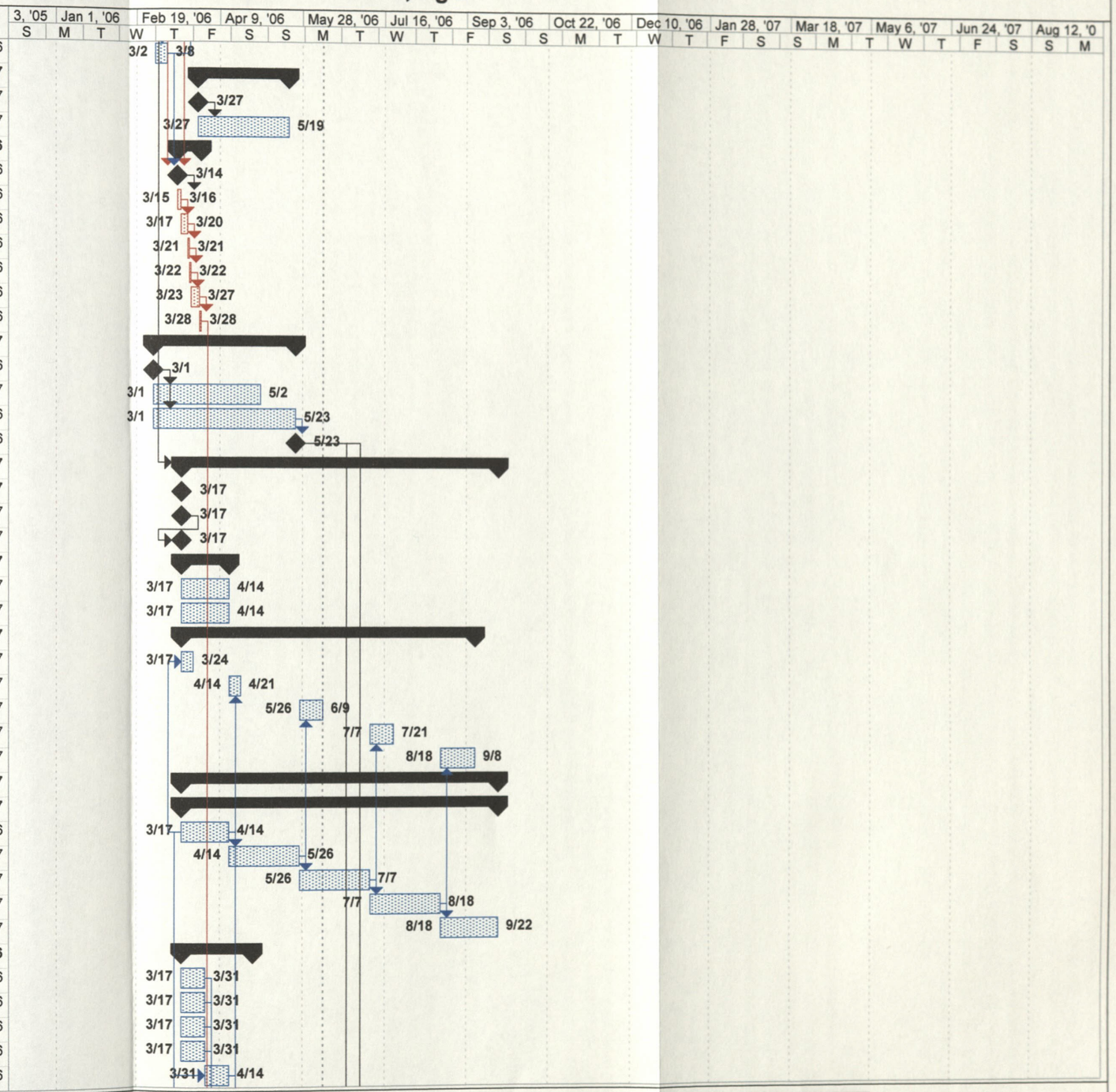
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix E - Engineering and Construction Timeline, Pg 2

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 44 | Design Basis | 1 wk | Thu 3/2/06 | Wed 3/8/06 | Wed 6/7/06 |
| 45 | **Berstorff Engineering** | **8 wks** | **Mon 3/27/06** | **Fri 5/19/06** | **Fri 8/31/07** |
| 46 | Bridge Funding | 0 wks | Mon 3/27/06 | Mon 3/27/06 | Mon 7/9/07 |
| 47 | Provide Updated Layouts, Electrical Info | 8 wks | Mon 3/27/06 | Fri 5/19/06 | Fri 8/31/07 |
| 48 | **Project approval** | **2 wks** | **Tue 3/14/06** | **Tue 3/28/06** | **Tue 3/28/06** |
| 49 | Receive cost information from Lockwood G | 0 wks | Tue 3/14/06 | Tue 3/14/06 | Wed 3/15/06 |
| 50 | Compile final project estimate | 2 days | Wed 3/15/06 | Thu 3/16/06 | Thu 3/16/06 |
| 51 | Financial calculations IRR / NPV | 2 days | Fri 3/17/06 | Mon 3/20/06 | Mon 3/20/06 |
| 52 | Prepare project funding request | 1 day | Tue 3/21/06 | Tue 3/21/06 | Tue 3/21/06 |
| 53 | Present project to executive committee | 1 day | Wed 3/22/06 | Wed 3/22/06 | Wed 3/22/06 |
| 54 | Respond to feedback from executive comm | 3 days | Thu 3/23/06 | Mon 3/27/06 | Mon 3/27/06 |
| 55 | Gain project approval | 1 day | Tue 3/28/06 | Tue 3/28/06 | Tue 3/28/06 |
| 56 | **Acquire Gainesville Property** | **12 wks** | **Wed 3/1/06** | **Tue 5/23/06** | **Fri 8/31/07** |
| 57 | Offer on Property Accepted | 0 wks | Wed 3/1/06 | Wed 3/1/06 | Wed 7/19/06 |
| 58 | Offer Period Expires | 9 wks | Wed 3/1/06 | Tue 5/2/06 | Fri 8/31/07 |
| 59 | Final Document Preparation | 12 wks | Wed 3/1/06 | Tue 5/23/06 | Tue 10/10/06 |
| 60 | CLOSING ON SW SITE | 0 wks | Tue 5/23/06 | Tue 5/23/06 | Wed 10/11/06 |
| 61 | **Detailed Engineering** | **27 wks** | **Fri 3/17/06** | **Fri 9/22/06** | **Fri 8/31/07** |
| 62 | **LG Engineering** | **0 wks** | **Fri 3/17/06** | **Fri 3/17/06** | **Fri 8/31/07** |
| 63 | Bridge Funded Engineering | 0 wks | Fri 3/17/06 | Fri 3/17/06 | Fri 8/31/07 |
| 64 | PO for Detailed Engineering | 0 wks | Fri 3/17/06 | Fri 3/17/06 | Fri 8/31/07 |
| 65 | **Survey's/Geotech (by GAF)** | **4 wks** | **Fri 3/17/06** | **Fri 4/14/06** | **Fri 8/31/07** |
| 66 | Survey | 4 wks | Fri 3/17/06 | Fri 4/14/06 | Fri 8/31/07 |
| 67 | Geotech/Evaluation | 4 wks | Fri 3/17/06 | Fri 4/14/06 | Fri 8/31/07 |
| 68 | **Review Meetings** | **25 wks** | **Fri 3/17/06** | **Fri 9/8/06** | **Fri 8/31/07** |
| 69 | Kickoff | 1 wk | Fri 3/17/06 | Fri 3/24/06 | Fri 8/31/07 |
| 70 | Basis of Design | 1 wk | Fri 4/14/06 | Fri 4/21/06 | Fri 8/31/07 |
| 71 | 30% Review | 2 wks | Fri 5/26/06 | Fri 6/9/06 | Fri 8/31/07 |
| 72 | 60% Review | 2 wks | Fri 7/7/06 | Fri 7/21/06 | Fri 8/31/07 |
| 73 | 90% Review | 3 wks | Fri 8/18/06 | Fri 9/8/06 | Fri 8/31/07 |
| 74 | **Process** | **27 wks** | **Fri 3/17/06** | **Fri 9/22/06** | **Fri 8/31/07** |
| 75 | **P&ID's & PFD's** | **27 wks** | **Fri 3/17/06** | **Fri 9/22/06** | **Fri 8/31/07** |
| 76 | Issued for Design | 4 wks | Fri 3/17/06 | Fri 4/14/06 | Tue 6/27/06 |
| 77 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Fri 5/4/07 |
| 78 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Fri 6/15/07 |
| 79 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Fri 7/27/07 |
| 80 | Issue for Construction | 5 wks | Fri 8/18/06 | Fri 9/22/06 | Fri 8/31/07 |
| 81 | **Equipment Specs for Bid** | **6 wks** | **Fri 3/17/06** | **Fri 4/28/06** | **Tue 12/19/06** |
| 82 | Pneumatic Conveying System | 2 wks | Fri 3/17/06 | Fri 3/31/06 | Tue 6/6/06 |
| 83 | Storage Racks | 2 wks | Fri 3/17/06 | Fri 3/31/06 | Tue 7/18/06 |
| 84 | Palletizer | 2 wks | Fri 3/17/06 | Fri 3/31/06 | Tue 6/6/06 |
| 85 | Shrink Wrapper | 2 wks | Fri 3/17/06 | Fri 3/31/06 | Tue 6/6/06 |
| 86 | Vacuum Cleaning System | 2 wks | Fri 3/31/06 | Fri 4/14/06 | Tue 7/18/06 |

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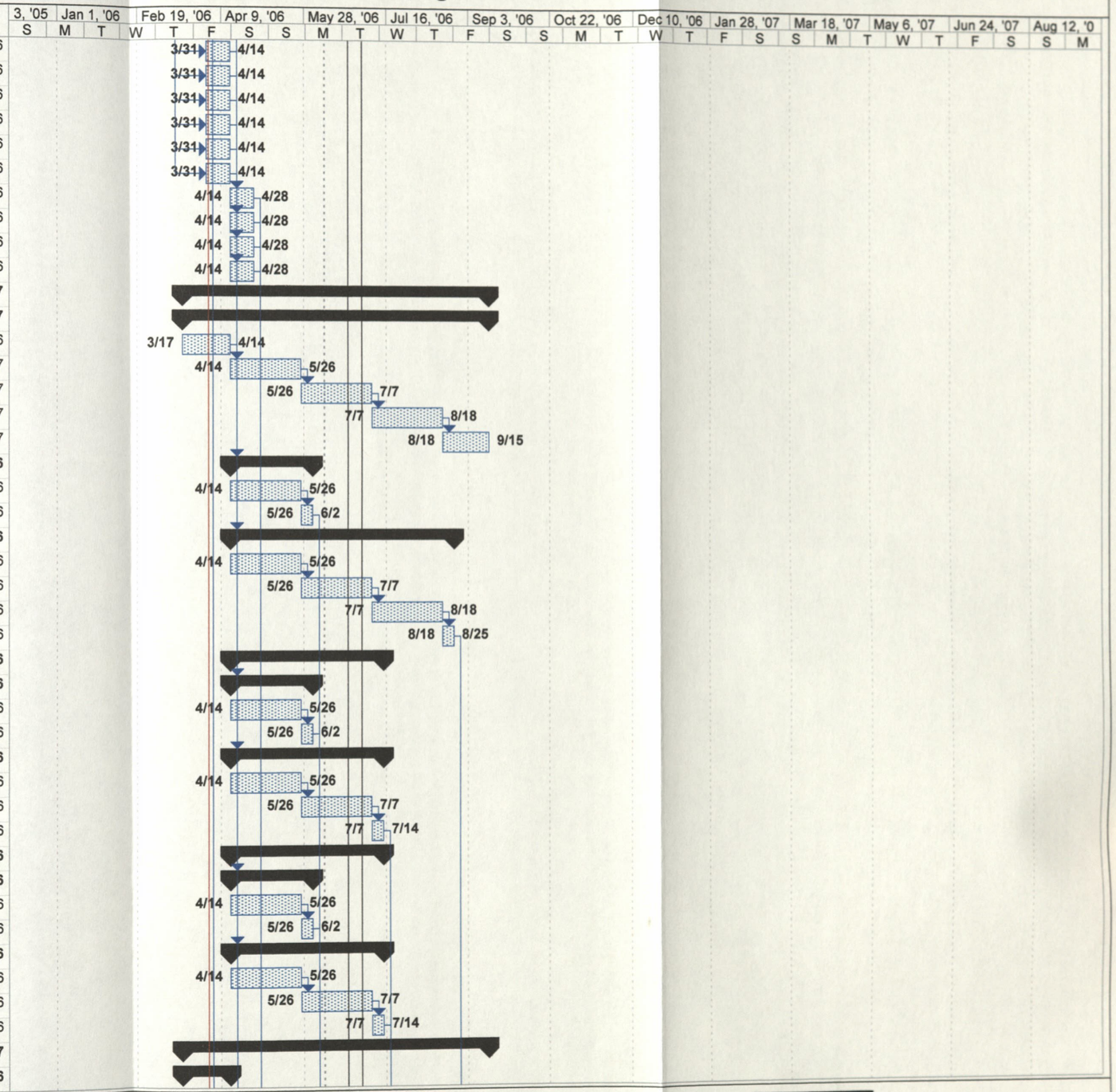
# Appendix E - Engineering and Construction Timeline, Pg 3

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 87 | Dust Collector | 2 wks | Fri 3/31/06 | Fri 4/14/06 | Tue 7/18/06 |
| 88 | Shop Fab Tanks | 2 wks | Fri 3/31/06 | Fri 4/14/06 | Tue 7/18/06 |
| 89 | Centrifugal Pumps | 2 wks | Fri 3/31/06 | Fri 4/14/06 | Tue 8/15/06 |
| 90 | Axial Fans | 2 wks | Fri 3/31/06 | Fri 4/14/06 | Tue 8/15/06 |
| 91 | Centrifugal Fans | 2 wks | Fri 3/31/06 | Fri 4/14/06 | Tue 8/15/06 |
| 92 | Bridge Crane | 2 wks | Fri 3/31/06 | Fri 4/14/06 | Tue 12/19/06 |
| 93 | Regrind System | 2 wks | Fri 4/14/06 | Fri 4/28/06 | Tue 7/18/06 |
| 94 | Roll Slicer | 2 wks | Fri 4/14/06 | Fri 4/28/06 | Tue 7/18/06 |
| 95 | Die Cart | 2 wks | Fri 4/14/06 | Fri 4/28/06 | Tue 11/28/06 |
| 96 | Man Lift | 2 wks | Fri 4/14/06 | Fri 4/28/06 | Tue 11/28/06 |
| 97 | **Piping/Layout** | **26 wks** | **Fri 3/17/06** | **Fri 9/15/06** | **Fri 8/31/07** |
| 98 | **General Arrangements** | **26 wks** | **Fri 3/17/06** | **Fri 9/15/06** | **Fri 8/31/07** |
| 99 | Issued for Design | 4 wks | Fri 3/17/06 | Fri 4/14/06 | Tue 6/27/06 |
| 100 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Fri 5/11/07 |
| 101 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Fri 6/22/07 |
| 102 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Fri 8/3/07 |
| 103 | Issue for Construction | 4 wks | Fri 8/18/06 | Fri 9/15/06 | Fri 8/31/07 |
| 104 | **Demolition** | **7 wks** | **Fri 4/14/06** | **Fri 6/2/06** | **Tue 9/5/06** |
| 105 | Issue for 90% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/29/06 |
| 106 | Issue For Construction | 1 wk | Fri 5/26/06 | Fri 6/2/06 | Tue 9/5/06 |
| 107 | **Piping Design** | **19 wks** | **Fri 4/14/06** | **Fri 8/25/06** | **Tue 11/7/06** |
| 108 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/8/06 |
| 109 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Tue 9/19/06 |
| 110 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Tue 10/31/06 |
| 111 | Issue for Construction | 1 wk | Fri 8/18/06 | Fri 8/25/06 | Tue 11/7/06 |
| 112 | **Architectural** | **13 wks** | **Fri 4/14/06** | **Fri 7/14/06** | **Tue 10/3/06** |
| 113 | **Office Demolition** | **7 wks** | **Fri 4/14/06** | **Fri 6/2/06** | **Tue 9/5/06** |
| 114 | Issue for 90% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/29/06 |
| 115 | Issue For Construction | 1 wk | Fri 5/26/06 | Fri 6/2/06 | Tue 9/5/06 |
| 116 | **General Construction** | **13 wks** | **Fri 4/14/06** | **Fri 7/14/06** | **Tue 10/3/06** |
| 117 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/15/06 |
| 118 | Issue for 60% (Final) Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Tue 9/26/06 |
| 119 | Issue For Construction | 1 wk | Fri 7/7/06 | Fri 7/14/06 | Tue 10/3/06 |
| 120 | **Structural** | **13 wks** | **Fri 4/14/06** | **Fri 7/14/06** | **Tue 10/3/06** |
| 121 | **Demoltion** | **7 wks** | **Fri 4/14/06** | **Fri 6/2/06** | **Tue 9/5/06** |
| 122 | Issue for 90% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/29/06 |
| 123 | Issue For Construction | 1 wk | Fri 5/26/06 | Fri 6/2/06 | Tue 9/5/06 |
| 124 | **Structural Design** | **13 wks** | **Fri 4/14/06** | **Fri 7/14/06** | **Tue 10/3/06** |
| 125 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/15/06 |
| 126 | Issue for 60% Final Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Tue 9/26/06 |
| 127 | Issue For Construction | 1 wk | Fri 7/7/06 | Fri 7/14/06 | Tue 10/3/06 |
| 128 | **Mechanical** | **26 wks** | **Fri 3/17/06** | **Fri 9/15/06** | **Fri 6/15/07** |
| 129 | **Utility Specs for Bid** | **4 wks** | **Fri 3/17/06** | **Fri 4/14/06** | **Tue 12/19/06** |

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Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
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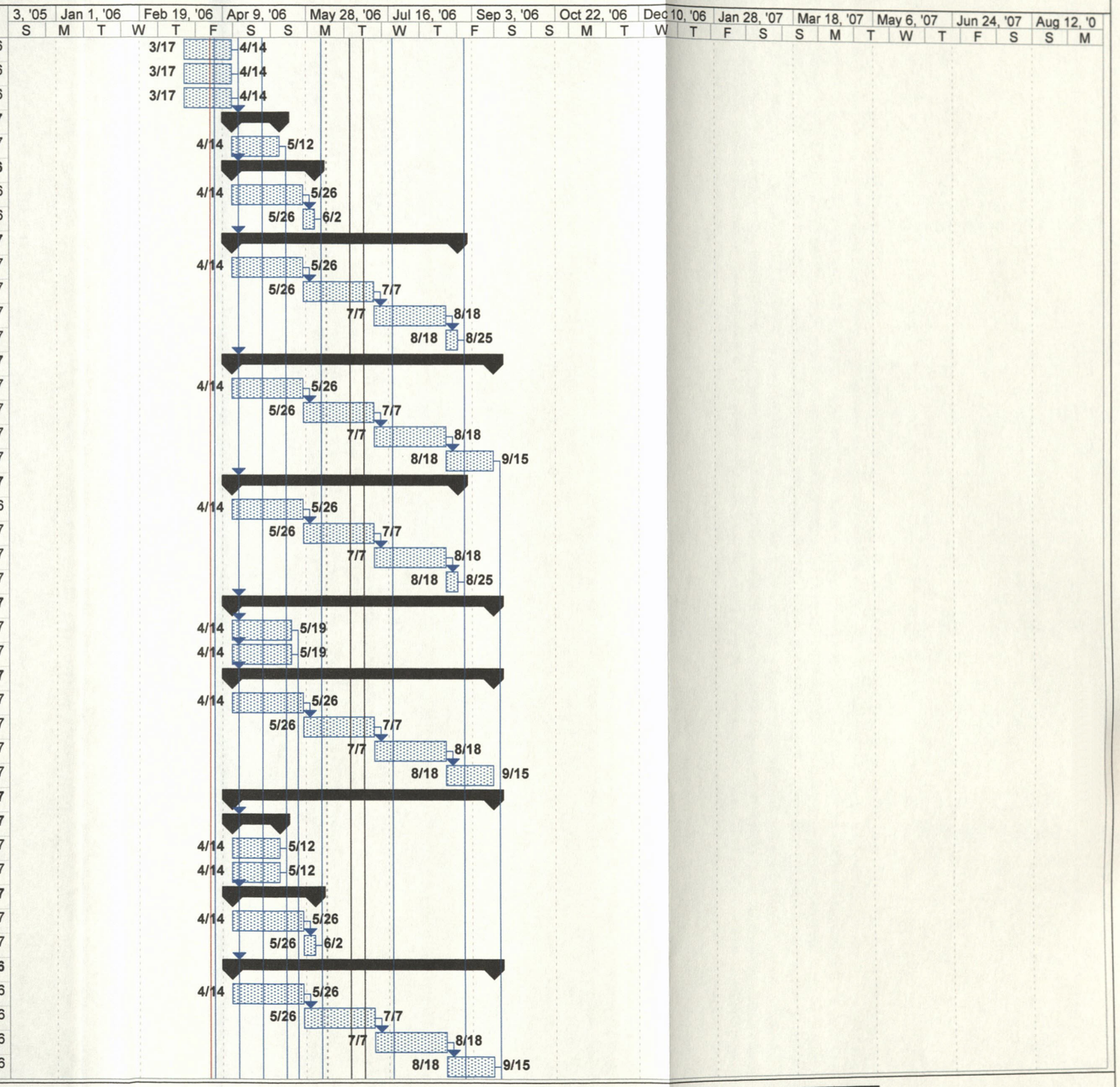
# Appendix E - Engineering and Construction Timeline, Pg 4

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 130 | Chiller | 4 wks | Fri 3/17/06 | Fri 4/14/06 | Tue 11/7/06 |
| 131 | Cooling Tower | 4 wks | Fri 3/17/06 | Fri 4/14/06 | Tue 12/5/06 |
| 132 | Air Compressor | 4 wks | Fri 3/17/06 | Fri 4/14/06 | Tue 12/19/06 |
| 133 | **HVAC Specs for Bid** | **4 wks** | **Fri 4/14/06** | **Fri 5/12/06** | **Fri 3/9/07** |
| 134 | HVAC units | 4 wks | Fri 4/14/06 | Fri 5/12/06 | Fri 3/9/07 |
| 135 | **Demolition** | **7 wks** | **Fri 4/14/06** | **Fri 6/2/06** | **Tue 9/5/06** |
| 136 | Issue for 90% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/29/06 |
| 137 | Issue For Construction | 1 wk | Fri 5/26/06 | Fri 6/2/06 | Tue 9/5/06 |
| 138 | **HVAC** | **19 wks** | **Fri 4/14/06** | **Fri 8/25/06** | **Fri 6/1/07** |
| 139 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Fri 3/2/07 |
| 140 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Fri 4/13/07 |
| 141 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Fri 5/25/07 |
| 142 | Issue For Construction | 1 wk | Fri 8/18/06 | Fri 8/25/06 | Fri 6/1/07 |
| 143 | **Plumbing** | **22 wks** | **Fri 4/14/06** | **Fri 9/15/06** | **Fri 6/15/07** |
| 144 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Fri 2/23/07 |
| 145 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Fri 4/6/07 |
| 146 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Fri 5/18/07 |
| 147 | Issue For Construction | 4 wks | Fri 8/18/06 | Fri 9/15/06 | Fri 6/15/07 |
| 148 | **Fire Protection** | **19 wks** | **Fri 4/14/06** | **Fri 8/25/06** | **Tue 2/20/07** |
| 149 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 11/21/06 |
| 150 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Tue 1/2/07 |
| 151 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Tue 2/13/07 |
| 152 | Issue For Construction | 1 wk | Fri 8/18/06 | Fri 8/25/06 | Tue 2/20/07 |
| 153 | **Instruments & Controls** | **22 wks** | **Fri 4/14/06** | **Fri 9/15/06** | **Fri 8/31/07** |
| 154 | Instrument Specs | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Fri 4/20/07 |
| 155 | PLC Specs | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Fri 4/6/07 |
| 156 | **Instrument & Control Design** | **22 wks** | **Fri 4/14/06** | **Fri 9/15/06** | **Fri 8/31/07** |
| 157 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Fri 5/11/07 |
| 158 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Fri 6/22/07 |
| 159 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Fri 8/3/07 |
| 160 | Issue For Construction | 4 wks | Fri 8/18/06 | Fri 9/15/06 | Fri 8/31/07 |
| 161 | **Electrical** | **22 wks** | **Fri 4/14/06** | **Fri 9/15/06** | **Fri 6/15/07** |
| 162 | **Electrical Specs for Bid** | **4 wks** | **Fri 4/14/06** | **Fri 5/12/06** | **Fri 3/9/07** |
| 163 | Switchgear | 4 wks | Fri 4/14/06 | Fri 5/12/06 | Fri 3/9/07 |
| 164 | MCC's | 4 wks | Fri 4/14/06 | Fri 5/12/06 | Fri 3/9/07 |
| 165 | **Demolition** | **7 wks** | **Fri 4/14/06** | **Fri 6/2/06** | **Fri 6/15/07** |
| 166 | Issue for 90% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Fri 6/8/07 |
| 167 | Issue For Construction | 1 wk | Fri 5/26/06 | Fri 6/2/06 | Fri 6/15/07 |
| 168 | **Electrical Design** | **22 wks** | **Fri 4/14/06** | **Fri 9/15/06** | **Tue 12/5/06** |
| 169 | Issue for 30% Review | 6 wks | Fri 4/14/06 | Fri 5/26/06 | Tue 8/15/06 |
| 170 | Issue for 60% Review | 6 wks | Fri 5/26/06 | Fri 7/7/06 | Tue 9/26/06 |
| 171 | Issue for 90% Review | 6 wks | Fri 7/7/06 | Fri 8/18/06 | Tue 11/7/06 |
| 172 | Issue For Construction | 4 wks | Fri 8/18/06 | Fri 9/15/06 | Tue 12/5/06 |

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Task
Critical Task
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Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
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External Tasks
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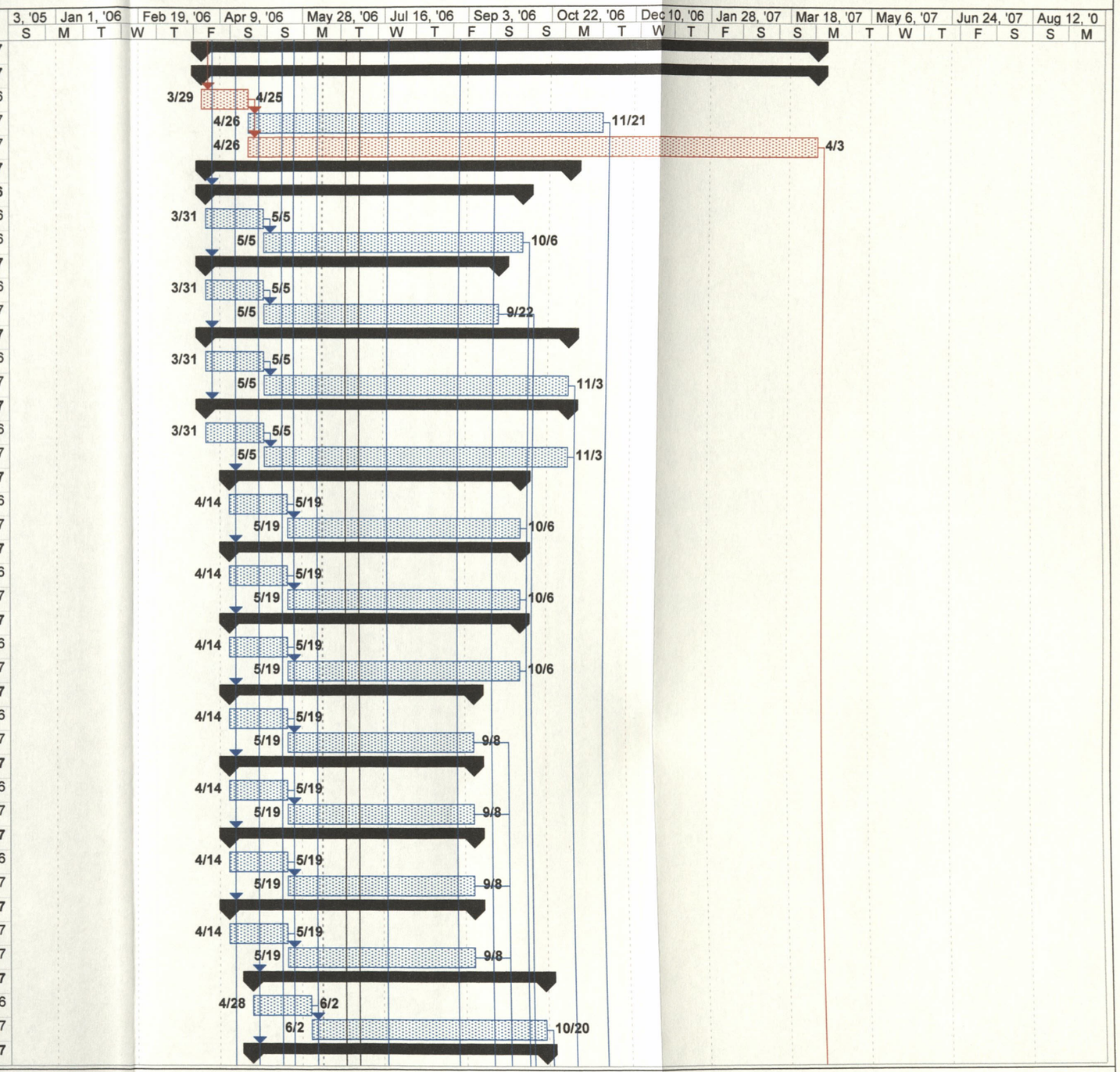
Group By Summary
Deadline

# Appendix E - Engineering and Construction Timeline, Pg 5

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 173 | **Procurement** | **53 wks** | **Wed 3/29/06** | **Tue 4/3/07** | **Fri 8/31/07** |
| 174 | **Berstorff** | **53 wks** | **Wed 3/29/06** | **Tue 4/3/07** | **Tue 4/3/07** |
| 175 | Purchase | 4 wks | Wed 3/29/06 | Tue 4/25/06 | Tue 4/25/06 |
| 176 | Delivery - Start | 30 wks | Wed 4/26/06 | Tue 11/21/06 | Tue 2/6/07 |
| 177 | Delivery - All | 49 wks | Wed 4/26/06 | Tue 4/3/07 | Tue 4/3/07 |
| 178 | **Process Equipment** | **31 wks** | **Fri 3/31/06** | **Fri 11/3/06** | **Tue 5/22/07** |
| 179 | **Pneumatic Conveying System** | **27 wks** | **Fri 3/31/06** | **Fri 10/6/06** | **Tue 12/12/06** |
| 180 | Bid/Purchase | 5 wks | Fri 3/31/06 | Fri 5/5/06 | Tue 7/11/06 |
| 181 | Delivery | 22 wks | Fri 5/5/06 | Fri 10/6/06 | Tue 12/12/06 |
| 182 | **Storage Racks** | **25 wks** | **Fri 3/31/06** | **Fri 9/22/06** | **Tue 1/9/07** |
| 183 | Bid/Purchase | 5 wks | Fri 3/31/06 | Fri 5/5/06 | Tue 8/22/06 |
| 184 | Delivery | 20 wks | Fri 5/5/06 | Fri 9/22/06 | Tue 1/9/07 |
| 185 | **Palletizer** | **31 wks** | **Fri 3/31/06** | **Fri 11/3/06** | **Tue 1/9/07** |
| 186 | Bid/Purchase | 5 wks | Fri 3/31/06 | Fri 5/5/06 | Tue 7/11/06 |
| 187 | Delivery | 26 wks | Fri 5/5/06 | Fri 11/3/06 | Tue 1/9/07 |
| 188 | **Shrink Wrapper** | **31 wks** | **Fri 3/31/06** | **Fri 11/3/06** | **Tue 1/9/07** |
| 189 | Bid/Purchase | 5 wks | Fri 3/31/06 | Fri 5/5/06 | Tue 7/11/06 |
| 190 | Delivery | 26 wks | Fri 5/5/06 | Fri 11/3/06 | Tue 1/9/07 |
| 191 | **Vacuum Cleaning System** | **25 wks** | **Fri 4/14/06** | **Fri 10/6/06** | **Tue 1/9/07** |
| 192 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 8/22/06 |
| 193 | Delivery | 20 wks | Fri 5/19/06 | Fri 10/6/06 | Tue 1/9/07 |
| 194 | **Dust Collector** | **25 wks** | **Fri 4/14/06** | **Fri 10/6/06** | **Tue 1/9/07** |
| 195 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 8/22/06 |
| 196 | Delivery | 20 wks | Fri 5/19/06 | Fri 10/6/06 | Tue 1/9/07 |
| 197 | **Shop Fab Tanks** | **25 wks** | **Fri 4/14/06** | **Fri 10/6/06** | **Tue 1/9/07** |
| 198 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 8/22/06 |
| 199 | Delivery | 20 wks | Fri 5/19/06 | Fri 10/6/06 | Tue 1/9/07 |
| 200 | **Centrifugal Pumps** | **21 wks** | **Fri 4/14/06** | **Fri 9/8/06** | **Tue 1/9/07** |
| 201 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 9/19/06 |
| 202 | Delivery | 16 wks | Fri 5/19/06 | Fri 9/8/06 | Tue 1/9/07 |
| 203 | **Axial Fans** | **21 wks** | **Fri 4/14/06** | **Fri 9/8/06** | **Tue 1/9/07** |
| 204 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 9/19/06 |
| 205 | Delivery | 16 wks | Fri 5/19/06 | Fri 9/8/06 | Tue 1/9/07 |
| 206 | **Centrifugal Fans** | **21 wks** | **Fri 4/14/06** | **Fri 9/8/06** | **Tue 1/9/07** |
| 207 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 9/19/06 |
| 208 | Delivery | 16 wks | Fri 5/19/06 | Fri 9/8/06 | Tue 1/9/07 |
| 209 | **Bridge Crane** | **21 wks** | **Fri 4/14/06** | **Fri 9/8/06** | **Tue 5/15/07** |
| 210 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 1/23/07 |
| 211 | Delivery | 16 wks | Fri 5/19/06 | Fri 9/8/06 | Tue 5/15/07 |
| 212 | **Regrind System** | **25 wks** | **Fri 4/28/06** | **Fri 10/20/06** | **Tue 1/9/07** |
| 213 | Bid/Purchase | 5 wks | Fri 4/28/06 | Fri 6/2/06 | Tue 8/22/06 |
| 214 | Delivery | 20 wks | Fri 6/2/06 | Fri 10/20/06 | Tue 1/9/07 |
| 215 | **Roll Slicer** | **25 wks** | **Fri 4/28/06** | **Fri 10/20/06** | **Tue 1/9/07** |




Project: Project Bright Engineering an
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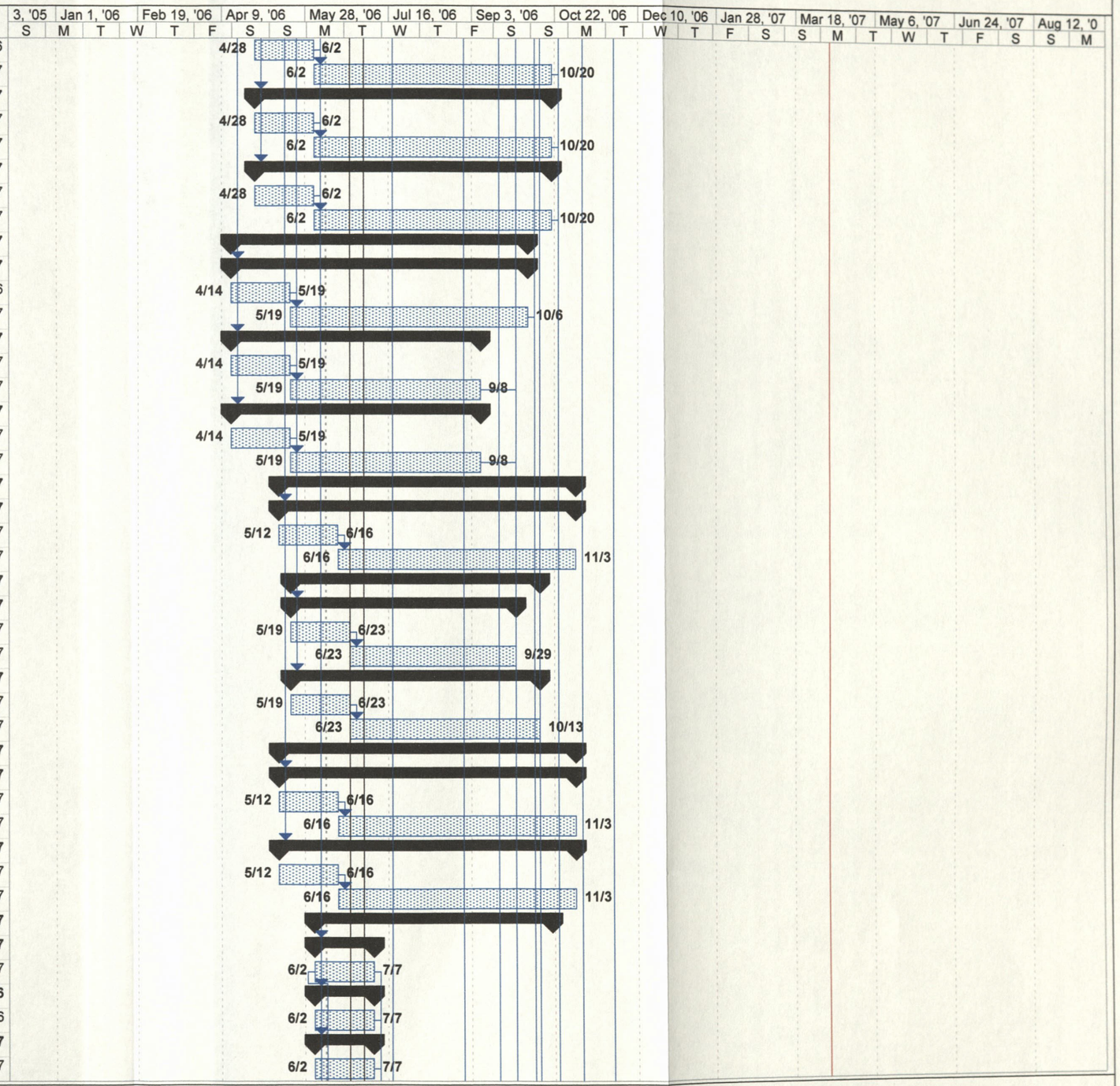
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Task | Milestone | Rolled Up Critical Task | Split | Group By Summary |
| Critical Task | Summary | Rolled Up Milestone | External Tasks | Deadline |
| Progress | Rolled Up Task | Rolled Up Progress | Project Summary | |

# Appendix E - Engineering and Construction Timeline, Pg 6

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 216 | Bid/Purchase | 5 wks | Fri 4/28/06 | Fri 6/2/06 | Tue 8/22/06 |
| 217 | Delivery | 20 wks | Fri 6/2/06 | Fri 10/20/06 | Tue 1/9/07 |
| 218 | **Die Cart** | **25 wks** | **Fri 4/28/06** | **Fri 10/20/06** | **Tue 5/22/07** |
| 219 | Bid/Purchase | 5 wks | Fri 4/28/06 | Fri 6/2/06 | Tue 1/2/07 |
| 220 | Delivery | 20 wks | Fri 6/2/06 | Fri 10/20/06 | Tue 5/22/07 |
| 221 | **Man Lift** | **25 wks** | **Fri 4/28/06** | **Fri 10/20/06** | **Tue 5/22/07** |
| 222 | Bid/Purchase | 5 wks | Fri 4/28/06 | Fri 6/2/06 | Tue 1/2/07 |
| 223 | Delivery | 20 wks | Fri 6/2/06 | Fri 10/20/06 | Tue 5/22/07 |
| 224 | **Utility Equipment** | **25 wks** | **Fri 4/14/06** | **Fri 10/6/06** | **Tue 5/15/07** |
| 225 | **Chiller** | **25 wks** | **Fri 4/14/06** | **Fri 10/6/06** | **Tue 5/1/07** |
| 226 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 12/12/06 |
| 227 | Delivery | 20 wks | Fri 5/19/06 | Fri 10/6/06 | Tue 5/1/07 |
| 228 | **Cooling Tower** | **21 wks** | **Fri 4/14/06** | **Fri 9/8/06** | **Tue 5/1/07** |
| 229 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 1/9/07 |
| 230 | Delivery | 16 wks | Fri 5/19/06 | Fri 9/8/06 | Tue 5/1/07 |
| 231 | **Air Compressor** | **21 wks** | **Fri 4/14/06** | **Fri 9/8/06** | **Tue 5/15/07** |
| 232 | Bid/Purchase | 5 wks | Fri 4/14/06 | Fri 5/19/06 | Tue 1/23/07 |
| 233 | Delivery | 16 wks | Fri 5/19/06 | Fri 9/8/06 | Tue 5/15/07 |
| 234 | **HVAC Equipment** | **25 wks** | **Fri 5/12/06** | **Fri 11/3/06** | **Fri 8/31/07** |
| 235 | **HVAC units** | **25 wks** | **Fri 5/12/06** | **Fri 11/3/06** | **Fri 8/31/07** |
| 236 | Bid/Purchase | 5 wks | Fri 5/12/06 | Fri 6/16/06 | Fri 4/13/07 |
| 237 | Delivery | 20 wks | Fri 6/16/06 | Fri 11/3/06 | Fri 8/31/07 |
| 238 | **Instruments & Controls** | **21 wks** | **Fri 5/19/06** | **Fri 10/13/06** | **Fri 8/31/07** |
| 239 | **Instruments** | **19 wks** | **Fri 5/19/06** | **Fri 9/29/06** | **Fri 8/31/07** |
| 240 | Bid/Purchase | 5 wks | Fri 5/19/06 | Fri 6/23/06 | Fri 5/25/07 |
| 241 | Delivery | 14 wks | Fri 6/23/06 | Fri 9/29/06 | Fri 8/31/07 |
| 242 | **PLC** | **21 wks** | **Fri 5/19/06** | **Fri 10/13/06** | **Fri 8/31/07** |
| 243 | Bid/Purchase | 5 wks | Fri 5/19/06 | Fri 6/23/06 | Fri 5/11/07 |
| 244 | Delivery | 16 wks | Fri 6/23/06 | Fri 10/13/06 | Fri 8/31/07 |
| 245 | **Electrical Specs for Bid/Purchase** | **25 wks** | **Fri 5/12/06** | **Fri 11/3/06** | **Fri 8/31/07** |
| 246 | **Switchgear** | **25 wks** | **Fri 5/12/06** | **Fri 11/3/06** | **Fri 8/31/07** |
| 247 | Bid/Purchase | 5 wks | Fri 5/12/06 | Fri 6/16/06 | Fri 4/13/07 |
| 248 | Delivery | 20 wks | Fri 6/16/06 | Fri 11/3/06 | Fri 8/31/07 |
| 249 | **MCC's** | **25 wks** | **Fri 5/12/06** | **Fri 11/3/06** | **Fri 8/31/07** |
| 250 | Bid/Purchase | 5 wks | Fri 5/12/06 | Fri 6/16/06 | Fri 4/13/07 |
| 251 | Delivery | 20 wks | Fri 6/16/06 | Fri 11/3/06 | Fri 8/31/07 |
| 252 | **Subcontracts** | **20 wks** | **Fri 6/2/06** | **Fri 10/20/06** | **Fri 7/20/07** |
| 253 | **Structural Demolition** | **5 wks** | **Fri 6/2/06** | **Fri 7/7/06** | **Fri 7/6/07** |
| 254 | Bid/Award | 5 wks | Fri 6/2/06 | Fri 7/7/06 | Fri 7/6/07 |
| 255 | **Office Demolition** | **5 wks** | **Fri 6/2/06** | **Fri 7/7/06** | **Tue 10/10/06** |
| 256 | Bid/Award | 5 wks | Fri 6/2/06 | Fri 7/7/06 | Tue 10/10/06 |
| 257 | **Mechanical/Piping Demolition** | **5 wks** | **Fri 6/2/06** | **Fri 7/7/06** | **Fri 7/20/07** |
| 258 | Bid/Award | 5 wks | Fri 6/2/06 | Fri 7/7/06 | Fri 7/20/07 |

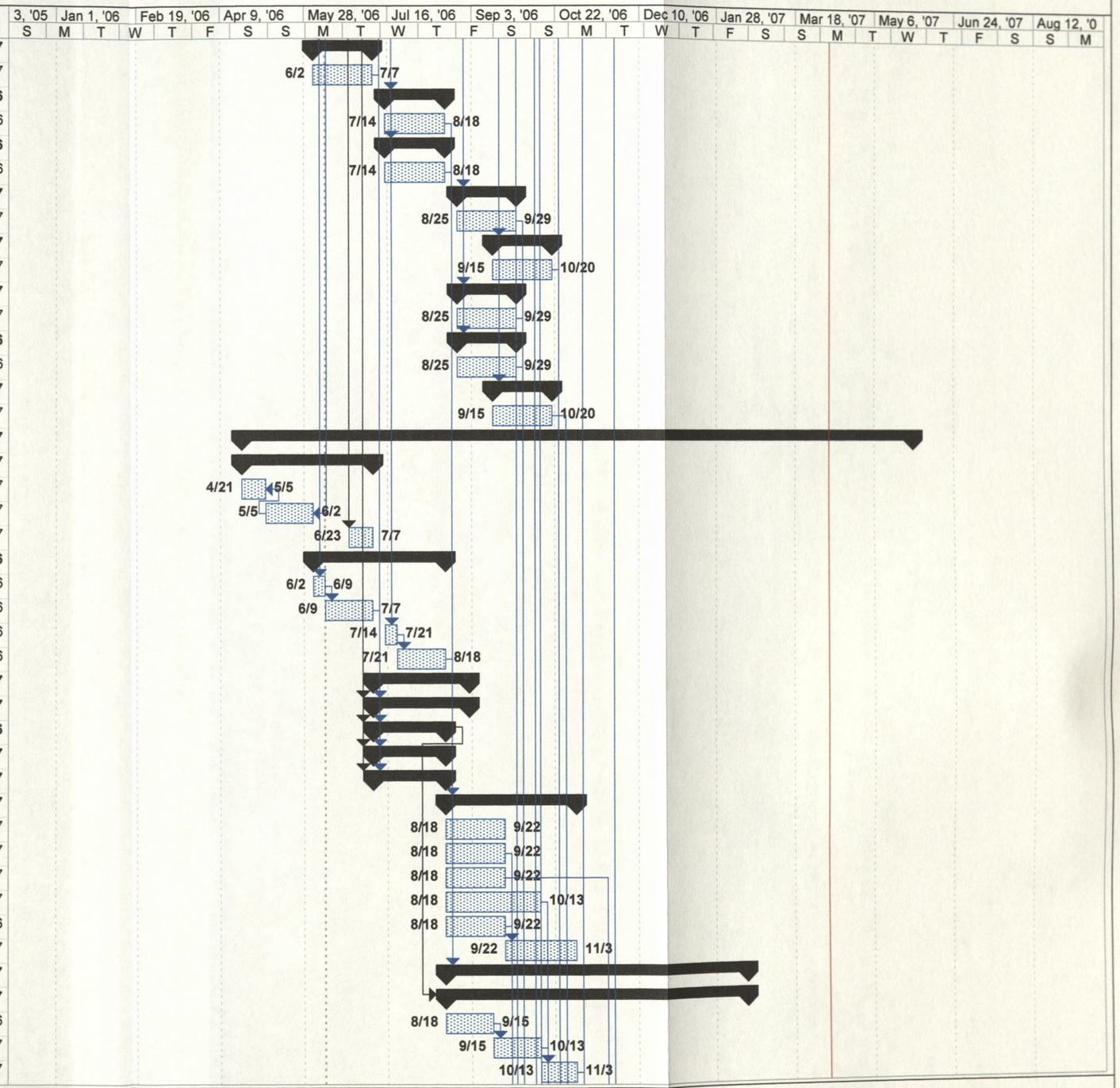



Project: Project Bright Engineering an
Date: Fri 6/9/06

Task | Milestone | Rolled Up Critical Task | Split | Group By Summary
Critical Task | Summary | Rolled Up Milestone | External Tasks | Deadline
Progress | Rolled Up Task | Rolled Up Progress | Project Summary

# Appendix E - Engineering and Construction Timeline, Pg 7

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 259 | **Electrical Demolition** | **5 wks** | **Fri 6/2/06** | **Fri 7/7/06** | **Fri 7/20/07** |
| 260 | Bid/Award | 5 wks | Fri 6/2/06 | Fri 7/7/06 | Fri 7/20/07 |
| 261 | **Structural** | **5 wks** | **Fri 7/14/06** | **Fri 8/18/06** | **Tue 11/7/06** |
| 262 | Bid/Award | 5 wks | Fri 7/14/06 | Fri 8/18/06 | Tue 11/7/06 |
| 263 | **General Construction** | **5 wks** | **Fri 7/14/06** | **Fri 8/18/06** | **Tue 11/21/06** |
| 264 | Bid/Award | 5 wks | Fri 7/14/06 | Fri 8/18/06 | Tue 11/21/06 |
| 265 | **HVAC** | **5 wks** | **Fri 8/25/06** | **Fri 9/29/06** | **Fri 7/6/07** |
| 266 | Bid/Award | 5 wks | Fri 8/25/06 | Fri 9/29/06 | Fri 7/6/07 |
| 267 | **Plumbing** | **5 wks** | **Fri 9/15/06** | **Fri 10/20/06** | **Fri 7/20/07** |
| 268 | Bid/Award | 5 wks | Fri 9/15/06 | Fri 10/20/06 | Fri 7/20/07 |
| 269 | **Fire Protection** | **5 wks** | **Fri 8/25/06** | **Fri 9/29/06** | **Tue 3/27/07** |
| 270 | Bid/Award | 5 wks | Fri 8/25/06 | Fri 9/29/06 | Tue 3/27/07 |
| 271 | **Mechanical/Piping** | **5 wks** | **Fri 8/25/06** | **Fri 9/29/06** | **Tue 12/12/06** |
| 272 | Bid/Award | 5 wks | Fri 8/25/06 | Fri 9/29/06 | Tue 12/12/06 |
| 273 | **Electrical** | **5 wks** | **Fri 9/15/06** | **Fri 10/20/06** | **Tue 1/9/07** |
| 274 | Bid/Award | 5 wks | Fri 9/15/06 | Fri 10/20/06 | Tue 1/9/07 |
| 275 | **Construction** | **57.5 wks** | **Fri 4/21/06** | **Tue 5/29/07** | **Fri 8/31/07** |
| 276 | **Pre-Construction Activities** | **11 wks** | **Fri 4/21/06** | **Fri 7/7/06** | **Fri 8/31/07** |
| 277 | Constructability Reviews | 2 wks | Fri 4/21/06 | Fri 5/5/06 | Fri 8/31/07 |
| 278 | Contractor Qualifications | 4 wks | Fri 5/5/06 | Fri 6/2/06 | Fri 8/31/07 |
| 279 | Mobolize on Site | 2 wks | Fri 6/23/06 | Fri 7/7/06 | Fri 8/31/07 |
| 280 | **Permits** | **11 wks** | **Fri 6/2/06** | **Fri 8/18/06** | **Tue 11/7/06** |
| 281 | Apply for Demolition Permit | 1 wk | Fri 6/2/06 | Fri 6/9/06 | Tue 9/12/06 |
| 282 | Receive Demolition Permit | 4 wks | Fri 6/9/06 | Fri 7/7/06 | Tue 10/10/06 |
| 283 | Apply for General Constr. Permit | 1 wk | Fri 7/14/06 | Fri 7/21/06 | Tue 10/10/06 |
| 284 | Receice General Constr. Permit | 4 wks | Fri 7/21/06 | Fri 8/18/06 | Tue 11/7/06 |
| 285 | **Demolition** | **8 wks** | **Fri 7/7/06** | **Fri 9/1/06** | **Fri 8/31/07** |
| 286 | **Structural Demolition** | **8 wks** | **Fri 7/7/06** | **Fri 9/1/06** | **Fri 8/31/07** |
| 292 | **Office Demolition** | **6 wks** | **Fri 7/7/06** | **Fri 8/18/06** | **Tue 11/21/06** |
| 297 | **Mechanical/Piping Demolition** | **6 wks** | **Fri 7/7/06** | **Fri 8/18/06** | **Fri 8/31/07** |
| 300 | **Electrical Demolition** | **6 wks** | **Fri 7/7/06** | **Fri 8/18/06** | **Fri 8/31/07** |
| 304 | **Structural** | **11 wks** | **Fri 8/18/06** | **Fri 11/3/06** | **Fri 8/31/07** |
| 305 | Walls for New Rooms | 5 wks | Fri 8/18/06 | Fri 9/22/06 | Fri 8/31/07 |
| 306 | Production Area Restrooms | 5 wks | Fri 8/18/06 | Fri 9/22/06 | Fri 6/8/07 |
| 307 | Foundation for Berstorff | 5 wks | Fri 8/18/06 | Fri 9/22/06 | Tue 2/6/07 |
| 308 | Repair Warehouse Floors | 8 wks | Fri 8/18/06 | Fri 10/13/06 | Tue 1/9/07 |
| 309 | Miscellaneaous Pads | 5 wks | Fri 8/18/06 | Fri 9/22/06 | Tue 12/12/06 |
| 310 | Miscellaneous Platforms | 6 wks | Fri 9/22/06 | Fri 11/3/06 | Fri 8/31/07 |
| 311 | **General Construction** | **26 wks** | **Fri 8/18/06** | **Fri 2/16/07** | **Fri 8/31/07** |
| 312 | **Office Area** | **26 wks** | **Fri 8/18/06** | **Fri 2/16/07** | **Fri 8/31/07** |
| 313 | Repair Floors | 4 wks | Fri 8/18/06 | Fri 9/15/06 | Tue 12/19/06 |
| 314 | New Walls | 4 wks | Fri 9/15/06 | Fri 10/13/06 | Tue 1/16/07 |
| 315 | Suspended Ceiling Grid | 3 wks | Fri 10/13/06 | Fri 11/3/06 | Tue 2/6/07 |

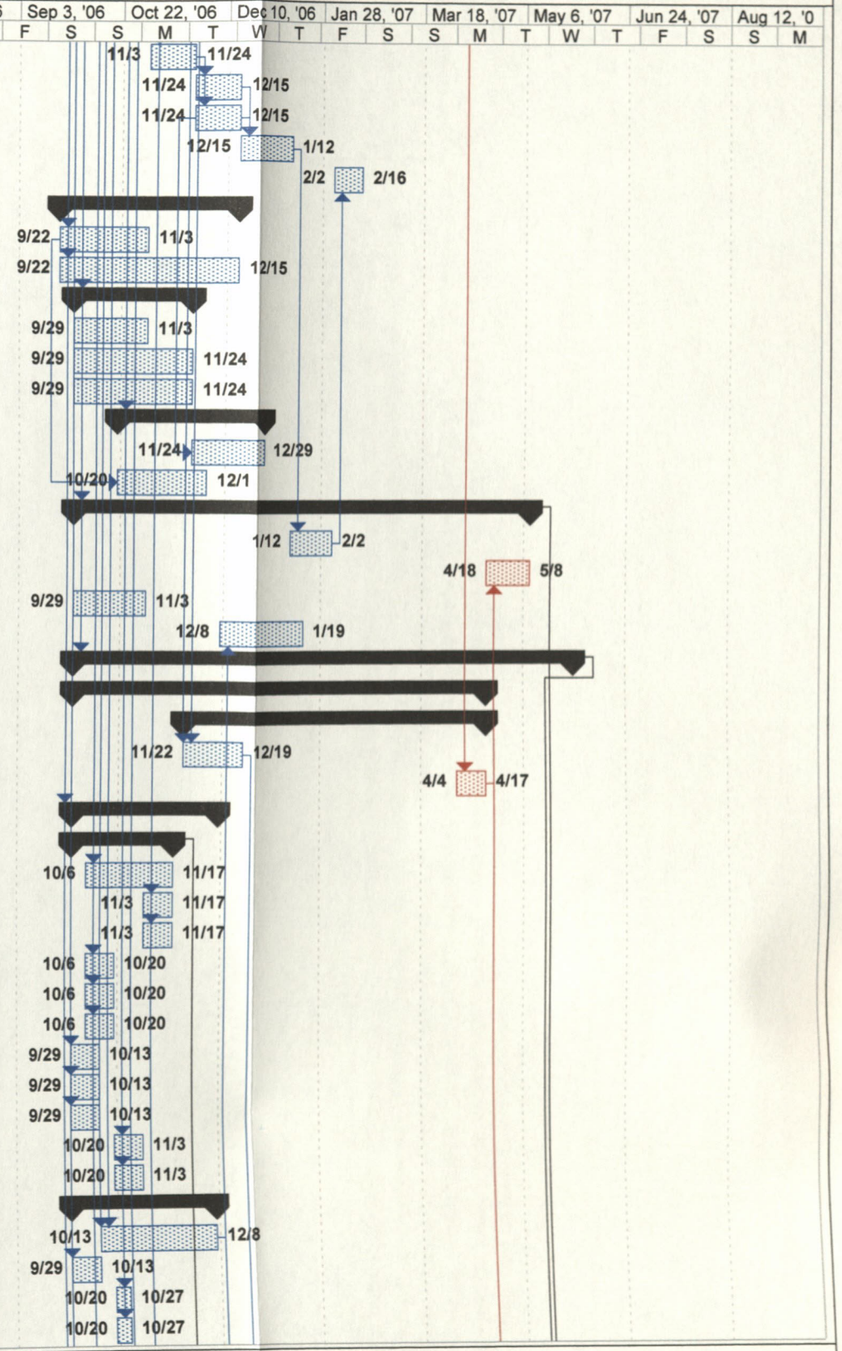



Project: Project Bright Engineering an
Date: Fri 6/9/06

| | | | |
|---|---|---|---|
| Task | Milestone | Rolled Up Critical Task | Split |
| Critical Task | Summary | Rolled Up Milestone | External Tasks |
| Progress | Rolled Up Task | Rolled Up Progress | Project Summary |
| | | | Group By Summary |
| | | | Deadline |

# Appendix E - Engineering and Construction Timeline, Pg 8

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 316 | Electrical/Lighting | 3 wks | Fri 11/3/06 | Fri 11/24/06 | Tue 2/27/07 |
| 317 | Repair/Paint Walls | 3 wks | Fri 11/24/06 | Fri 12/15/06 | Tue 3/20/07 |
| 318 | Restroom Fixtures | 3 wks | Fri 11/24/06 | Fri 12/15/06 | Tue 3/20/07 |
| 319 | Install Flooring | 4 wks | Fri 12/15/06 | Fri 1/12/07 | Tue 4/17/07 |
| 320 | Install Ceiling Panels | 2 wks | Fri 2/2/07 | Fri 2/16/07 | Fri 8/31/07 |
| 321 | **Production Area** | **12 wks** | **Fri 9/22/06** | **Fri 12/15/06** | **Fri 8/31/07** |
| 322 | Production Area Restrooms | 6 wks | Fri 9/22/06 | Fri 11/3/06 | Fri 8/31/07 |
| 323 | Lab, Training, Miscellaneous Offic | 12 wks | Fri 9/22/06 | Fri 12/15/06 | Fri 8/31/07 |
| 324 | **HVAC** | **8 wks** | **Fri 9/29/06** | **Fri 11/24/06** | **Fri 8/31/07** |
| 325 | Office Area | 5 wks | Fri 9/29/06 | Fri 11/3/06 | Fri 8/31/07 |
| 326 | Production Area | 8 wks | Fri 9/29/06 | Fri 11/24/06 | Fri 8/31/07 |
| 327 | Warehouse Area | 8 wks | Fri 9/29/06 | Fri 11/24/06 | Fri 8/31/07 |
| 328 | **Plumbing** | **10 wks** | **Fri 10/20/06** | **Fri 12/29/06** | **Fri 8/31/07** |
| 329 | Office Area Plumbing | 5 wks | Fri 11/24/06 | Fri 12/29/06 | Fri 8/31/07 |
| 330 | Production Area Restrooms | 6 wks | Fri 10/20/06 | Fri 12/1/06 | Fri 8/31/07 |
| 331 | **Fire Protection** | **31.5 wks** | **Fri 9/29/06** | **Tue 5/8/07** | **Tue 5/8/07** |
| 332 | Office Area | 3 wks | Fri 1/12/07 | Fri 2/2/07 | Tue 5/8/07 |
| 333 | Production Area | 3 wks | Wed 4/18/07 | Tue 5/8/07 | Tue 5/8/07 |
| 334 | Warehouse Area | 5 wks | Fri 9/29/06 | Fri 11/3/06 | Tue 5/8/07 |
| 335 | In-Rack Sprinklers | 6 wks | Fri 12/8/06 | Fri 1/19/07 | Tue 5/8/07 |
| 336 | **Mechanical/Piping** | **34.5 wks** | **Fri 9/29/06** | **Tue 5/29/07** | **Tue 5/29/07** |
| 337 | **Equipment Installation** | **28.5 wks** | **Fri 9/29/06** | **Tue 4/17/07** | **Tue 5/29/07** |
| 338 | **Berstorff** | **21 wks** | **Wed 11/22/06** | **Tue 4/17/07** | **Tue 4/17/07** |
| 339 | Early Equipment | 4 wks | Wed 11/22/06 | Tue 12/19/06 | Tue 3/6/07 |
| 340 | Late Equipment | 2 wks | Wed 4/4/07 | Tue 4/17/07 | Tue 4/17/07 |
| 341 | **Process** | **10 wks** | **Fri 9/29/06** | **Fri 12/8/06** | **Tue 5/29/07** |
| 342 | **Process w/Piping** | **7 wks** | **Fri 9/29/06** | **Fri 11/17/06** | **Tue 1/23/07** |
| 343 | Pneumatic Conveying S | 6 wks | Fri 10/6/06 | Fri 11/17/06 | Tue 1/23/07 |
| 344 | Palletizer | 2 wks | Fri 11/3/06 | Fri 11/17/06 | Tue 1/23/07 |
| 345 | Shrink Wrapper | 2 wks | Fri 11/3/06 | Fri 11/17/06 | Tue 1/23/07 |
| 346 | Vacuum Cleaning Syste | 2 wks | Fri 10/6/06 | Fri 10/20/06 | Tue 1/23/07 |
| 347 | Dust Collector | 2 wks | Fri 10/6/06 | Fri 10/20/06 | Tue 1/23/07 |
| 348 | Shop Fab Tanks | 2 wks | Fri 10/6/06 | Fri 10/20/06 | Tue 1/23/07 |
| 349 | Centrifugal Pumps | 2 wks | Fri 9/29/06 | Fri 10/13/06 | Tue 1/23/07 |
| 350 | Axial Fans | 2 wks | Fri 9/29/06 | Fri 10/13/06 | Tue 1/23/07 |
| 351 | Centrifugal Fans | 2 wks | Fri 9/29/06 | Fri 10/13/06 | Tue 1/23/07 |
| 352 | Regrind System | 2 wks | Fri 10/20/06 | Fri 11/3/06 | Tue 1/23/07 |
| 353 | Roll Slicer | 2 wks | Fri 10/20/06 | Fri 11/3/06 | Tue 1/23/07 |
| 354 | **Process w/o Piping** | **10 wks** | **Fri 9/29/06** | **Fri 12/8/06** | **Tue 5/29/07** |
| 355 | Storage Racks | 8 wks | Fri 10/13/06 | Fri 12/8/06 | Tue 3/6/07 |
| 356 | Bridge Crane | 2 wks | Fri 9/29/06 | Fri 10/13/06 | Tue 5/29/07 |
| 357 | Die Cart | 1 wk | Fri 10/20/06 | Fri 10/27/06 | Tue 5/29/07 |
| 358 | Man Lift | 1 wk | Fri 10/20/06 | Fri 10/27/06 | Tue 5/29/07 |

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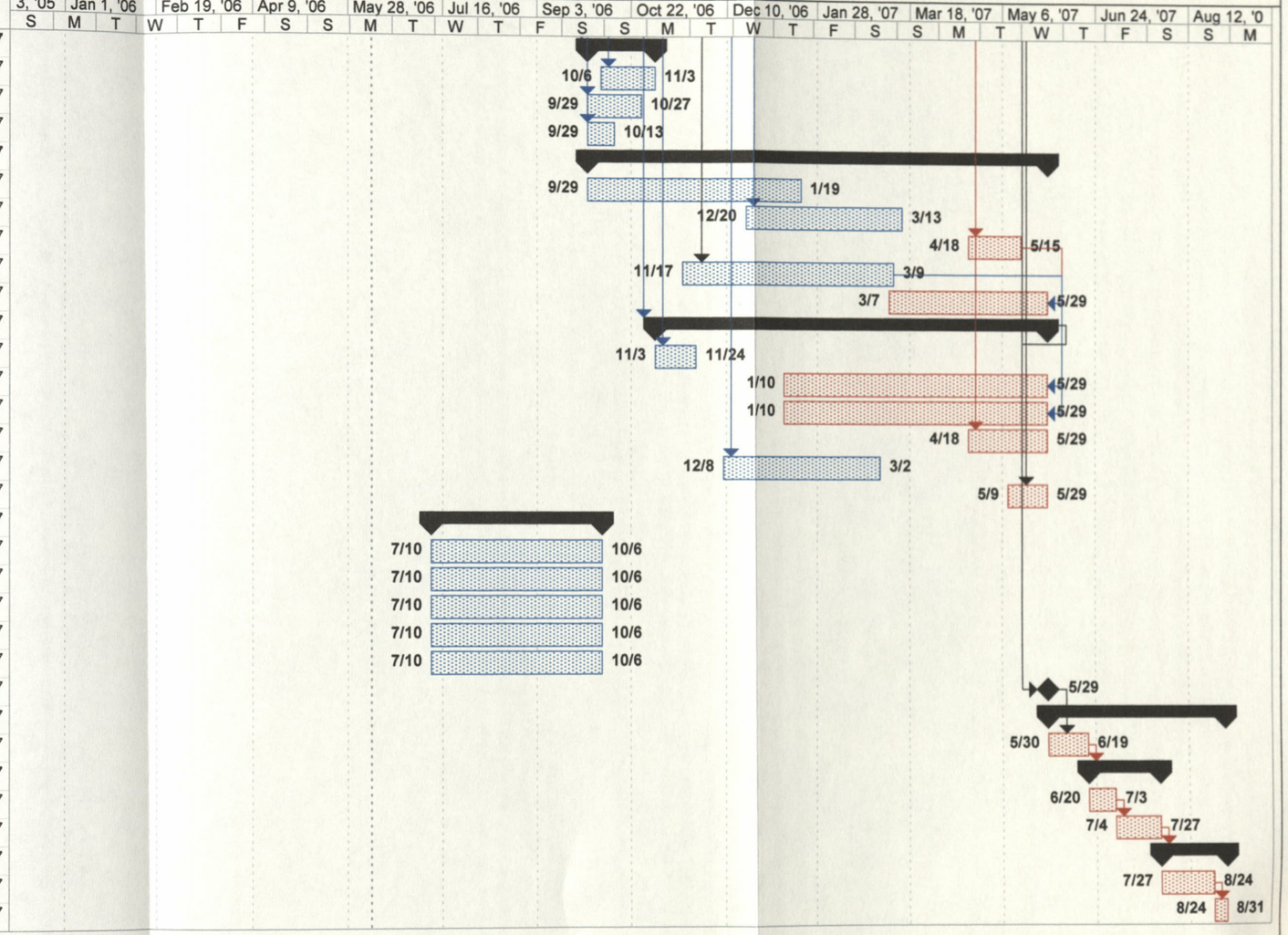
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix E - Engineering and Construction Timeline, Pg 9

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 359 | **Utility** | **5 wks** | **Fri 9/29/06** | **Fri 11/3/06** | **Tue 5/29/07** |
| 360 | Chiller | 4 wks | Fri 10/6/06 | Fri 11/3/06 | Tue 5/29/07 |
| 361 | Cooling Tower | 4 wks | Fri 9/29/06 | Fri 10/27/06 | Tue 5/29/07 |
| 362 | Air Compressor | 2 wks | Fri 9/29/06 | Fri 10/13/06 | Tue 5/29/07 |
| 363 | **Piping** | **34.5 wks** | **Fri 9/29/06** | **Tue 5/29/07** | **Tue 5/29/07** |
| 364 | Rack Runs | 16 wks | Fri 9/29/06 | Fri 1/19/07 | Tue 5/29/07 |
| 365 | Berstorff Early | 12 wks | Wed 12/20/06 | Tue 3/13/07 | Tue 5/29/07 |
| 366 | Berstorff Late | 4 wks | Wed 4/18/07 | Tue 5/15/07 | Tue 5/15/07 |
| 367 | Miscellaneous Process | 16 wks | Fri 11/17/06 | Fri 3/9/07 | Tue 5/15/07 |
| 368 | Insulation | 12 wks | Wed 3/7/07 | Tue 5/29/07 | Tue 5/29/07 |
| 369 | **Electrical** | **29.5 wks** | **Fri 11/3/06** | **Tue 5/29/07** | **Tue 5/29/07** |
| 370 | Office Lighting/Electrical | 3 wks | Fri 11/3/06 | Fri 11/24/06 | Tue 5/29/07 |
| 371 | Power | 20 wks | Wed 1/10/07 | Tue 5/29/07 | Tue 5/29/07 |
| 372 | Controls | 20 wks | Wed 1/10/07 | Tue 5/29/07 | Tue 5/29/07 |
| 373 | Production Lighting | 6 wks | Wed 4/18/07 | Tue 5/29/07 | Tue 5/29/07 |
| 374 | Warehouse Lighting | 12 wks | Fri 12/8/06 | Fri 3/2/07 | Tue 5/29/07 |
| 375 | Fire Alarms | 3 wks | Wed 5/9/07 | Tue 5/29/07 | Tue 5/29/07 |
| 376 | **IS&T** | **13 wks** | **Mon 7/10/06** | **Fri 10/6/06** | **Fri 8/31/07** |
| 377 | Servers | 13 wks | Mon 7/10/06 | Fri 10/6/06 | Fri 8/31/07 |
| 378 | Printers | 13 wks | Mon 7/10/06 | Fri 10/6/06 | Fri 8/31/07 |
| 379 | Phone System | 13 wks | Mon 7/10/06 | Fri 10/6/06 | Fri 8/31/07 |
| 380 | Network Interfacing | 13 wks | Mon 7/10/06 | Fri 10/6/06 | Fri 8/31/07 |
| 381 | Data Wiring | 13 wks | Mon 7/10/06 | Fri 10/6/06 | Fri 8/31/07 |
| 382 | Mechanical Completion | 0 wks | Tue 5/29/07 | Tue 5/29/07 | Wed 5/30/07 |
| 383 | **Start-up** | **13.5 wks** | **Wed 5/30/07** | **Fri 8/31/07** | **Fri 8/31/07** |
| 384 | Pre-Commissioing checkout | 3 wks | Wed 5/30/07 | Tue 6/19/07 | Tue 6/19/07 |
| 385 | **Commissioning** | **5.5 wks** | **Wed 6/20/07** | **Fri 7/27/07** | **Fri 7/27/07** |
| 386 | Dry Commissioning | 2 wks | Wed 6/20/07 | Tue 7/3/07 | Tue 7/3/07 |
| 387 | Wet Commissioning | 3.5 wks | Wed 7/4/07 | Fri 7/27/07 | Fri 7/27/07 |
| 388 | **Conduct TPO Start-up** | **5 wks** | **Fri 7/27/07** | **Fri 8/31/07** | **Fri 8/31/07** |
| 389 | Production to Start-up Goal | 4 wks | Fri 7/27/07 | Fri 8/24/07 | Fri 8/24/07 |
| 390 | Close-out/Evaluation | 1 wk | Fri 8/24/07 | Fri 8/31/07 | Fri 8/31/07 |




Project: Project Bright Engineering an
Date: Fri 6/9/06

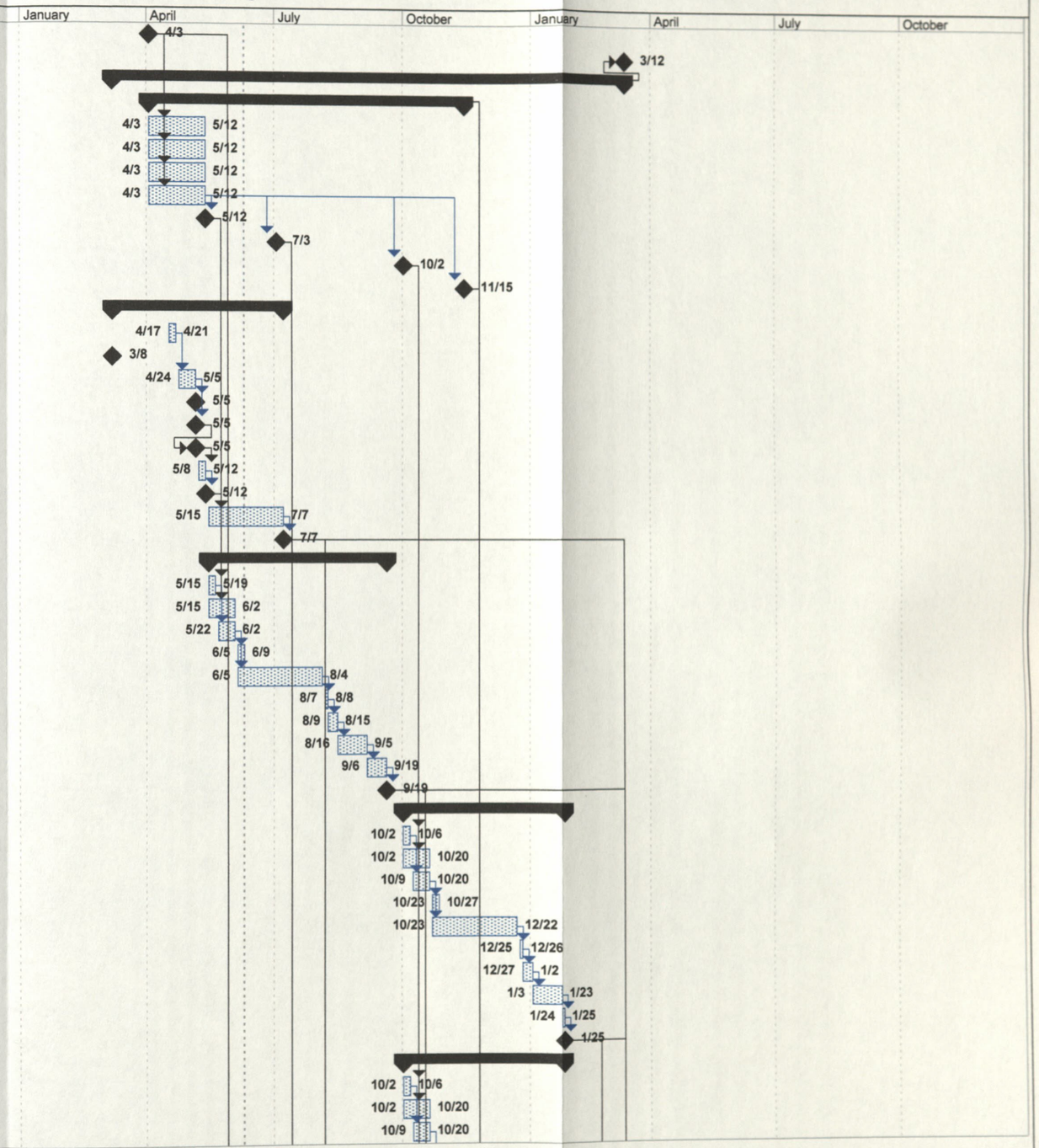
Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

Appendix F

Plant Hiring and Training Timeline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 1

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 1 | AFE approval | 0 days | Mon 4/3/06 | Mon 4/3/06 | Wed 12/20/06 |
| 2 | **Milestone - Salaried Hiring Complete** | **0 days** | **Mon 3/12/07** | **Mon 3/12/07** | Mon 7/30/07 |
| 3 | **Hiring - Salaried** | **264 days** | **Wed 3/8/06** | **Mon 3/12/07** | **Mon 7/30/07** |
| 4 | **Determine staffing support needs** | **162 days** | **Mon 4/3/06** | **Wed 11/15/06** | **Mon 5/7/07** |
| 5 | Determine HR Support approach | 30 days | Mon 4/3/06 | Fri 5/12/06 | Mon 5/7/07 |
| 6 | Determine Purchasing support approach | 30 days | Mon 4/3/06 | Fri 5/12/06 | Mon 5/7/07 |
| 7 | Determine Quality support approach | 30 days | Mon 4/3/06 | Fri 5/12/06 | Mon 5/7/07 |
| 8 | Complete salaried competitive wage survey | 30 days | Mon 4/3/06 | Fri 5/12/06 | Tue 1/30/07 |
| 9 | Begin hiring - plant engineer | 0 days | Fri 5/12/06 | Fri 5/12/06 | Fri 2/16/07 |
| 10 | Begin hiring - HR manager | 0 days | Mon 7/3/06 | Mon 7/3/06 | Wed 2/28/07 |
| 11 | Begin hiring - Functional managers | 0 days | Mon 10/2/06 | Mon 10/2/06 | Wed 1/31/07 |
| 12 | Begin hiring - Support functions | 0 days | Wed 11/15/06 | Wed 11/15/06 | Wed 2/28/07 |
| 13 | **Plant manager** | **88 days** | **Wed 3/8/06** | **Fri 7/7/06** | **Mon 7/30/07** |
| 14 | Develop and submit PDR | 5 days | Mon 4/17/06 | Fri 4/21/06 | Mon 4/9/07 |
| 15 | Develop criteria for DA | 0 days | Wed 3/8/06 | Wed 3/8/06 | Mon 7/30/07 |
| 16 | Approval of PDR | 10 days | Mon 4/24/06 | Fri 5/5/06 | Mon 4/23/07 |
| 17 | Review GAF bench strength for potentials | 0 days | Fri 5/5/06 | Fri 5/5/06 | Mon 7/30/07 |
| 18 | Recruiting / assessment | 0 days | Fri 5/5/06 | Fri 5/5/06 | Tue 4/24/07 |
| 19 | Conduct DA on candidates | 0 days | Fri 5/5/06 | Fri 5/5/06 | Tue 4/24/07 |
| 20 | Make offer / negotiations | 5 days | Mon 5/8/06 | Fri 5/12/06 | Mon 4/30/07 |
| 21 | Background and reference check | 0 days | Fri 5/12/06 | Fri 5/12/06 | Tue 5/1/07 |
| 22 | Relocation period | 8 wks | Mon 5/15/06 | Fri 7/7/06 | Mon 6/25/07 |
| 23 | GAF Start date | 0 days | Fri 7/7/06 | Fri 7/7/06 | Tue 6/26/07 |
| 24 | **Plant engineer / maintenance manager** | **92 days** | **Mon 5/15/06** | **Tue 9/19/06** | **Mon 7/30/07** |
| 25 | Develop and submit PDR | 5 days | Mon 5/15/06 | Fri 5/19/06 | Thu 2/22/07 |
| 26 | Develop criteria for DA | 15 days | Mon 5/15/06 | Fri 6/2/06 | Mon 7/30/07 |
| 27 | Approval of PDR | 2 wks | Mon 5/22/06 | Fri 6/2/06 | Thu 3/8/07 |
| 28 | Review GAF bench strength for potentials | 5 days | Mon 6/5/06 | Fri 6/9/06 | Mon 7/30/07 |
| 29 | Recruiting / assessment | 45 days | Mon 6/5/06 | Fri 8/4/06 | Thu 5/10/07 |
| 30 | Conduct DA on candidates | 2 days | Mon 8/7/06 | Tue 8/8/06 | Mon 5/14/07 |
| 31 | Make offer / negotiations | 5 days | Wed 8/9/06 | Tue 8/15/06 | Mon 5/21/07 |
| 32 | Background and reference check | 3 wks | Wed 8/16/06 | Tue 9/5/06 | Mon 6/11/07 |
| 33 | Notice period | 2 wks | Wed 9/6/06 | Tue 9/19/06 | Mon 6/25/07 |
| 34 | GAF Start date | 0 days | Tue 9/19/06 | Tue 9/19/06 | Tue 6/26/07 |
| 35 | **Accounting manager** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 36 | Develop and submit PDR | 5 days | Mon 10/2/06 | Fri 10/6/06 | Tue 2/6/07 |
| 37 | Develop criteria for DA | 15 days | Mon 10/2/06 | Fri 10/20/06 | Mon 7/30/07 |
| 38 | Approval of PDR | 10 days | Mon 10/9/06 | Fri 10/20/06 | Tue 2/20/07 |
| 39 | Review GAF bench strength for potentials | 5 days | Mon 10/23/06 | Fri 10/27/06 | Mon 7/30/07 |
| 40 | Recruiting / assessment | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/24/07 |
| 41 | Conduct DA on candidates | 2 days | Mon 12/25/06 | Tue 12/26/06 | Thu 4/26/07 |
| 42 | Make offer / negotiations | 5 days | Wed 12/27/06 | Tue 1/2/07 | Thu 5/3/07 |
| 43 | Background and reference check | 15 days | Wed 1/3/07 | Tue 1/23/07 | Thu 5/24/07 |
| 44 | Notice period | 2 days | Wed 1/24/07 | Thu 1/25/07 | Mon 5/28/07 |
| 45 | GAF Start date | 0 days | Thu 1/25/07 | Thu 1/25/07 | Tue 5/29/07 |
| 46 | **Quality Manager** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 47 | Develop and submit PDR | 5 days | Mon 10/2/06 | Fri 10/6/06 | Tue 3/6/07 |
| 48 | Develop criteria for DA | 15 days | Mon 10/2/06 | Fri 10/20/06 | Mon 7/30/07 |
| 49 | Approval of PDR | 10 days | Mon 10/9/06 | Fri 10/20/06 | Tue 3/20/07 |

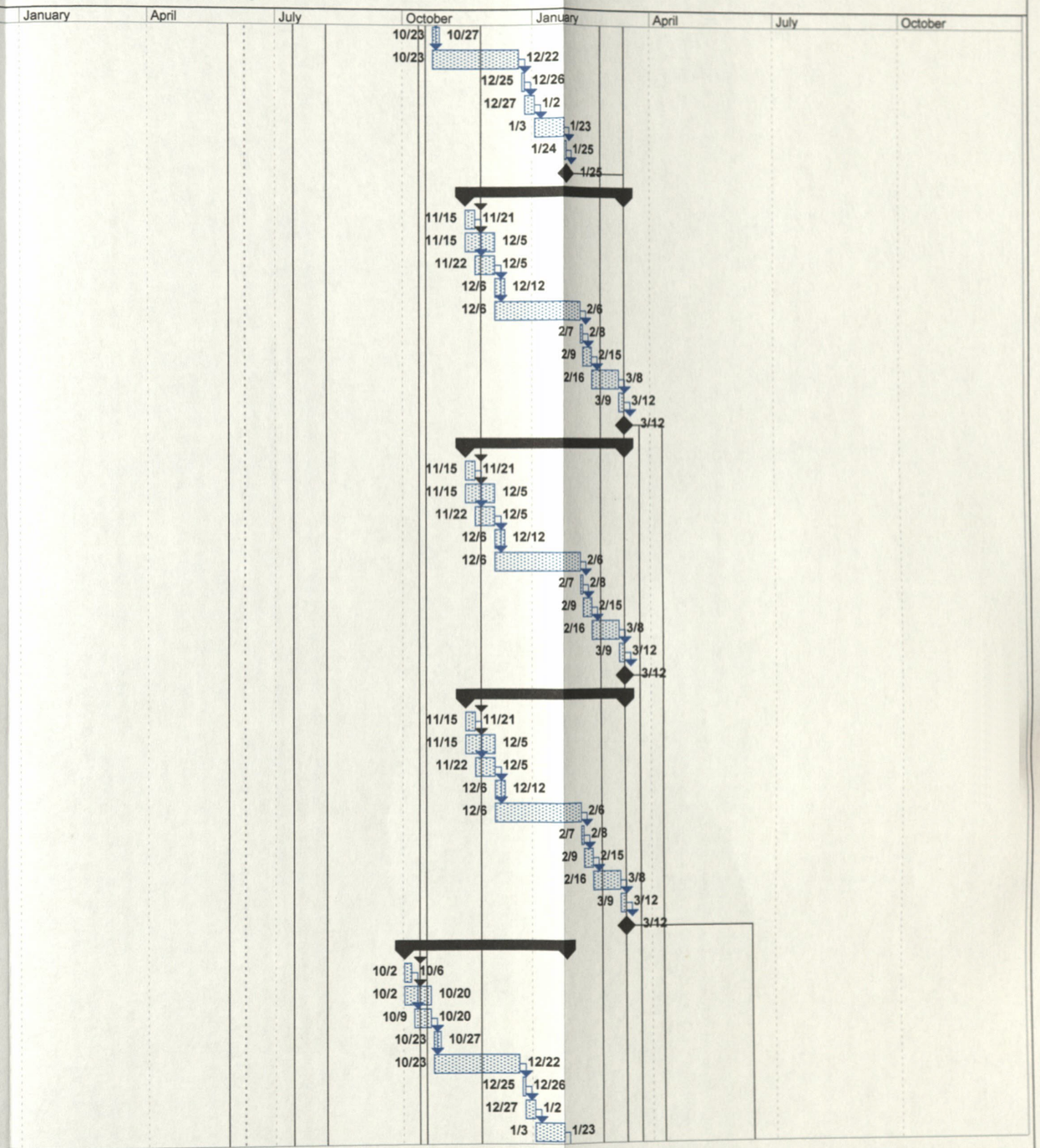



Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 2

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 50 | Review GAF bench strength for potentials | 5 days | Mon 10/23/06 | Fri 10/27/06 | Mon 7/30/07 |
| 51 | Recruiting / assessment | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 5/22/07 |
| 52 | Conduct DA on candidates | 2 days | Mon 12/25/06 | Tue 12/26/06 | Thu 5/24/07 |
| 53 | Make offer / negotiations | 5 days | Wed 12/27/06 | Tue 1/2/07 | Thu 5/31/07 |
| 54 | Background and reference check | 15 days | Wed 1/3/07 | Tue 1/23/07 | Thu 6/21/07 |
| 55 | Notice period | 2 days | Wed 1/24/07 | Thu 1/25/07 | Mon 6/25/07 |
| 56 | GAF Start date | 0 days | Thu 1/25/07 | Thu 1/25/07 | Tue 6/26/07 |
| 57 | **Quality Engineer** | **84 days** | **Wed 11/15/06** | **Mon 3/12/07** | **Mon 7/30/07** |
| 58 | Develop and submit PDR | 5 days | Wed 11/15/06 | Tue 11/21/06 | Tue 3/6/07 |
| 59 | Develop criteria for DA | 15 days | Wed 11/15/06 | Tue 12/5/06 | Mon 7/30/07 |
| 60 | Approval of PDR | 10 days | Wed 11/22/06 | Tue 12/5/06 | Tue 3/20/07 |
| 61 | Review GAF bench strength for potentials | 5 days | Wed 12/6/06 | Tue 12/12/06 | Mon 7/30/07 |
| 62 | Recruiting / assessment | 45 days | Wed 12/6/06 | Tue 2/6/07 | Tue 5/22/07 |
| 63 | Conduct DA on candidates | 2 days | Wed 2/7/07 | Thu 2/8/07 | Thu 5/24/07 |
| 64 | Make offer / negotiations | 5 days | Fri 2/9/07 | Thu 2/15/07 | Thu 5/31/07 |
| 65 | Background and reference check | 15 days | Fri 2/16/07 | Thu 3/8/07 | Thu 6/21/07 |
| 66 | Notice period | 2 days | Fri 3/9/07 | Mon 3/12/07 | Mon 6/25/07 |
| 67 | GAF Start date | 0 days | Mon 3/12/07 | Mon 3/12/07 | Tue 6/26/07 |
| 68 | **Quality Tech 1** | **84 days** | **Wed 11/15/06** | **Mon 3/12/07** | **Mon 7/30/07** |
| 69 | Develop and submit PDR | 5 days | Wed 11/15/06 | Tue 11/21/06 | Tue 3/6/07 |
| 70 | Develop criteria for DA | 15 days | Wed 11/15/06 | Tue 12/5/06 | Mon 7/30/07 |
| 71 | Approval of PDR | 10 days | Wed 11/22/06 | Tue 12/5/06 | Tue 3/20/07 |
| 72 | Review GAF bench strength for potentials | 5 days | Wed 12/6/06 | Tue 12/12/06 | Mon 7/30/07 |
| 73 | Recruiting / assessment | 45 days | Wed 12/6/06 | Tue 2/6/07 | Tue 5/22/07 |
| 74 | Conduct DA on candidates | 2 days | Wed 2/7/07 | Thu 2/8/07 | Thu 5/24/07 |
| 75 | Make offer / negotiations | 5 days | Fri 2/9/07 | Thu 2/15/07 | Thu 5/31/07 |
| 76 | Background and reference check | 15 days | Fri 2/16/07 | Thu 3/8/07 | Thu 6/21/07 |
| 77 | Notice period | 2 days | Fri 3/9/07 | Mon 3/12/07 | Mon 6/25/07 |
| 78 | GAF Start date | 0 days | Mon 3/12/07 | Mon 3/12/07 | Tue 6/26/07 |
| 79 | **Quality Tech 2** | **84 days** | **Wed 11/15/06** | **Mon 3/12/07** | **Mon 7/30/07** |
| 80 | Develop and submit PDR | 5 days | Wed 11/15/06 | Tue 11/21/06 | Tue 3/6/07 |
| 81 | Develop criteria for DA | 15 days | Wed 11/15/06 | Tue 12/5/06 | Mon 7/30/07 |
| 82 | Approval of PDR | 10 days | Wed 11/22/06 | Tue 12/5/06 | Tue 3/20/07 |
| 83 | Review GAF bench strength for potentials | 5 days | Wed 12/6/06 | Tue 12/12/06 | Mon 7/30/07 |
| 84 | Recruiting / assessment | 45 days | Wed 12/6/06 | Tue 2/6/07 | Tue 5/22/07 |
| 85 | Conduct DA on candidates | 2 days | Wed 2/7/07 | Thu 2/8/07 | Thu 5/24/07 |
| 86 | Make offer / negotiations | 5 days | Fri 2/9/07 | Thu 2/15/07 | Thu 5/31/07 |
| 87 | Background and reference check | 15 days | Fri 2/16/07 | Thu 3/8/07 | Thu 6/21/07 |
| 88 | Notice period | 2 days | Fri 3/9/07 | Mon 3/12/07 | Mon 6/25/07 |
| 89 | GAF Start date | 0 days | Mon 3/12/07 | Mon 3/12/07 | Tue 6/26/07 |
| 90 | **Production manager** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 91 | Develop and submit PDR | 5 days | Mon 10/2/06 | Fri 10/6/06 | Tue 3/6/07 |
| 92 | Develop criteria for DA | 15 days | Mon 10/2/06 | Fri 10/20/06 | Mon 7/30/07 |
| 93 | Approval of PDR | 10 days | Mon 10/9/06 | Fri 10/20/06 | Tue 3/20/07 |
| 94 | Review GAF bench strength for potentials | 5 days | Mon 10/23/06 | Fri 10/27/06 | Mon 7/30/07 |
| 95 | Recruiting / assessment | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 5/22/07 |
| 96 | Conduct DA on candidates | 2 days | Mon 12/25/06 | Tue 12/26/06 | Thu 5/24/07 |
| 97 | Make offer / negotiations | 5 days | Wed 12/27/06 | Tue 1/2/07 | Thu 5/31/07 |
| 98 | Background and reference check | 15 days | Wed 1/3/07 | Tue 1/23/07 | Thu 6/21/07 |

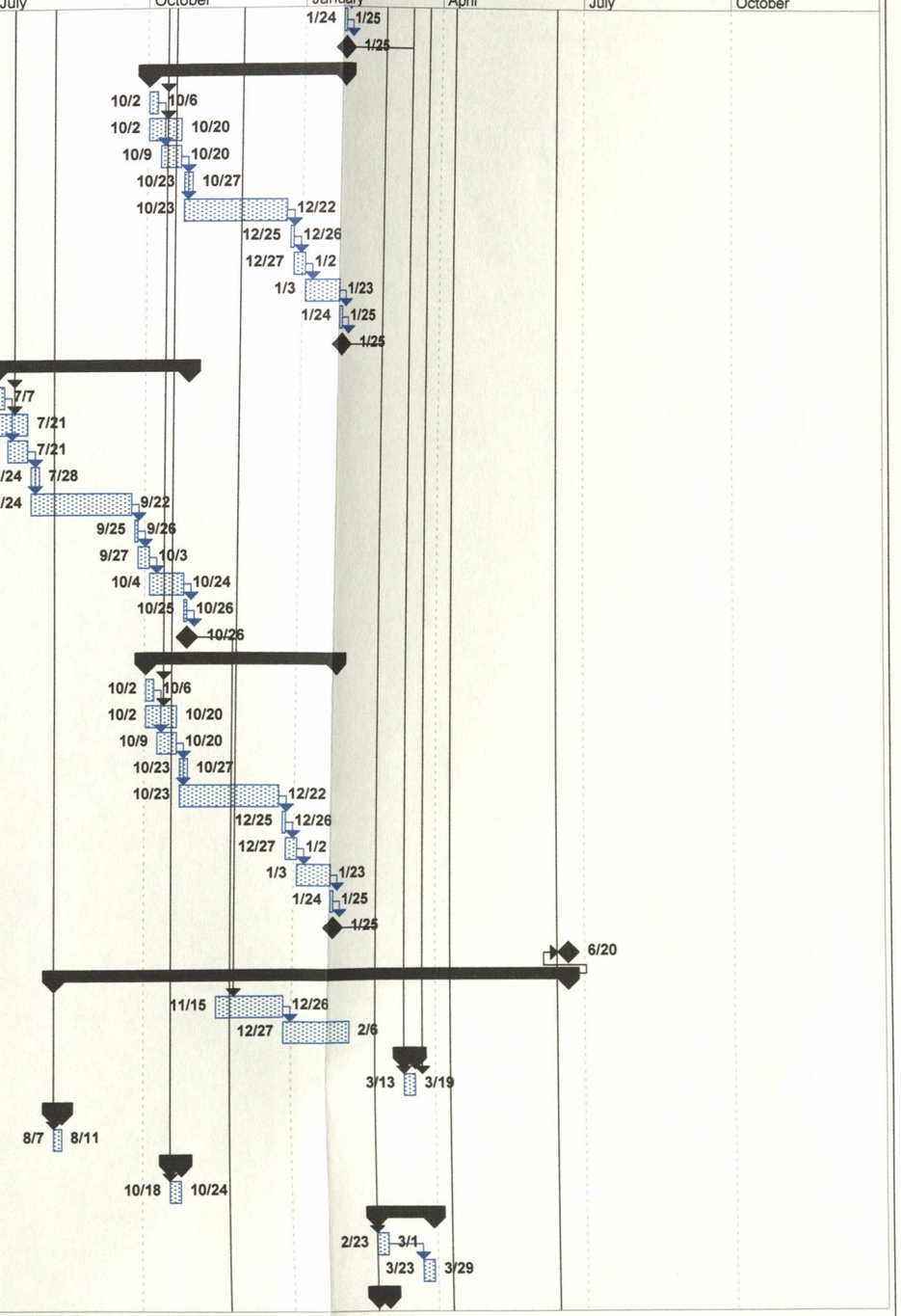



Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 3

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 99 | Notice period | 2 days | Wed 1/24/07 | Thu 1/25/07 | Mon 6/25/07 |
| 100 | GAF Start date | 0 days | Thu 1/25/07 | Thu 1/25/07 | Tue 6/26/07 |
| 101 | **Logistics manager** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 102 | Develop and submit PDR | 5 days | Mon 10/2/06 | Fri 10/6/06 | Tue 3/6/07 |
| 103 | Develop criteria for DA | 15 days | Mon 10/2/06 | Fri 10/20/06 | Mon 7/30/07 |
| 104 | Approval of PDR | 10 days | Mon 10/9/06 | Fri 10/20/06 | Tue 3/20/07 |
| 105 | Review GAF bench strength for potentials | 5 days | Mon 10/23/06 | Fri 10/27/06 | Mon 7/30/07 |
| 106 | Recruiting / assessment | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 5/22/07 |
| 107 | Conduct DA on candidates | 2 days | Mon 12/25/06 | Tue 12/26/06 | Thu 5/24/07 |
| 108 | Make offer / negotiations | 5 days | Wed 12/27/06 | Tue 1/2/07 | Thu 5/31/07 |
| 109 | Background and reference check | 15 days | Wed 1/3/07 | Tue 1/23/07 | Thu 6/21/07 |
| 110 | Notice period | 2 days | Wed 1/24/07 | Thu 1/25/07 | Mon 6/25/07 |
| 111 | GAF Start date | 0 days | Thu 1/25/07 | Thu 1/25/07 | Tue 6/26/07 |
| 112 | **HR Manager** | **84 days** | **Mon 7/3/06** | **Thu 10/26/06** | **Mon 7/30/07** |
| 113 | Develop and submit PDR | 5 days | Mon 7/3/06 | Fri 7/7/06 | Tue 3/6/07 |
| 114 | Develop criteria for DA | 15 days | Mon 7/3/06 | Fri 7/21/06 | Mon 7/30/07 |
| 115 | Approval of PDR | 10 days | Mon 7/10/06 | Fri 7/21/06 | Tue 3/20/07 |
| 116 | Review GAF bench strength for potentials | 5 days | Mon 7/24/06 | Fri 7/28/06 | Mon 7/30/07 |
| 117 | Recruiting / assessment | 45 days | Mon 7/24/06 | Fri 9/22/06 | Tue 5/22/07 |
| 118 | Conduct DA on candidates | 2 days | Mon 9/25/06 | Tue 9/26/06 | Thu 5/24/07 |
| 119 | Make offer / negotiations | 5 days | Wed 9/27/06 | Tue 10/3/06 | Thu 5/31/07 |
| 120 | Background and reference check | 15 days | Wed 10/4/06 | Tue 10/24/06 | Thu 6/21/07 |
| 121 | Notice period | 2 days | Wed 10/25/06 | Thu 10/26/06 | Mon 6/25/07 |
| 122 | GAF Start date | 0 days | Thu 10/26/06 | Thu 10/26/06 | Tue 6/26/07 |
| 123 | **Purchasing** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 124 | Develop and submit PDR | 5 days | Mon 10/2/06 | Fri 10/6/06 | Tue 3/6/07 |
| 125 | Develop criteria for DA | 15 days | Mon 10/2/06 | Fri 10/20/06 | Mon 7/30/07 |
| 126 | Approval of PDR | 10 days | Mon 10/9/06 | Fri 10/20/06 | Tue 3/20/07 |
| 127 | Review GAF bench strength for potentials | 5 days | Mon 10/23/06 | Fri 10/27/06 | Mon 7/30/07 |
| 128 | Recruiting / assessment | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 5/22/07 |
| 129 | Conduct DA on candidates | 2 days | Mon 12/25/06 | Tue 12/26/06 | Thu 5/24/07 |
| 130 | Make offer / negotiations | 5 days | Wed 12/27/06 | Tue 1/2/07 | Thu 5/31/07 |
| 131 | Background and reference check | 15 days | Wed 1/3/07 | Tue 1/23/07 | Thu 6/21/07 |
| 132 | Notice period | 2 days | Wed 1/24/07 | Thu 1/25/07 | Mon 6/25/07 |
| 133 | GAF Start date | 0 days | Thu 1/25/07 | Thu 1/25/07 | Tue 6/26/07 |
| 134 | **Milestone - Salaried training complete** | 0 days | Wed 6/20/07 | Wed 6/20/07 | Mon 7/30/07 |
| 135 | **Training - Salaried** | **228 days** | **Mon 8/7/06** | **Wed 6/20/07** | **Mon 7/30/07** |
| 136 | Review ODP-1 for salaried positions | 30 days | Wed 11/15/06 | Tue 12/26/06 | Mon 6/18/07 |
| 137 | Develop training matrix - GAF standards | 30 days | Wed 12/27/06 | Tue 2/6/07 | Mon 7/30/07 |
| 138 | **Common training - process specific** | **5 days** | **Tue 3/13/07** | **Mon 3/19/07** | **Mon 7/30/07** |
| 139 | Extrusion seminar | 5 days | Tue 3/13/07 | Mon 3/19/07 | Mon 7/30/07 |
| 140 | **Plant manager** | **5 days** | **Mon 8/7/06** | **Fri 8/11/06** | **Mon 7/30/07** |
| 141 | Training in Mount Vernon | 5 days | Mon 8/7/06 | Fri 8/11/06 | Mon 7/30/07 |
| 142 | **Plant engineer / maintenance manager** | **5 days** | **Wed 10/18/06** | **Tue 10/24/06** | **Mon 7/30/07** |
| 143 | Training in Mount Vernon | 5 days | Wed 10/18/06 | Tue 10/24/06 | Mon 7/30/07 |
| 144 | **Accounting manager** | **25 days** | **Fri 2/23/07** | **Thu 3/29/07** | **Mon 7/30/07** |
| 145 | Training in Mount Vernon | 5 days | Fri 2/23/07 | Thu 3/1/07 | Mon 7/2/07 |
| 146 | Training in Wayne | 5 days | Fri 3/23/07 | Thu 3/29/07 | Mon 7/30/07 |
| 147 | **Quality Manager** | **5 days** | **Fri 2/23/07** | **Thu 3/1/07** | **Mon 7/30/07** |

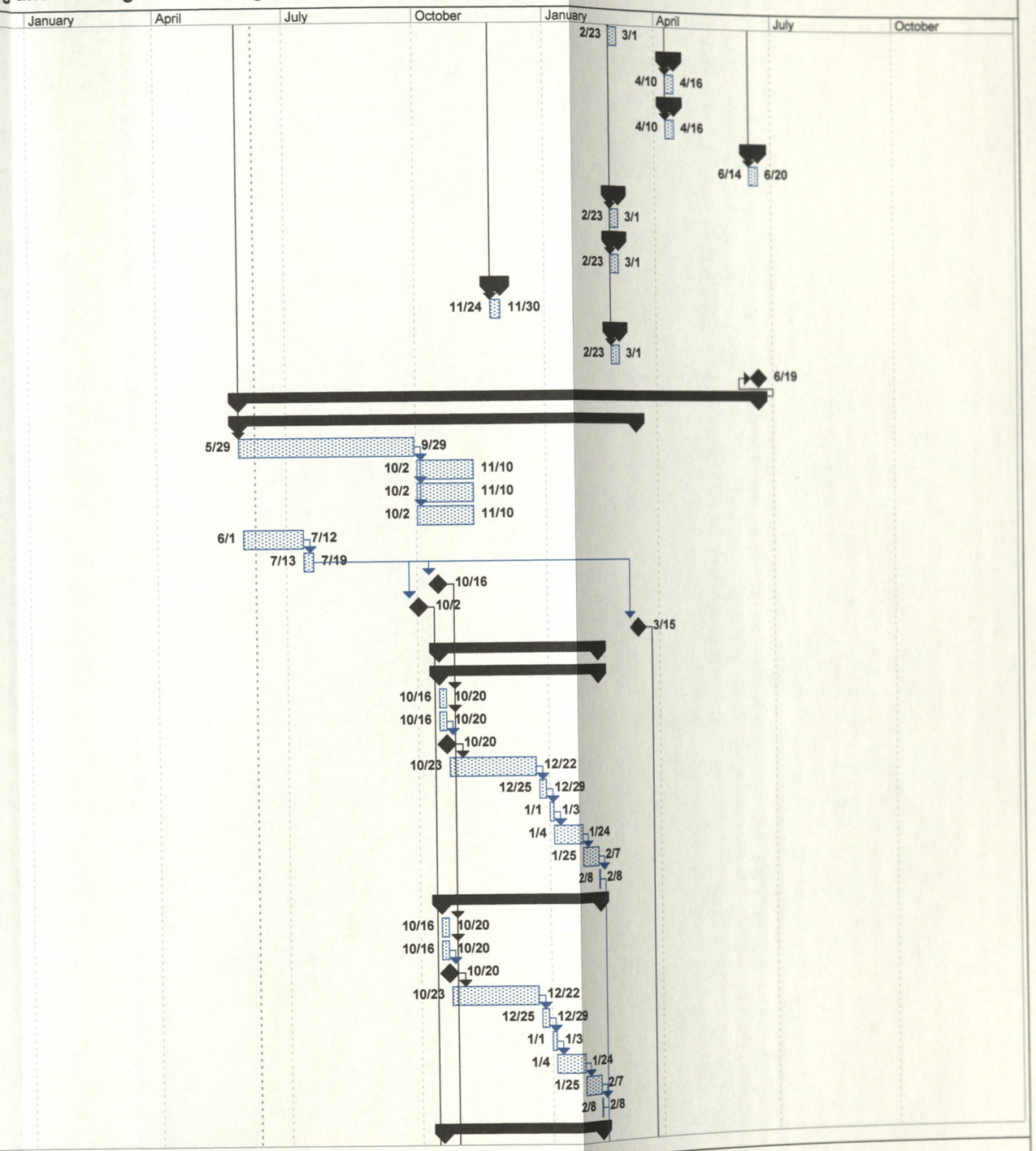



Project: Hiring and training
Date: Fri 6/9/06

| | | | | | |
|---|---|---|---|---|---|
| Task | Milestone | Rolled Up Critical Task | Split | Group By Summary |
| Critical Task | Summary | Rolled Up Milestone | External Tasks | Deadline |
| Progress | Rolled Up Task | Rolled Up Progress | Project Summary | |

# Appendix F -Gainsville Hiring and Training Schedule, Pg 4

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 148 | Training in Mount Vernon | 5 days | Fri 2/23/07 | Thu 3/1/07 | Mon 7/30/07 |
| 149 | **Quality Engineer** | **5 days** | **Tue 4/10/07** | **Mon 4/16/07** | **Mon 7/30/07** |
| 150 | Training in Mount Vernon | 5 days | Tue 4/10/07 | Mon 4/16/07 | Mon 7/30/07 |
| 151 | **Quality Tech 1** | **5 days** | **Tue 4/10/07** | **Mon 4/16/07** | **Mon 7/30/07** |
| 152 | Training in Mount Vernon | 5 days | Tue 4/10/07 | Mon 4/16/07 | Mon 7/30/07 |
| 153 | **Quality Tech 2** | **5 days** | **Thu 6/14/07** | **Wed 6/20/07** | **Mon 7/30/07** |
| 154 | Training in Mount Vernon | 5 days | Thu 6/14/07 | Wed 6/20/07 | Mon 7/30/07 |
| 155 | **Production manager** | **5 days** | **Fri 2/23/07** | **Thu 3/1/07** | **Mon 7/30/07** |
| 156 | Training in Mount Vernon | 5 days | Fri 2/23/07 | Thu 3/1/07 | Mon 7/30/07 |
| 157 | **Logistics manager** | **5 days** | **Fri 2/23/07** | **Thu 3/1/07** | **Mon 7/30/07** |
| 158 | Training in Mount Vernon | 5 days | Fri 2/23/07 | Thu 3/1/07 | Mon 7/30/07 |
| 159 | **HR Manager** | **5 days** | **Fri 11/24/06** | **Thu 11/30/06** | **Mon 7/30/07** |
| 160 | Training in Mount Vernon | 5 days | Fri 11/24/06 | Thu 11/30/06 | Mon 7/30/07 |
| 161 | **Purchasing** | **5 days** | **Fri 2/23/07** | **Thu 3/1/07** | **Mon 7/30/07** |
| 162 | Training in Mount Vernon | 5 days | Fri 2/23/07 | Thu 3/1/07 | Mon 7/30/07 |
| 163 | **Milestone - Hourly hiring complete** | 0 days | Tue 6/19/07 | Tue 6/19/07 | Mon 7/30/07 |
| 164 | **Hourly staffing** | **277 days** | **Mon 5/29/06** | **Tue 6/19/07** | **Mon 7/30/07** |
| 165 | **Develop strategy and pay scales** | **208 days** | **Mon 5/29/06** | **Thu 3/15/07** | **Mon 7/30/07** |
| 166 | Receive production forecast from logistics | 90 days | Mon 5/29/06 | Fri 9/29/06 | Mon 6/18/07 |
| 167 | Determine short and long term production needs | 30 days | Mon 10/2/06 | Fri 11/10/06 | Mon 7/30/07 |
| 168 | Determine maintenance needs | 30 days | Mon 10/2/06 | Fri 11/10/06 | Mon 7/30/07 |
| 169 | Determine logistics needs | 30 days | Mon 10/2/06 | Fri 11/10/06 | Mon 7/30/07 |
| 170 | Complete competitive wage analysis | 30 days | Thu 6/1/06 | Wed 7/12/06 | Tue 1/23/07 |
| 171 | Publish pay scale | 1 wk | Thu 7/13/06 | Wed 7/19/06 | Tue 1/30/07 |
| 172 | Begin production hiring process | 0 days | Mon 10/16/06 | Mon 10/16/06 | Wed 1/31/07 |
| 173 | Begin maintenance hiring process | 0 days | Mon 10/2/06 | Mon 10/2/06 | Wed 1/31/07 |
| 174 | Begin logistics hiring process | 0 days | Thu 3/15/07 | Thu 3/15/07 | Thu 3/15/07 |
| 175 | **Production staffing** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 176 | **Shift Tech 1** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 177 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 178 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 179 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 180 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 181 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 182 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 183 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 184 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 185 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 186 | **Releif Tech 1A** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 187 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 188 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 189 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 190 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 191 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 192 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 193 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 194 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 195 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 196 | **Releif tech 1B** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |

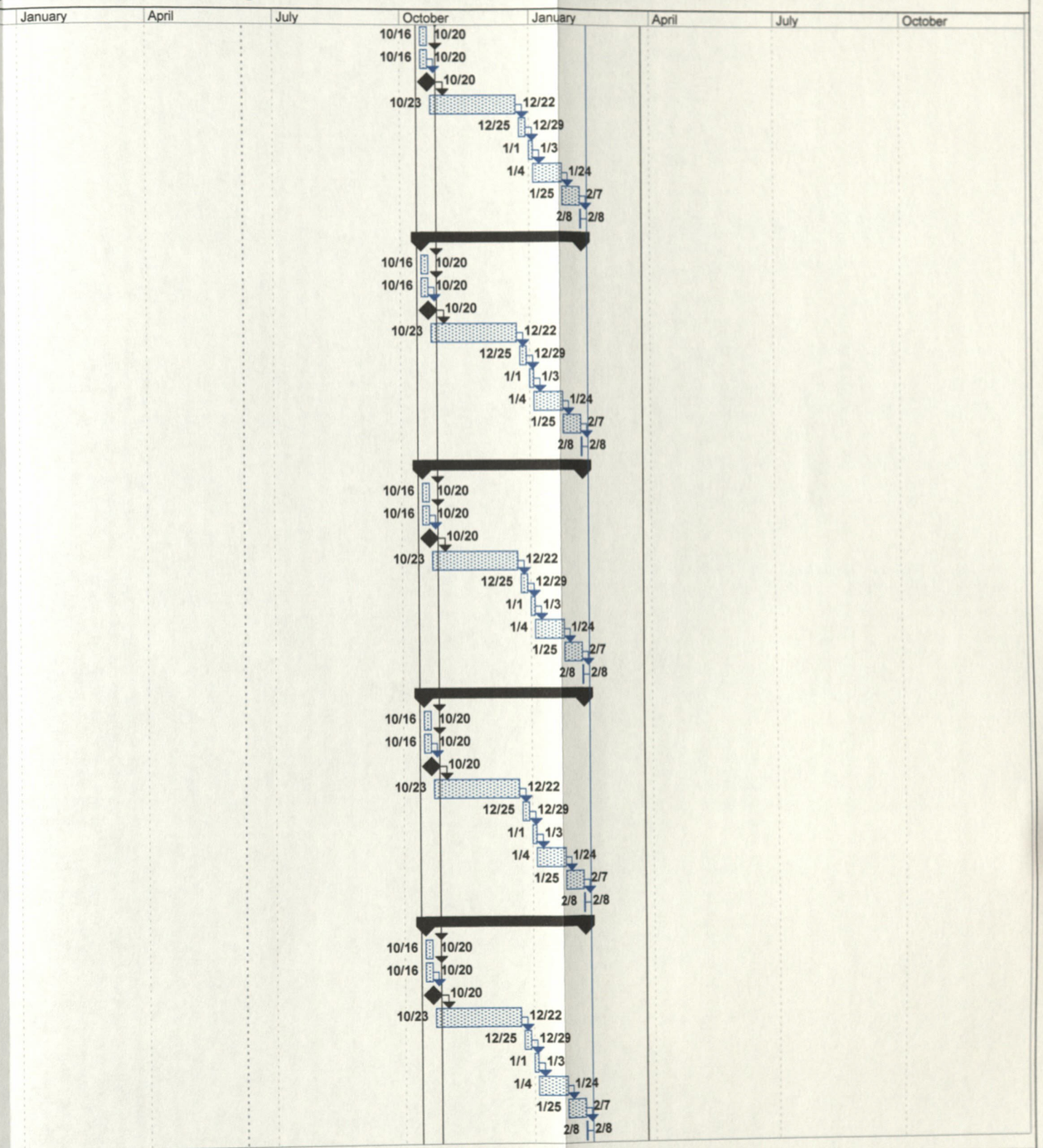



Project: Hiring and training
Date: Fri 6/9/06

| | | | | | |
|---|---|---|---|---|---|
| Task | Milestone | Rolled Up Critical Task | Split | Group By Summary |
| Critical Task | Summary | Rolled Up Milestone | External Tasks | Deadline |
| Progress | Rolled Up Task | Rolled Up Progress | Project Summary | |

# Appendix F -Gainsville Hiring and Training Schedule, Pg 5

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 197 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 198 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 199 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 200 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 201 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 202 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 203 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 204 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 205 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 206 | **Machine tech 1A** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 207 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 208 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 209 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 210 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 211 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 212 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 213 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 214 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 215 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 216 | **Machine tech 1B** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 217 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 218 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 219 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 220 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 221 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 222 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 223 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 224 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 225 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 226 | **Shift Tech 2** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 227 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 228 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 229 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 230 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 231 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 232 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 233 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 234 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 235 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 236 | **Releif Tech 2A** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 237 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 238 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 239 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 240 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 241 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 242 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 243 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 244 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 245 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |

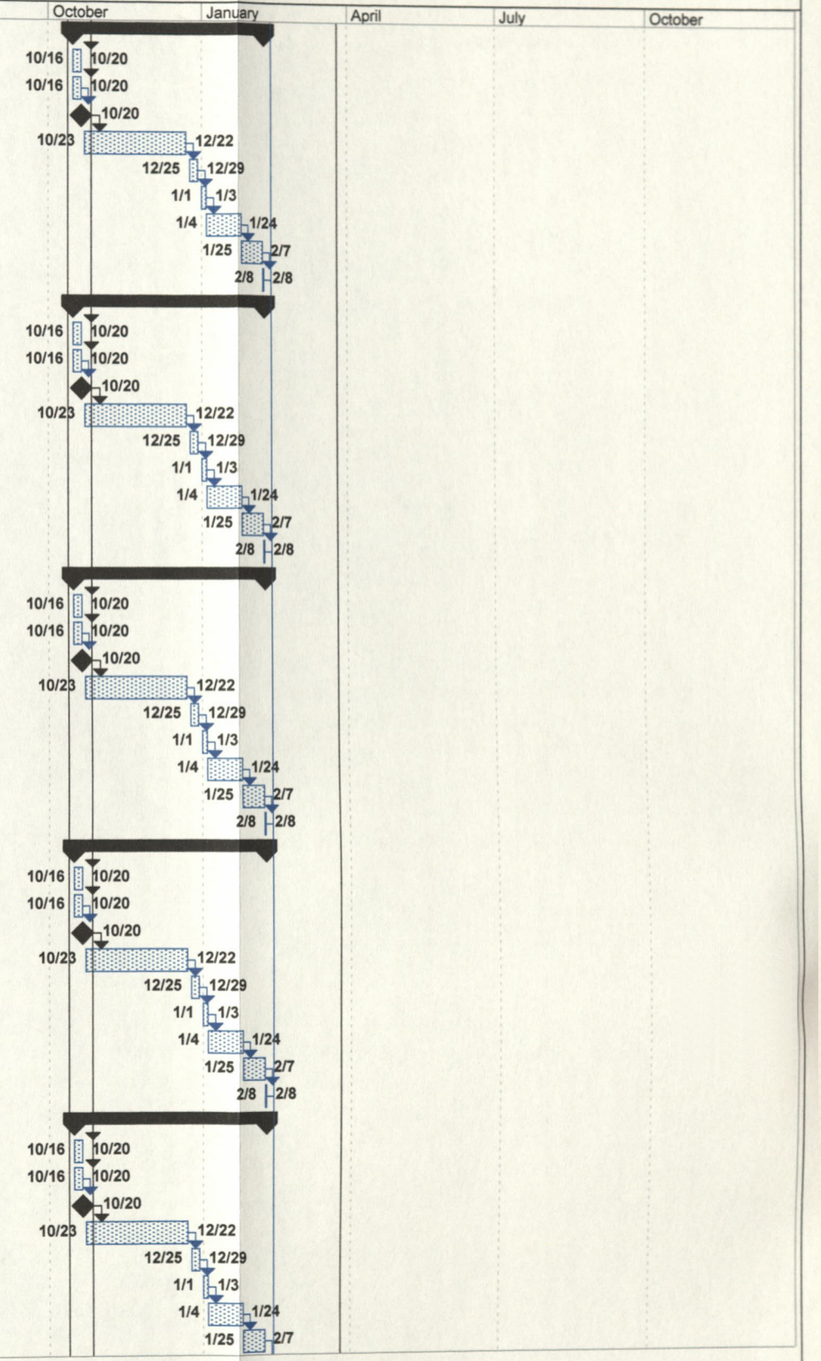



Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 6

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 246 | **Releif tech 2B** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 247 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 248 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 249 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 250 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 251 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 252 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 253 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 254 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 255 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 256 | **Machine tech 2A** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 257 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 258 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 259 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 260 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 261 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 262 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 263 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 264 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 265 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 266 | **Machine tech 2B** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 267 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 268 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 269 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 270 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 271 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 272 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 273 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 274 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 275 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 276 | **Shift Tech 3** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 277 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 278 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 279 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 280 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 281 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 282 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 283 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 284 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 285 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 286 | **Releif Tech 3A** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 287 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 288 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 289 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 290 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 291 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 292 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 293 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 294 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |

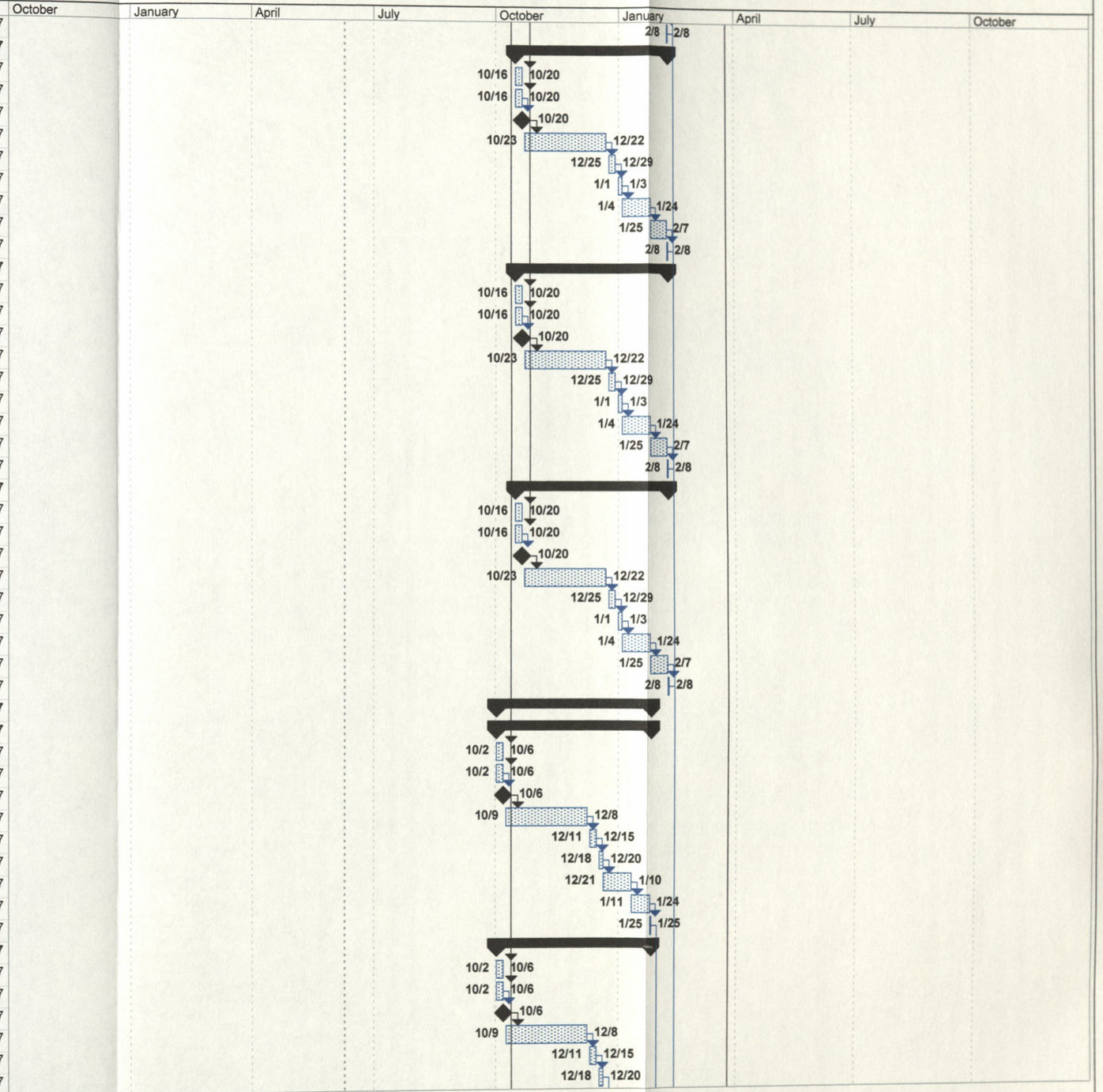



Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 7

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 295 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 296 | **Releif tech 3B** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 297 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 298 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 299 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 300 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 301 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 302 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 303 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 304 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 305 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 306 | **Machine tech 3A** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 307 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 308 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 309 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 310 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 311 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 312 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 313 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 314 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 315 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 316 | **Machine tech 3B** | **84 days** | **Mon 10/16/06** | **Thu 2/8/07** | **Mon 7/30/07** |
| 317 | Finalize job description | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Mon 7/30/07 |
| 318 | Update JSA from MV | 1 wk | Mon 10/16/06 | Fri 10/20/06 | Tue 2/6/07 |
| 319 | Post job | 0 days | Fri 10/20/06 | Fri 10/20/06 | Wed 2/7/07 |
| 320 | Hiring / recruitment / testing | 45 days | Mon 10/23/06 | Fri 12/22/06 | Tue 4/10/07 |
| 321 | Conduct DA on candidates | 1 wk | Mon 12/25/06 | Fri 12/29/06 | Tue 4/17/07 |
| 322 | Make offer | 3 days | Mon 1/1/07 | Wed 1/3/07 | Fri 4/20/07 |
| 323 | Background / reference check | 3 wks | Thu 1/4/07 | Wed 1/24/07 | Fri 5/11/07 |
| 324 | Notice period | 2 wks | Thu 1/25/07 | Wed 2/7/07 | Fri 5/25/07 |
| 325 | Begin GAF employment | 1 day | Thu 2/8/07 | Thu 2/8/07 | Mon 5/28/07 |
| 326 | **Maintenance staffing** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 327 | **Maintenance electrician 1** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 328 | Finalize job description | 1 wk | Mon 10/2/06 | Fri 10/6/06 | Mon 7/30/07 |
| 329 | Update JSA from MV | 1 wk | Mon 10/2/06 | Fri 10/6/06 | Tue 2/6/07 |
| 330 | Post job | 0 days | Fri 10/6/06 | Fri 10/6/06 | Wed 2/7/07 |
| 331 | Hiring / recruitment / testing | 45 days | Mon 10/9/06 | Fri 12/8/06 | Tue 4/10/07 |
| 332 | Conduct DA on candidates | 1 wk | Mon 12/11/06 | Fri 12/15/06 | Tue 4/17/07 |
| 333 | Make offer | 3 days | Mon 12/18/06 | Wed 12/20/06 | Fri 4/20/07 |
| 334 | Background / reference check | 3 wks | Thu 12/21/06 | Wed 1/10/07 | Fri 5/11/07 |
| 335 | Notice period | 2 wks | Thu 1/11/07 | Wed 1/24/07 | Fri 5/25/07 |
| 336 | Begin GAF employment | 1 day | Thu 1/25/07 | Thu 1/25/07 | Mon 5/28/07 |
| 337 | **Maintenance electrician 2** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 338 | Finalize job description | 1 wk | Mon 10/2/06 | Fri 10/6/06 | Mon 7/30/07 |
| 339 | Update JSA from MV | 1 wk | Mon 10/2/06 | Fri 10/6/06 | Tue 2/6/07 |
| 340 | Post job | 0 days | Fri 10/6/06 | Fri 10/6/06 | Wed 2/7/07 |
| 341 | Hiring / recruitment / testing | 45 days | Mon 10/9/06 | Fri 12/8/06 | Tue 4/10/07 |
| 342 | Conduct DA on candidates | 1 wk | Mon 12/11/06 | Fri 12/15/06 | Tue 4/17/07 |
| 343 | Make offer | 3 days | Mon 12/18/06 | Wed 12/20/06 | Fri 4/20/07 |

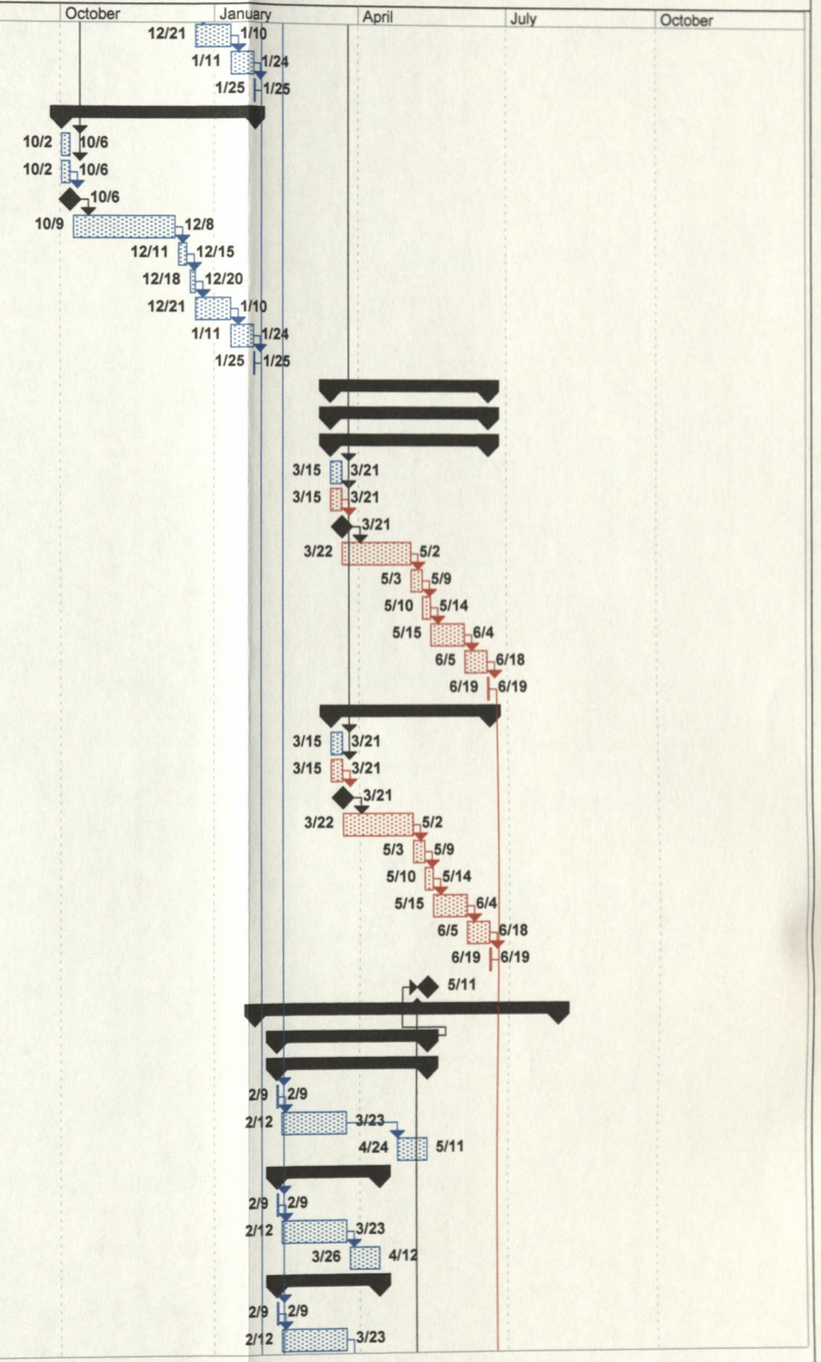



Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 8

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 344 | Background / reference check | 3 wks | Thu 12/21/06 | Wed 1/10/07 | Fri 5/11/07 |
| 345 | Notice period | 2 wks | Thu 1/11/07 | Wed 1/24/07 | Fri 5/25/07 |
| 346 | Begin GAF employment | 1 day | Thu 1/25/07 | Thu 1/25/07 | Mon 5/28/07 |
| 347 | **Maintenance electrician 3** | **84 days** | **Mon 10/2/06** | **Thu 1/25/07** | **Mon 7/30/07** |
| 348 | Finalize job description | 1 wk | Mon 10/2/06 | Fri 10/6/06 | Mon 7/30/07 |
| 349 | Update JSA from MV | 1 wk | Mon 10/2/06 | Fri 10/6/06 | Tue 2/6/07 |
| 350 | Post job | 0 days | Fri 10/6/06 | Fri 10/6/06 | Wed 2/7/07 |
| 351 | Hiring / recruitment / testing | 45 days | Mon 10/9/06 | Fri 12/8/06 | Tue 4/10/07 |
| 352 | Conduct DA on candidates | 1 wk | Mon 12/11/06 | Fri 12/15/06 | Tue 4/17/07 |
| 353 | Make offer | 3 days | Mon 12/18/06 | Wed 12/20/06 | Fri 4/20/07 |
| 354 | Background / reference check | 3 wks | Thu 12/21/06 | Wed 1/10/07 | Fri 5/11/07 |
| 355 | Notice period | 2 wks | Thu 1/11/07 | Wed 1/24/07 | Fri 5/25/07 |
| 356 | Begin GAF employment | 1 day | Thu 1/25/07 | Thu 1/25/07 | Mon 5/28/07 |
| 357 | **Logistics staffing** | **69 days** | **Thu 3/15/07** | **Tue 6/19/07** | **Mon 7/30/07** |
| 358 | **Shipper / receiver** | **69 days** | **Thu 3/15/07** | **Tue 6/19/07** | **Mon 7/30/07** |
| 368 | **Warehouse Associate 1** | **69 days** | **Thu 3/15/07** | **Tue 6/19/07** | **Mon 7/30/07** |
| 369 | Finalize job description | 1 wk | Thu 3/15/07 | Wed 3/21/07 | Mon 7/30/07 |
| 370 | Update JSA from MV | 1 wk | Thu 3/15/07 | Wed 3/21/07 | Wed 3/21/07 |
| 371 | Post job | 0 days | Wed 3/21/07 | Wed 3/21/07 | Thu 3/22/07 |
| 372 | Hiring / recruitment / testing | 30 days | Thu 3/22/07 | Wed 5/2/07 | Wed 5/2/07 |
| 373 | Conduct DA on candidates | 1 wk | Thu 5/3/07 | Wed 5/9/07 | Wed 5/9/07 |
| 374 | Make offer | 3 days | Thu 5/10/07 | Mon 5/14/07 | Mon 5/14/07 |
| 375 | Background / reference check | 3 wks | Tue 5/15/07 | Mon 6/4/07 | Mon 6/4/07 |
| 376 | Notice period | 2 wks | Tue 6/5/07 | Mon 6/18/07 | Mon 6/18/07 |
| 377 | Begin GAF employment | 1 day | Tue 6/19/07 | Tue 6/19/07 | Tue 6/19/07 |
| 378 | **Warehouse Associate 2** | **69 days** | **Thu 3/15/07** | **Tue 6/19/07** | **Mon 7/30/07** |
| 379 | Finalize job description | 1 wk | Thu 3/15/07 | Wed 3/21/07 | Mon 7/30/07 |
| 380 | Update JSA from MV | 1 wk | Thu 3/15/07 | Wed 3/21/07 | Wed 3/21/07 |
| 381 | Post job | 0 days | Wed 3/21/07 | Wed 3/21/07 | Thu 3/22/07 |
| 382 | Hiring / recruitment / testing | 30 days | Thu 3/22/07 | Wed 5/2/07 | Wed 5/2/07 |
| 383 | Conduct DA on candidates | 1 wk | Thu 5/3/07 | Wed 5/9/07 | Wed 5/9/07 |
| 384 | Make offer | 3 days | Thu 5/10/07 | Mon 5/14/07 | Mon 5/14/07 |
| 385 | Background / reference check | 3 wks | Tue 5/15/07 | Mon 6/4/07 | Mon 6/4/07 |
| 386 | Notice period | 2 wks | Tue 6/5/07 | Mon 6/18/07 | Mon 6/18/07 |
| 387 | Begin GAF employment | 1 day | Tue 6/19/07 | Tue 6/19/07 | Tue 6/19/07 |
| 388 | **Milestone - Prod / Maint training complete** | **0 days** | **Fri 5/11/07** | **Fri 5/11/07** | Mon 7/30/07 |
| 389 | **Hourly Training** | **132 days** | **Fri 1/26/07** | **Mon 7/30/07** | **Mon 7/30/07** |
| 390 | **Production Hourly Training** | **66 days** | **Fri 2/9/07** | **Fri 5/11/07** | **Mon 7/30/07** |
| 391 | **Shift Tech 1** | **66 days** | **Fri 2/9/07** | **Fri 5/11/07** | **Mon 7/30/07** |
| 392 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 393 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 394 | Training in MV | 14 days | Tue 4/24/07 | Fri 5/11/07 | Mon 7/30/07 |
| 395 | **Releif Tech 1A** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 396 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 397 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 398 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 399 | **Releif tech 1B** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 400 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 401 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |

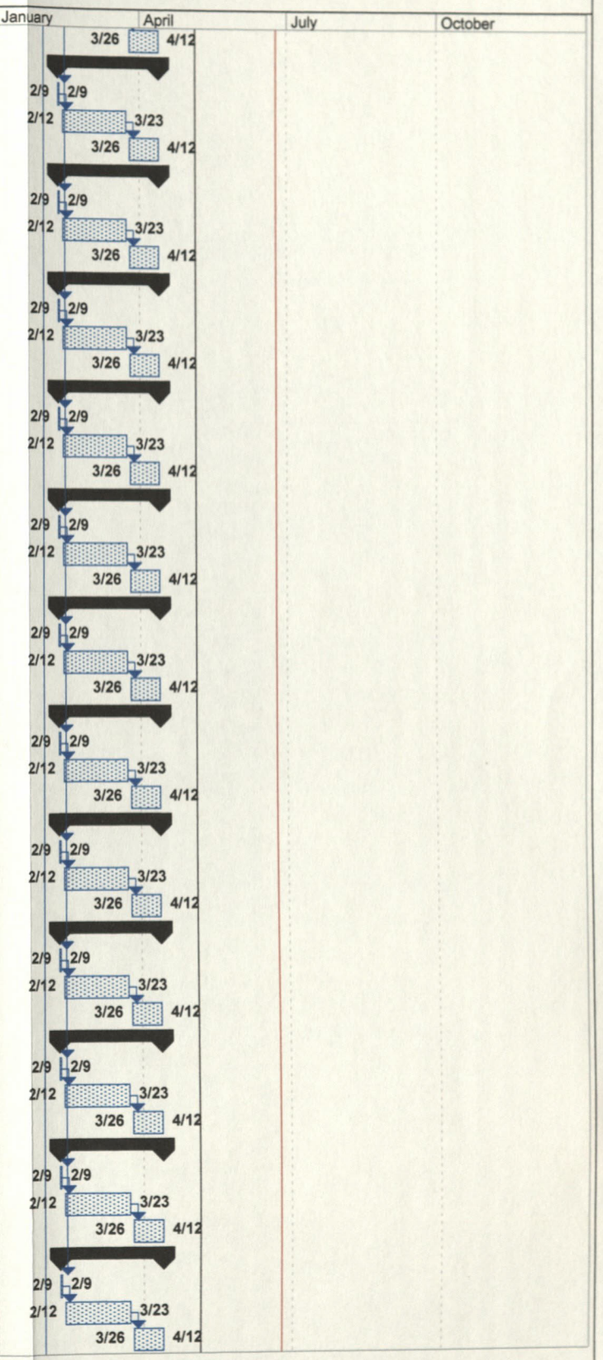



Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 9

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 402 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 403 | **Machine tech 1A** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 404 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 405 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 406 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 407 | **Machine tech 1B** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 408 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 409 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 410 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 411 | **Shift Tech 2** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 412 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 413 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 414 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 415 | **Releif Tech 2A** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 416 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 417 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 418 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 419 | **Releif tech 2B** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 420 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 421 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 422 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 423 | **Machine tech 2A** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 424 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 425 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 426 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 427 | **Machine tech 2B** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 428 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 429 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 430 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 431 | **Shift Tech 3** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 432 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 433 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 434 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 435 | **Releif Tech 3A** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 436 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 437 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 438 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 439 | **Releif tech 3B** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 440 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 441 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 442 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 443 | **Machine tech 3A** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 444 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 445 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 446 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |
| 447 | **Machine tech 3B** | **45 days** | **Fri 2/9/07** | **Thu 4/12/07** | **Mon 7/30/07** |
| 448 | Safety orientation | 1 day | Fri 2/9/07 | Fri 2/9/07 | Tue 5/29/07 |
| 449 | JSA/SOP/Process Specs | 30 days | Mon 2/12/07 | Fri 3/23/07 | Tue 7/10/07 |
| 450 | Training in MV | 14 days | Mon 3/26/07 | Thu 4/12/07 | Mon 7/30/07 |

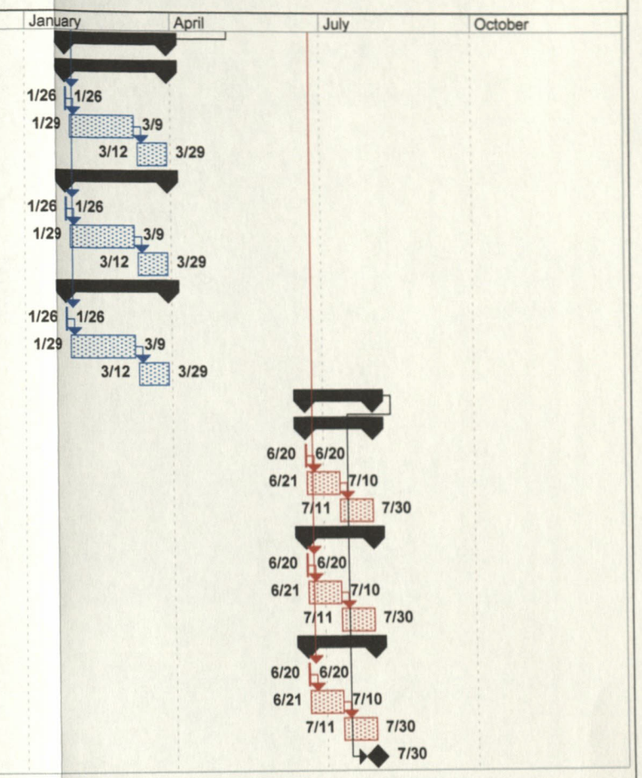



Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix F -Gainsville Hiring and Training Schedule, Pg 10

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 451 | **Maintenance training** | **45 days** | **Fri 1/26/07** | **Thu 3/29/07** | **Mon 7/30/07** |
| 452 | **Maintenance electrician 1** | **45 days** | **Fri 1/26/07** | **Thu 3/29/07** | **Mon 7/30/07** |
| 453 | Safety orientation | 1 day | Fri 1/26/07 | Fri 1/26/07 | Tue 5/29/07 |
| 454 | JSA/SOP/Process Specs | 30 days | Mon 1/29/07 | Fri 3/9/07 | Tue 7/10/07 |
| 455 | Training in MV | 14 days | Mon 3/12/07 | Thu 3/29/07 | Mon 7/30/07 |
| 456 | **Maintenance electrician 2** | **45 days** | **Fri 1/26/07** | **Thu 3/29/07** | **Mon 7/30/07** |
| 457 | Safety orientation | 1 day | Fri 1/26/07 | Fri 1/26/07 | Tue 5/29/07 |
| 458 | JSA/SOP/Process Specs | 30 days | Mon 1/29/07 | Fri 3/9/07 | Tue 7/10/07 |
| 459 | Training in MV | 14 days | Mon 3/12/07 | Thu 3/29/07 | Mon 7/30/07 |
| 460 | **Maintenance electrician 3** | **45 days** | **Fri 1/26/07** | **Thu 3/29/07** | **Mon 7/30/07** |
| 461 | Safety orientation | 1 day | Fri 1/26/07 | Fri 1/26/07 | Tue 5/29/07 |
| 462 | JSA/SOP/Process Specs | 30 days | Mon 1/29/07 | Fri 3/9/07 | Tue 7/10/07 |
| 463 | Training in MV | 14 days | Mon 3/12/07 | Thu 3/29/07 | Mon 7/30/07 |
| 464 | **Shipping Receiving training** | **29 days** | **Wed 6/20/07** | **Mon 7/30/07** | **Mon 7/30/07** |
| 465 | **Shipper / receiver** | **29 days** | **Wed 6/20/07** | **Mon 7/30/07** | **Mon 7/30/07** |
| 466 | Safety orientation | 1 day | Wed 6/20/07 | Wed 6/20/07 | Wed 6/20/07 |
| 467 | JSA/SOP/Process Specs | 14 days | Thu 6/21/07 | Tue 7/10/07 | Tue 7/10/07 |
| 468 | Training in MV | 14 days | Wed 7/11/07 | Mon 7/30/07 | Mon 7/30/07 |
| 469 | **Warehouse Associate 1** | **29 days** | **Wed 6/20/07** | **Mon 7/30/07** | **Mon 7/30/07** |
| 470 | Safety orientation | 1 day | Wed 6/20/07 | Wed 6/20/07 | Wed 6/20/07 |
| 471 | JSA/SOP/Process Specs | 14 days | Thu 6/21/07 | Tue 7/10/07 | Tue 7/10/07 |
| 472 | Training in MV | 14 days | Wed 7/11/07 | Mon 7/30/07 | Mon 7/30/07 |
| 473 | **Warehouse Associate 2** | **29 days** | **Wed 6/20/07** | **Mon 7/30/07** | **Mon 7/30/07** |
| 474 | Safety orientation | 1 day | Wed 6/20/07 | Wed 6/20/07 | Wed 6/20/07 |
| 475 | JSA/SOP/Process Specs | 14 days | Thu 6/21/07 | Tue 7/10/07 | Tue 7/10/07 |
| 476 | Training in MV | 14 days | Wed 7/11/07 | Mon 7/30/07 | Mon 7/30/07 |
| 477 | **Milestone - Shipping training complete** | **0 days** | **Mon 7/30/07** | **Mon 7/30/07** | Mon 7/30/07 |




Project: Hiring and training
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

Appendix G

Project Initiation Sheet

# TPO Gainesville Project Initiation Sheet

| | |
|---|---|
| **Date** | March 16, 2006 |
| **Project Title** | Install TPO Capacity in Gainesville, TX (Project Bright) |
| **Project Manager** | Doug Pohli |
| **Project Sponsor** | Ken Walton (Senior Vice President – Operations) |
| **Project Statement** | Construct a TPO Line at GAF's Gainesville property with XXX MM SF annual capacity, by September 1, 2007 at an estimated cost of XX million that is capable of following the agreed ramp rate. |

| | |
|---|---|
| **Project Objectives** | At the end of this project we will have:<br><br>Land & Equipment Sub-Project (completed by September 1, 2007)<br>Sub-Project Statement:<br><br>Construct a TPO Line at GAF's Gainesville property with XXX MM SF annual capacity, by September 1, 2007 at an estimated cost of $XX million<br><br>1. Plant and equipment sufficient to produce XX MM SF of TPO in place by September 1, 2007<br>2. Achieve Mount Vernon COGS and EBITA<br>3. Omitted – plant capabilities<br>4. Capability to add future lines to the existing building<br>5. Equipment, and plant footprint, designed to meet production target according to business plan attached to AFE<br>6. Capacity to unload and store XX amount of bulk raw materials from rail cars<br>7. Capacity to receive and store certain materials in bulk sacks<br>8. Capacity to receive and store all other materials in Gaylord boxes<br>9. External storage facility for flammable materials<br>10. Ability to test product on site<br>11. Office space and locker rooms to meet ADA standards<br>12. Capability to reclaim plastic from the waste stream with grinding and reclaim system<br>13. Product storage racks in warehouse with XX pallet positions<br>14. Space to stage trucks<br>15. Meet all applicable codes (Fire, ADA)<br>16. Product will be equivalent quality, and compatible to Mount Vernon per the same product specifications<br>17. Basic inventory of spare parts including a calendar roll<br>18. Capable of producing roll lengths per attached Matrix (TBD)<br>19. Length of the rolls will be +/- 3”<br>20. A security fence will be put around the property perimeter, and a separate fence will isolate employee access the rail tracks.<br>21. A separate entrance to the plant will be provided for contractors. A guard house will provide security for vehicles entering the property.<br><br>Plant Operations Sub-Project (completed by June 1, 2007) |

GAF MATERIALS CORPORATION

# TPO Gainesville Project Initiation Sheet

| | |
|---|---|
| | Sub Project Statement:<br><br>Develop GAF's TPO Gainesville production line, and operations policies and procedures by June 1, 2007 to produce at the agreed ramp rate.<br><br>1. Defined, written environmental and safety procedures (with EH&S involvement)<br>2. Defined equipment maintenance for daily, preventive and predictive maintenance prior to dry commissioning, based upon operational manuals and preventive maintenance recommendations from equipment suppliers when available and developed as required<br>3. Developed JSA's, Process Specs, Start-up and Shut-down checklists, SOP's, Preventive/Predictive Maintenance, and Visual Boards on the plant floor, SERP Plans and Failure Defense Plans<br>4. Trained staff and crew (operators and maintenance) ready for production to meet the sales plan<br>5. Supply chain sourcing in place (bulk raw materials, scrim, and packaging)<br>6. Production rate to follow AFE rate ramp attached<br>7. Establish inventory to meet service level TBD |
| **Deliverables (and Exclusions)** | **Equipment Sub-Project Deliverables**<br><br>1. AFE submittal (see addenda with elements of AFE package).<br>2. Detailed final master schedule for equipment installation, and operations (work breakdown structure, schedule, resource assignment, and Potential Problem Analysis)<br>3. Final project drawings (as built)<br>4. Unloading stations to deliver polymer rail cars to two refurbished silos<br>5. Two Polymer storage silos (existing silos refurbished)<br>6. Unloading stations to unload bulk trucks using truck blower to silos<br>7. Pre-construction internal traffic analysis (PPA) based on equipment drawings<br>8. Sewer system in place<br>9. Fire Protection Systems per code and insurance recommendations<br>10. Renovate offices, rest rooms, locker rooms, small meeting room, quality lab, maintenance shop, and break room per ADA<br>11. Electrical control room, utility room, blower room, and raw material unloading room<br>12. Grinding and reclaim station<br><br>**Plant Ops Sub-Project Deliverables**<br><br>1. Detailed final sub-project plan crewing, training, and production start-up (work breakdown structure, schedule, resource assignment, and Potential Problem Analysis)<br>2. Written JSA's, Process Specs, Start-up and Shut-down checklists, SOP's, Preventive/Predictive Maintenance, and Visual Boards on the plant floor, SERP Plans and Failure Defense Plans<br>3. Project safety plan, including evacuation and emergency response plan<br>4. Crew hired and trained (with Corporate HR, CQA, Safety and Reliability on site to assist).<br>5. Plant safety program in place<br>6. Maintenance manuals spare parts lists, operator manuals provided by vendor supplier(s) for each plant asset if available or developed as required |

GAF MATERIALS CORPORATION

# TPO Gainesville Project Initiation Sheet

7. Plant environmental performance test requirements and results completed satisfactorily
8. Major spare parts capitalized or expensed per GAF Policy on a separate AFE
9. Monthly production per Sales ramp up schedule, see attached
10. Intergration of Maximo within 6 months of start-up

**Exclusions – equipment/capabilities not included in project scope**

1. Omitted
2. Does not include manufacturing of ISO
3. Freedom is not part of this project's scope
4. No box car loading or unloading
5. No changes to the finished goods dock doors
6. Employee training costs are not included in capital (accounted as Operations expense)
7. Replacing the roof is not in the scope of this project
8. Reconditioning and sealing of the existing concrete floors is not part of the scope of this project
9. No build modification in anticipation to support other future projects
10. No monies from the state or community for economic development have been factored into the AFE for training or other activities. Economic aid from the state and community will be negotiated separately.

Deliverables that are not explicitly stated in this document will be excluded from the project. Any additional deliverables will require a supplemental AFE, including costs and financial justification (IRR), signed off by the party initiating the change and Project Steering Committee.

# TPO Gainesville Project Initiation Sheet

**Assumptions/Risks**

**Assumptions:**

1. Contingency funds are identified to cover additional unexpected expenditures for deliverables included in the initial project scope.
2. Start up will be limited to 120" wide 45 mil product until acceptance testing complete for 45 mil
3. Production and packaging for Gainesville manufactured products will be the same as Mount Vernon
4. GEO will be made to the same specification as roofing product
5. No glue used to attach to the core and a taped seam is acceptable
6. No TPO will be stored at off site warehousing
7. No product shipped out by rail
8. HR will have automated payroll system in place
9. No engineering staff onsite after commissioning (up to 2 months)
10. Same Quality systems as Mount Vernon
11. Product specifications identical to Mount Vernon
12. Standardized training plans as Mount Vernon
13. Duplicate laboratory capability from Mt Vernon to Gainesville
14. QC staffing levels will be the same as Mt Vernon
15. There will be 11 staff specific roles:
16. Project Management will require 5 specific roles:
    - 1 Project Coordinator (full time) (Plant Manager)
    - 1 Project Manager (full time)
    - 1 Project Engineer (full time) (Plant Engineer)
    - 1 Project Accountant (TBD per hiring and training schedule)
    - 1 HR Manager (TBD per hiring and training schedule)
    - Project Scheduling will be by Lockwood Greene
    - Construction management will be by Lockwood Greene
17. Hourly employees will not exceed per shift:

| Position | Shift |
|---|---|
| Line operators | X |
| Receiving Personnel | X |
| Maintenance (Mechanical/ Electrical) | X |
| Shipping and Receiving | X |

18. Security Guard and custodial services are contract employees
19. Wages to be competitive for the area in order to attract & retain top people

**Risks:**

1. Equipment lead times could exceed current attached project timeline (specific concern: overseas customs clearing and shipping delays)
2. Difficulty to find high skilled people to support both operations and maintenance
3. Sales forecast does not match rate ramp
4. Second floor space maybe non-useable due to ADA requirements

# TPO Gainesville Project Initiation Sheet

| | |
|---|---|
| | 5. Potential for operations impact during construction caused by other or additional projects (ISO, PVC) |
| **Business Assumptions/Risks** | **Assumptions:**<br>1. Market is growing @ 20% per year<br>2. Need to take market share from the competition<br>3. Increase in warranty sales<br>4. Product mix improvements from offering better pricing<br>5. Omitted<br>6. Omitted<br>7. We will be more attractive to carriers with Gainesville in combination with the Dallas operation<br>8. Transportation costs are neutral for raw materials for Gainesville versus Mount Vernon<br>9. UL will have to conduct an inspection at the plant and establish a Follow Service Procedure for the new plant. No code testing will be required. Will add the new manufacturing location for FM approval and schedule their inspection around the same time as we have UL in to inspect.<br>10. R & D will test product and sign off through the RCN Process<br>**Risks:**<br>1. If completion is the 4Q, there may be more 45 mil available in the market than demand will support, causing the price to fall at both plants.<br>2. Competition may drop price in response to increased supply<br>3. Carlisle has a new line in Utah to serve the West<br>4. Firestone has a new line in SC to serve the South |

# TPO Gainesville Project Initiation Sheet

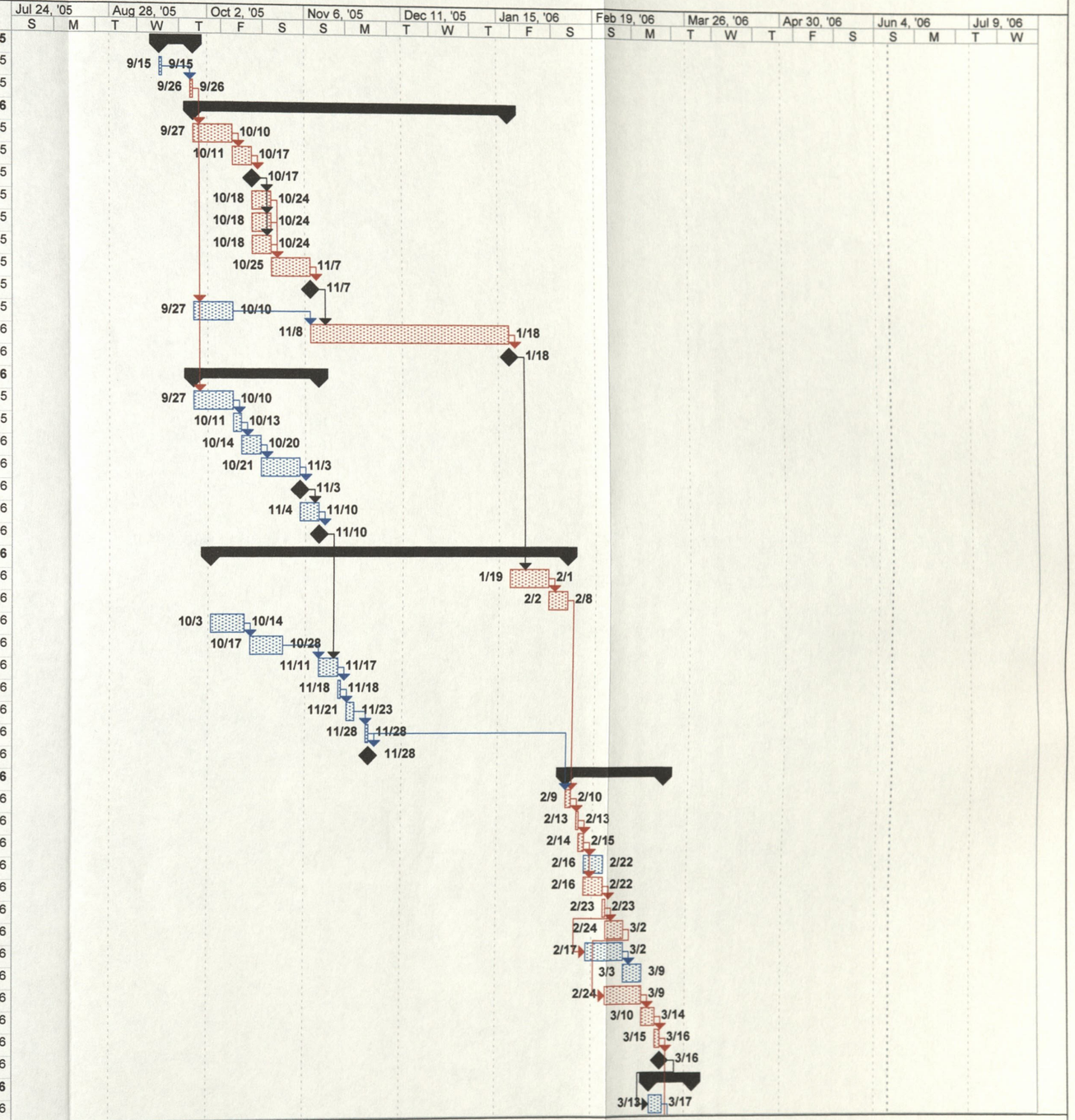
| | | |
|---|---|---|
| **Milestones** | **Timing** | **Milestone** |
| | | AFE submittal<br>Closing on Property<br>Competition of Detailed Engineering<br>Major Equipment Orders Complete<br>Site Prep completed (demolition/grading)<br>Construction started<br>Project Team on Site<br>Maintenance crew in place<br>Raw Materials ordered<br>Plant operational manuals in place (safety, environment, maintenance, SOP's)<br>Machine operators in place<br>Product makes quality standards<br>Performance testing complete |
| **Justification Summary** | IRR: Meets or exceeds minimum<br>NPV: Positive<br>Payback: Meets of exceeds minimum | |

Appendix H

Timeline for Project Approval

# Appendix H - Timeline for Project Approval, Pg 1

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 1 | **Form Project Team** | **8 days** | **Thu 9/15/05** | **Mon 9/26/05** | **Mon 9/26/05** |
| 2 | Project Team Identification | 1 day | Thu 9/15/05 | Thu 9/15/05 | Fri 9/23/05 |
| 3 | Project Kickoff Meeting | 1 day | Mon 9/26/05 | Mon 9/26/05 | Mon 9/26/05 |
| 4 | **Site selection** | **80 days** | **Tue 9/27/05** | **Wed 1/18/06** | **Thu 1/19/06** |
| 5 | Receive regional sales forecast | 2 wks | Tue 9/27/05 | Mon 10/10/05 | Mon 10/10/05 |
| 6 | Identify possible geographic options | 1 wk | Tue 10/11/05 | Mon 10/17/05 | Mon 10/17/05 |
| 7 | Issue list of geopraphic areas to purchasing / logistics | 0 days | Mon 10/17/05 | Mon 10/17/05 | Tue 10/18/05 |
| 8 | Projected delivered raw material costs for each potential area | 1 wk | Tue 10/18/05 | Mon 10/24/05 | Mon 10/24/05 |
| 9 | Projected finished product freight costs for each area | 1 wk | Tue 10/18/05 | Mon 10/24/05 | Mon 10/24/05 |
| 10 | Research land costs for each area | 1 wk | Tue 10/18/05 | Mon 10/24/05 | Mon 10/24/05 |
| 11 | Analysis of cost data for each geopraphic area | 2 wks | Tue 10/25/05 | Mon 11/7/05 | Mon 11/7/05 |
| 12 | Narrow potential greenfield areas to one location | 0 days | Mon 11/7/05 | Mon 11/7/05 | Tue 11/8/05 |
| 13 | Issue list of musts / wants for identifying potential sites | 2 wks | Tue 9/27/05 | Mon 10/10/05 | Mon 11/7/05 |
| 14 | Identify potential sites in greenfield area | 10 wks | Tue 11/8/05 | Wed 1/18/06 | Wed 1/18/06 |
| 15 | Complete search for green / brown field sites | 0 days | Wed 1/18/06 | Wed 1/18/06 | Thu 1/19/06 |
| 16 | **Equipment capabilities** | **33 days** | **Tue 9/27/05** | **Thu 11/10/05** | **Thu 1/26/06** |
| 17 | Issue budgetary (+/- 25%) numbers for equipment options | 2 wks | Tue 9/27/05 | Mon 10/10/05 | Fri 12/23/05 |
| 18 | Capacity projections based on equipment options | 3 days | Tue 10/11/05 | Thu 10/13/05 | Wed 12/28/05 |
| 19 | Determine sales ramp up based on capacity options | 1 wk | Fri 10/14/05 | Thu 10/20/05 | Wed 1/4/06 |
| 20 | Develop long term P&L model for various options | 2 wks | Fri 10/21/05 | Thu 11/3/05 | Wed 1/18/06 |
| 21 | Financial analysis complete for equipment options | 0 wks | Thu 11/3/05 | Thu 11/3/05 | Thu 1/19/06 |
| 22 | Decision analysis on equipment options | 1 wk | Fri 11/4/05 | Thu 11/10/05 | Wed 1/25/06 |
| 23 | Decision on capabilities of manufacturing equipment | 0 days | Thu 11/10/05 | Thu 11/10/05 | Thu 1/26/06 |
| 24 | **Funding for Preliminary engineering** | **91 days** | **Mon 10/3/05** | **Wed 2/8/06** | **Fri 3/31/06** |
| 25 | Comparison of greenfield vs. Mt. Vernon option | 2 wks | Thu 1/19/06 | Wed 2/1/06 | Wed 2/1/06 |
| 26 | Decision analysis - greenfield option vs. MV | 1 wk | Thu 2/2/06 | Wed 2/8/06 | Wed 2/8/06 |
| 27 | Review project scope with engineering contractors | 2 wks | Mon 10/3/05 | Fri 10/14/05 | Wed 1/11/06 |
| 28 | Proposal for engineering services | 2 wks | Mon 10/17/05 | Fri 10/28/05 | Wed 1/25/06 |
| 29 | Prepare request for engineering funds based on preliminary data | 1 wk | Fri 11/11/05 | Thu 11/17/05 | Wed 2/1/06 |
| 30 | Present funding request to executive leadership team | 1 day | Fri 11/18/05 | Fri 11/18/05 | Thu 2/2/06 |
| 31 | Feedback from ELT / provide additional information | 3 days | Mon 11/21/05 | Wed 11/23/05 | Tue 2/7/06 |
| 32 | Approval of funding for preliminary engineering | 1 day | Mon 11/28/05 | Mon 11/28/05 | Wed 2/8/06 |
| 33 | End conceptual stage | 0 days | Mon 11/28/05 | Mon 11/28/05 | Fri 3/31/06 |
| 34 | **Preliminary engineering** | **26 days** | **Thu 2/9/06** | **Thu 3/16/06** | **Tue 3/28/06** |
| 35 | Issue contract for preliminary engineering | 2 days | Thu 2/9/06 | Fri 2/10/06 | Fri 2/10/06 |
| 36 | Kickoff meeting with engineering contractor | 1 day | Mon 2/13/06 | Mon 2/13/06 | Mon 2/13/06 |
| 37 | Detailed project scope and timeline | 2 days | Tue 2/14/06 | Wed 2/15/06 | Wed 2/15/06 |
| 38 | Layouts, P&ID's, PFD's | 5 days | Thu 2/16/06 | Wed 2/22/06 | Fri 3/31/06 |
| 39 | Generate equipment list | 5 days | Thu 2/16/06 | Wed 2/22/06 | Wed 2/22/06 |
| 40 | Engineering review meeting | 1 day | Thu 2/23/06 | Thu 2/23/06 | Thu 2/23/06 |
| 41 | Detailed equipment specifications | 1 wk | Fri 2/24/06 | Thu 3/2/06 | Thu 3/2/06 |
| 42 | Detailed process engineering | 2 wks | Fri 2/17/06 | Thu 3/2/06 | Fri 3/24/06 |
| 43 | Cost estimates for mechanical, electrical, construction | 1 wk | Fri 3/3/06 | Thu 3/9/06 | Fri 3/31/06 |
| 44 | Receive equipment bid proposals | 2 wks | Fri 2/24/06 | Thu 3/9/06 | Thu 3/9/06 |
| 45 | Analyze and compare quotes | 3 days | Fri 3/10/06 | Tue 3/14/06 | Tue 3/14/06 |
| 46 | Develop final cost estimate | 2 days | Wed 3/15/06 | Thu 3/16/06 | Thu 3/16/06 |
| 47 | Final cost estimate | 0 days | Thu 3/16/06 | Thu 3/16/06 | Fri 3/24/06 |
| 48 | **Request for funding** | **12 days** | **Mon 3/13/06** | **Tue 3/28/06** | **Tue 3/28/06** |
| 49 | Develop financial models for options / locations | 1 wk | Mon 3/13/06 | Fri 3/17/06 | Mon 3/27/06 |

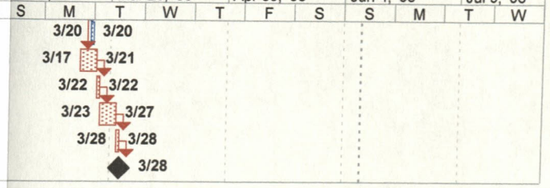



Project: Grad proj
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
Split
External Tasks
Project Summary
Group By Summary
Deadline

# Appendix H - Timeline for Project Approval, Pg 2

| ID | Task Name | Duration | Start | Finish | Late Finish |
|---|---|---|---|---|---|
| 50 | Review with project team | 1 day | Mon 3/20/06 | Mon 3/20/06 | Tue 3/28/06 |
| 51 | Prepare formal request for funding (AFE) and presentation | 3 days | Fri 3/17/06 | Tue 3/21/06 | Tue 3/21/06 |
| 52 | Present request to executive leadership team | 1 day | Wed 3/22/06 | Wed 3/22/06 | Wed 3/22/06 |
| 53 | Respond to feedback from executive leadership team | 3 days | Thu 3/23/06 | Mon 3/27/06 | Mon 3/27/06 |
| 54 | Executive leadership team decision for funding | 1 day | Tue 3/28/06 | Tue 3/28/06 | Tue 3/28/06 |
| 55 | Project approved, hand off to corporate engineering | 0 days | Tue 3/28/06 | Tue 3/28/06 | Tue 3/28/06 |




Project: Grad proj
Date: Fri 6/9/06

Task
Critical Task
Progress
Milestone
Summary
Rolled Up Task
Rolled Up Critical Task
Rolled Up Milestone
Rolled Up Progress
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Appendix I

Project Cost Estimate

# Appendix I
# Gainesville Project Capital Estimate

| Capital Cost Estimate: +/- 10% Accuracy | |
|---|---|
| 3/22/2006 | |
| **Item** | **Estimated Cost** |
| Berstorff Equipment, Installation, and Start-up | $ 1 |
| Raw material handling system | $ 1 |
| Packaging / palletizing | $ 1 |
| Utilities / support | $ 1 |
| Lab equipment & instrumentation | $ 1 |
| Regrind system | $ 1 |
| Storage racks | $ 1 |
| Capital spares | $ 1 |
| Installation of equipment | $ 1 |
| Engineering & construction management | $ 1 |
| Building construction / Site development | $ 1 |
| IS&T | $ 1 |
| Controls integration / data collection | $ 1 |
| Freight | $ 1 |
| Permitting & Bonds | $ 1 |
| Land | $ 1 |
| Environmental | $ 1 |
| Sales tax | $ 1 |
| Contingency | $ 1 |
| Extrusion Consultant | $ 1 |
| Security | $ 1 |
| Roof Repair | $ 1 |
| | |
| **Sub total** | **$ 22** |
| | |
| Acquisition | $ 1 |
| | |
| **Sub total** | **$ 23** |
| | |
| Capitalized interest | $ 1 |
| | |
| **Total** | **$ 24** |
| | |
| Demolition expense | $ 1 |
| Start-up expense (with regrind credit) | $ 1 |
| | |
| **Total** | **$ 26** |