

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
WASHINGTON, D.C. 20549

FORM 10-K

(Mark
One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE
ACT OF 1934.**

For the fiscal year ended December 31, 2008

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934.**

For the transition period from to

Commission file number 0-26301

United Therapeutics Corporation
(Exact Name of Registrant as Specified in Its Charter)

Delaware
(State or Other Jurisdiction of
Incorporation or Organization)

52-1984749
(I.R.S. Employer
Identification No.)

1110 Spring Street, Silver Spring, MD
(Address of Principal Executive Offices)

20910
(Zip Code)

(301) 608-9292
Registrant's Telephone Number, Including Area Code

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, par value \$.01 per share and associated preferred stock purchase rights	Nasdaq Global Select Market

Securities registered pursuant to Section 12(g) of the Act:

None
(Title of Class)

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☒

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See definitions of "large accelerated filer," "accelerated filer," and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☒

Accelerated filer ☐

Non-accelerated filer ☐
(Do not check if a smaller reporting company)

Smaller reporting company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the Common Stock held by non-affiliates of the registrant, based on the closing price on June 30, 2008, as reported by the NASDAQ National Market was approximately \$2,199,200,000

The number of shares outstanding of the issuer's common stock, par value \$0.01 per share, as of February 20, 2009, was 26,435,865

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for the registrant's 2009 annual meeting of shareholders scheduled to be held on June 26, 2009, are incorporated by reference in Part III of this Form 10-K.

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PART I

ITEM 1. BUSINESS

We are a biotechnology company focused on the development and commercialization of unique products to address the unmet medical needs of patients with chronic and life-threatening cardiovascular and infectious diseases and cancer.

Our key therapeutic platforms are:

- *Prostacyclin Analogues* , which are stable synthetic forms of prostacyclin, an important molecule produced by the body that has powerful effects on blood vessel health and function. Our lead prostacyclin analogue is Remodulin®, a treprostinil-based compound for the treatment of cardiovascular disease. Remodulin (treprostinil sodium) Injection has been approved by the U.S. Food and Drug Administration (FDA) for the treatment of pulmonary arterial hypertension (PAH) in patients with New York Heart Association (NYHA) Class II-IV (moderate to severe) symptoms to diminish symptoms associated with exercise. Remodulin has been approved in most of Europe for the treatment of NYHA Class III patients with idiopathic (familial) PAH and in other countries for use similar to that for which it is approved in the United States. Our inhaled and oral formulations of treprostinil are in the later stages of development. A New Drug Application (NDA) for our inhaled formulation is currently under review by the FDA and a Marketing Authorization Application (MAA) is currently under review by the European Medicines Agency (EMA). We are also developing modified release beraprost (beraprost-MR), another prostacyclin analogue, for the treatment of PAH;
- *Phosphodiesterase 5 (PDE5) inhibitors* , which act to inhibit the degradation of cyclic guanosine monophosphate (cGMP) in cells. cGMP is activated by nitric oxide (NO) to signal relaxation of vascular smooth muscle. Our investigational therapy in this platform is tadalafil, a product developed by Eli Lilly and Company (Lilly). Lilly's NDA for tadalafil for the treatment of PAH is currently under review by the FDA. We entered into a license agreement with Lilly to obtain certain rights to tadalafil for PAH, effective December 18, 2008;
- *Monoclonal Antibodies* , which are antibodies that activate patients' immune systems to treat cancer. Our platform includes the 3F8 and 8H9 murine antibodies, which we are developing for the treatment of neuroblastoma and metastatic brain cancer, respectively. We expect to begin a Phase II clinical trial in the second quarter of 2009 of the 3F8 antibody in patients with neuroblastoma; and
- *Glycobiology Antiviral Agents* , which are a novel class of small, sugar-like molecules that have shown pre-clinical indications of efficacy against a broad range of viruses, such as hepatitis C.

We devote most of our resources to developing products within our key therapeutic platforms. We also devote resources to the commercialization and further development of telemedicine products and services, principally for the detection of cardiac arrhythmias (abnormal heart rhythms).

We generate revenues from the sale of Remodulin and telemedicine products and services. Our sales and marketing staff for Remodulin, which is supplemented by our specialty pharmaceutical distributors, supports the commercial availability of Remodulin in the United States, Canada, Europe and other countries.

United Therapeutics was incorporated in Delaware in June 1996. Our principal executive offices are located at 1110 Spring Street, Silver Spring, Maryland 20910. We also maintain executive offices at 55 T.W. Alexander Drive, Research Triangle Park, North Carolina 27709.

Unless the context requires otherwise or unless otherwise noted, all references in this Annual Report on Form 10-K to "United Therapeutics" and to the "company", "we", "us" or "our" are to United Therapeutics Corporation and its subsidiaries.

Our Products

Our product portfolio includes the following as of December 31, 2008:

Product	Mode of Delivery	Indication/Market	Current Status	Our Territory
Remodulin	Continuous subcutaneous	Pulmonary arterial hypertension	Commercial in the U.S., most of Europe*, Canada, Israel, Australia, Mexico, Argentina and Peru; MAA filed with EMEA	Worldwide
Remodulin	Continuous intravenous	Pulmonary arterial hypertension	Commercial in the U.S., Canada, Israel, Mexico, Argentina and Peru; MAA filed with EMEA	Worldwide
CardioPAL® SAVI and Decipher Cardiac Monitors	Telemedicine	Cardiac arrhythmias and ischemic heart disease	Commercial	Worldwide
Inhaled Treprostinil	Inhaled	Pulmonary arterial hypertension	NDA filed with FDA; MAA filed with EMEA	Worldwide
Oral Tadalafil	Oral	Pulmonary hypertension	NDA filed with FDA	United States
Oral Treprostinil	Oral	Pulmonary arterial hypertension	Phase III	Worldwide
Beraprost-MR	Oral	Pulmonary arterial hypertension	Phase II	North America/Europe
3F8 MAb	Intravenous	Neuroblastoma	Phase II	Worldwide
Oral Treprostinil	Oral	Peripheral vascular disease	Phase II	Worldwide
CardioPAL SAVI Wireless Cardiac Event Monitors	Telemedicine	Cardiac arrhythmias and ischemic heart disease	Phase II	Worldwide
Inhaled Treprostinil	Inhaled	Pulmonary arterial hypertension associated with Idiopathic pulmonary fibrosis	Phase I	Worldwide
Inhaled Treprostinil with AERx Essence®	Inhaled	Pulmonary hypertension	Phase I	Worldwide
8H9 MAb	Intravenous	Metastatic brain cancer	Phase I	Worldwide
Celgosivir	Oral	Hepatitis C	Phase I	Worldwide
Miglustat	Oral	Hepatitis C	Pre-Clinical	Worldwide
Glycobiology Antiviral Agents	Oral	Hepatitis C and other infectious diseases	Pre-Clinical	Worldwide

* We have obtained approval in 23 member countries of the European Union (EU), as well as European countries that are not members of the EU. We have received formal approval letters and pricing approval in most of these countries.

Remodulin

Our lead product for treating PAH is Remodulin (treprostinil sodium) Injection, the main ingredient of which is treprostinil sodium, a prostacyclin analogue. We sell Remodulin to our specialty pharmaceutical distributors in the United States at a discount from an average wholesale price recommended by us, and to our international distributors at a transfer price set by us. We recognized approximately \$269.7 million, \$200.9 million and \$152.5 million in Remodulin revenues, representing 96%, 95% and 96% of our net revenues in 2008, 2007 and 2006, respectively. We obtained worldwide rights for all indications to Remodulin from GlaxoSmithKline PLC (formerly Glaxo Wellcome, Inc.) (Glaxo) in January 1997 and from Pfizer, Inc. (formerly Pharmacia & Upjohn Company)(Pfizer) in December 1996. In May 2002, Remodulin was approved by the FDA as a continuous subcutaneous (under the skin) infusion for the treatment of PAH in patients with NYHA Class II-IV (moderate to severe) symptoms. In November 2004, the FDA expanded its approval to permit continuous intravenous (through a vein) infusion for patients who cannot tolerate subcutaneous infusion. In March 2006, the FDA expanded its approval to include transition of patients to Remodulin from Flolan® (epoprostenol), the first FDA-approved prostacyclin for PAH. Remodulin is also approved as a continuous subcutaneous infusion treatment for various forms of PAH in 33 countries throughout the world, and as a continuous intravenous infusion treatment for various forms of PAH in Canada, Israel, Mexico, Peru and Argentina. Applications for approval for both subcutaneous and intravenous Remodulin infusion are under review in many other countries. We continue to work on expanding Remodulin commercialization to other new territories, including Japan.

PAH is a life-threatening disease that affects the blood vessels in the lungs and is characterized by increased blood pressure in the blood vessels leading from the heart to the lungs, known as the pulmonary arteries. The elevated pressure in the pulmonary arteries strains the right side of the heart as it pumps blood to the lungs leading to right heart failure and death. PAH is characterized by the disruption of blood vessel walls, the aggregation of platelets and the alteration of smooth muscle function. It is estimated that PAH affects between 100,000 and 200,000 individuals worldwide. In recent years, as awareness of PAH has grown, we have seen an increase in the number of people diagnosed with the disease. However, because of the rarity of PAH and the complexity of diagnosing it, only a small fraction of patients with PAH are being treated. There is scientific interest in identifying easier, less invasive methods of diagnosing PAH. If this research is successful, more patients could be diagnosed at an earlier stage of the disease.

The complexity of diagnosing PAH reflects in part the current uncertainties surrounding the etiology and pathophysiology of the condition. Currently, treatment of PAH focuses on three distinct molecular pathways that have been implicated in the disease process. These are the endothelin pathway, the NO pathway, and the prostacyclin pathway. Patients with PAH have been shown to have elevated levels of endothelin, a naturally occurring substance in the body that causes constriction of the pulmonary blood vessels. Therefore, one established therapeutic approach has been to block the action of endothelin with drugs that are known as endothelin receptor antagonists (ERAs). Patients with PAH have also been shown to have reduced levels of the enzyme responsible for producing NO, a naturally occurring substance in the body that has the effect of relaxing pulmonary blood vessels. NO produces this effect by increasing intracellular levels of an intermediary known as cGMP. Therefore, another established therapeutic approach has been to inhibit the degradation of cGMP, using drugs that are termed Phosphodiesterase 5 (PDE5) inhibitors. Finally, patients with PAH have been shown to have reduced levels of prostacyclin, a naturally occurring substance that has the effect of relaxing the pulmonary blood vessels, preventing platelet aggregation, and inhibiting the proliferation of smooth muscle cells in pulmonary vessels. Therefore, drugs that mimic the action of prostacyclin, termed prostacyclin analogues, are also established PAH treatments. Because any or all of these three pathways may be operative in a patient, these three classes of drugs are used alone or in combination to treat patients with PAH. We currently market Remodulin, a prostacyclin analogue, and are awaiting FDA approval to market tadalafil, a PDE5 inhibitor, for the treatment of pulmonary hypertension.

A long-term outcome study published in the *European Respiratory Journal* (vol. 28, Number 6; December 2006) demonstrated improved survival with Remodulin therapy when compared to predicted survival (NIH registry formula) over a four-year period. One-, two-, three- and four-year survival was 87%, 78%, 71%, and 68%, respectively, for all 860 patients in the study (including 130 patients who received Remodulin in combination with other PAH therapies) and 88%, 79%, 73%, and 70%, respectively, for 730 of the patients in the study who received only Remodulin. In patients with idiopathic PAH for whom baseline hemodynamics (measurement of bloodflow and pressures) were available (332 patients), survival was 91%, 82%, 76%, and 72% at years one through four, respectively. This compares to respective predicted survival estimates of 69%, 56%, 46%, and 38% over the four-year period based on the NIH registry formula.

Flolan, the first FDA-approved prostacyclin analogue for PAH, is delivered continuously through a surgically implanted intravenous catheter connected to an external pump. Flolan is approved for the treatment of patients with certain subsets of late-stage PAH. We believe Remodulin provides patients with a less invasive alternative to Flolan. In contrast to Flolan, Remodulin is stable at room temperature and lasts significantly longer inside the human body. These attributes allow for safer and more convenient drug delivery to patients. Unlike Flolan, Remodulin can be delivered by subcutaneous infusion with a pager-sized miniature pump device. Subcutaneous delivery of Remodulin also eliminates the risk of central venous catheter infection and the hospitalization required to begin intravenous infusion. Remodulin's extended presence in the body may also reduce the risk of rebound PAH, and possibly death, if treatment is abruptly interrupted. The stability of Remodulin also allows it to be packaged as an aqueous solution, so patients do not have to mix the drug, as they do with Flolan. Remodulin can be continuously infused for up to 48 hours before refilling the infusion pump, unlike Flolan, which must be mixed and refilled every 24 hours. Treprostinil sodium, the active ingredient in Remodulin, is highly soluble in an aqueous solution and therefore Remodulin can be manufactured at highly concentrated solutions. This allows therapeutic concentrations of Remodulin to be delivered at low flow rates via miniaturized infusion pumps for both subcutaneous and intravenous infusion. Lastly, Remodulin does not require the patient to continuously keep the drug cool even during infusion. This eliminates the need for cooling packs or refrigeration to keep it stable, as is required with Flolan due to Flolan's chemical instability at room temperature. In June 2008, the FDA approved a generic version of Flolan, developed by GeneraMedix, Inc., that is stable at room temperature, but still shares all of Flolan's other inconvenient attributes including, but not limited to, risk of central venous catheter infection, required hospitalization at the start of treatment, shorter half-life increasing risk of rebound PAH, mixing, greater frequency of pump refills and larger pump size.

There are noteworthy adverse events associated with Remodulin infusion. When infused subcutaneously, Remodulin causes infusion site pain and reaction (redness and swelling) in most patients to varying degrees. Patients who cannot tolerate subcutaneous Remodulin may instead use it intravenously. Intravenous Remodulin is delivered continuously by an external pump through a surgically implanted central venous catheter, similar to Flolan. When delivered intravenously, Remodulin bears the risk of a serious bloodstream infection known as sepsis, as does Flolan.

FDA Review of Subcutaneous Remodulin

In March 2000, we completed an international, randomized, placebo-controlled, double-blind study of subcutaneous Remodulin involving a total of 470 patients with PAH. Half of the patients received Remodulin subcutaneously for 12 weeks, while the other half received a placebo. The study data showed that patients who received Remodulin had significant improvement in important clinical endpoints. These clinical endpoints included a composite index that measured exercise capacity and shortness of breath, cardiopulmonary hemodynamics and the signs and symptoms of the disease. Based on the favorable results of this study, we filed an NDA with the FDA in late 2000. In May 2002, the FDA approved Remodulin, under Subpart H regulations, as a continuous subcutaneous infusion for the treatment of PAH in patients with NYHA class II-IV symptoms to diminish symptoms associated with

exercise. Remodulin may be prescribed for all types of PAH and is the only PAH treatment approved for patients with NYHA class II-IV symptoms.

FDA Review of Intravenous Remodulin

In July 2003, the FDA accepted our Investigational NDA for the development of Remodulin by intravenous delivery for the treatment of PAH. A study in volunteers was performed in late 2003, which established that intravenous and subcutaneous Remodulin are bioequivalent (meaning that both routes of infusion result in comparable levels of Remodulin in the blood). In addition, animal toxicology studies were completed and indicated that there were no additional safety concerns associated with chronic intravenous infusion.

On January 30, 2004, we filed a supplemental NDA with the FDA to request approval for intravenous use of Remodulin for PAH. On November 24, 2004, based on data establishing intravenous Remodulin's bioequivalence with the previously approved subcutaneous administration of Remodulin, the FDA approved the intravenous use of Remodulin for those not able to tolerate subcutaneous infusion.

On March 20, 2006, the FDA approved a supplemental NDA that we filed to satisfy of our Subpart H commitment from our original May 2002 approval for subcutaneous Remodulin. This approval added language to Remodulin's package insert indicating patients can be transitioned from Flolan to Remodulin.

In January 2007, the results of a prospective, open-label study demonstrated that rapid transition from intravenous Flolan to intravenous Remodulin was achieved in 12 PAH patients with no serious adverse events and baseline clinical status was maintained over 12 weeks. The patients were transitioned from Flolan to intravenous Remodulin by a direct switch from a Flolan medication cassette to a Remodulin medication cassette. All patients reported fewer prostacyclin-related side effects with Remodulin and remained on Remodulin after study completion. The study demonstrated that stable patients with PAH can be safely transitioned from Flolan to intravenous Remodulin using a rapid switch protocol.

Although intravenous Remodulin does not possess all the safety and convenience benefits of subcutaneous Remodulin, it has one important advantage: it eliminates infusion site pain and reaction, a common side effect of subcutaneous Remodulin. Many patients are unsuccessful in managing their infusion site pain even when using available pain management techniques or medication. Intravenous Remodulin has many beneficial characteristics that differentiate it from intravenous Flolan. Intravenous Remodulin does not require refrigeration whereas Flolan must be refrigerated. Furthermore, Remodulin persists in the blood for a few hours, whereas Flolan is highly unstable and only remains active in the body for a few minutes. Because Remodulin persists in the body longer, it may reduce the risk of rebound PAH, a severe recurrence of the disease that can occur when therapy is abruptly interrupted. Intravenous Remodulin can be infused continuously for up to 48 hours once the administering pump has been filled, while Flolan can only be infused for 24 hours once the drug has been mixed and the administering pump filled. This allows patients to fill their pumps with medication every other day as opposed to daily. Also, because Remodulin can be made in highly concentrated solutions, a wide variety of pump options, including miniaturized pumps, is available to patients.

In February 2007, the Scientific Leadership Committee (SLC) of the Pulmonary Hypertension Association announced new guidelines related to the treatment of PAH patients on long-term intravenous therapy. The SLC guidelines were issued in response to the release of a slide presentation prepared by researchers with the U.S. Centers for Disease Control and Prevention (CDC) entitled, *Bloodstream infections among patients treated with intravenous epoprostenol and intravenous treprostinil for pulmonary arterial hypertension, United States 2004–2006*. These slides accompanied a presentation to the SLC and were subsequently published in the March 2, 2007, issue of the CDC's *Morbidity and Mortality Weekly Report*. The slides and report were prepared in connection with a CDC retrospective

inquiry at seven centers into a report of increased blood stream infections (sepsis), particularly gram-negative blood stream infections, among PAH patients treated with intravenous Remodulin as compared to intravenous Flolan. The SLC guidelines noted that the CDC observations were hypothesis-generating and did not permit definitive or specific conclusions. The SLC reminded physicians of the need to be aware of the range of possible gram-negative and gram-positive infectious organisms in patients with long-term central venous catheters and to treat them appropriately. The risk of sepsis was already noted in the Remodulin package insert. In February 2008, the FDA approved a revised package insert for Remodulin that more fully described the associated infection risk and appropriate techniques to be practiced when preparing and administering Remodulin for intravenous infusion.

International Regulatory Review of Subcutaneous and Intravenous Remodulin

Remodulin for subcutaneous use is approved in countries throughout the world. We used the mutual recognition process to obtain approval of subcutaneous Remodulin in the EU. The mutual recognition process is described more fully in the section entitled *Governmental Regulation* below. The mutual recognition process for subcutaneous Remodulin was completed in August 2005, with positive decisions received from most EU member countries. We withdrew our applications in Ireland, Spain and the United Kingdom following a request for additional documentation from these countries. We anticipate resubmitting these applications following approval of intravenous Remodulin in the EU. Licenses and pricing approvals have been received in most EU member countries. In addition, we have submitted a variation of the license for approval of intravenous Remodulin in the EU through the mutual recognition process, as we are required to follow the same approval process used for the approval of subcutaneous Remodulin. The license variation for intravenous Remodulin is currently under review by the host nation, France, which has notified us that it is not currently satisfied with our application. We are working to address their concerns and believe that we will eventually receive commercial approval for intravenous Remodulin in at least some EU member countries. In the meantime, we will continue to sell (but not market) Remodulin under the named-patient system in EU member countries where we are not approved. Under the named-patient system, we are permitted to import Remodulin into EU member countries for sale to hospitals for use in treating specifically identified patients.

Sales and Marketing

Our marketing strategy for Remodulin is to use our sales and marketing teams to educate the prescriber community to increase PAH awareness and awareness of our products. The sales and marketing team consisted of approximately 80 employees as of December 31, 2008, up from approximately 65 employees as of December 31, 2007. We anticipate continued growth in our sales force in the near-term as we position our business for further expansion. We divide our domestic sales force into two teams. One sales team is primarily responsible for medical practice accounts that are historical Remodulin prescribers. The other sales team is primarily responsible for medical practice accounts that have not historically prescribed Remodulin. The efforts of our sales and marketing teams are supplemented by our specialty pharmaceutical distributors. For additional information about our agreements with our distributors, see the next section entitled *Domestic Distribution of Remodulin*. Our distributors are experienced in all aspects of using and administering chronic therapies, as well as patient care, the sale and distribution of these medicines and reimbursement from insurance companies and other payers. Outside of the United States, we have entered into exclusive distribution agreements covering most of Europe, South America, Israel, and parts of Asia. Sales in Canada are currently conducted under the management of our wholly-owned subsidiary, Unither Biotech Inc., through a national specialty pharmaceutical wholesaler. We are working with our current distributors to expand Remodulin sales into other countries in which they have distribution rights.

Domestic Distribution of Remodulin

To market, promote and distribute subcutaneous and intravenous Remodulin through specialty pharmaceutical distributors in the United States, we entered into non-exclusive distribution agreements with CuraScript, Inc. (a wholly-owned subsidiary of Express Scripts, Inc., formerly Priority Healthcare Corporation) (CuraScript), Accredo Therapeutics, Inc. (a wholly-owned subsidiary of Medco Health Solutions, Inc.) (Accredo) and CVS Caremark Corporation (Caremark). Effective January 1, 2007, Accredo also became the exclusive U.S. distributor for Flolan. Our distributors are responsible for assisting patients with obtaining reimbursement for the cost of Remodulin therapy and providing other support services. Under our distribution agreements, we sell Remodulin to our distributors at a discount from an average wholesale price recommended by us. Our distribution agreements with Accredo and Caremark include automatic term renewals for additional one-year periods subject to notice of termination. Our distribution agreement with Curascript contains two-year term renewal periods. We update our distribution agreements from time to time to reflect changes in the regulatory environment. These changes have not had a significant impact on our operations or our relationships with our distributors, and tend to occur in the ordinary course of business. If our distribution agreements expire or terminate, we may, under certain circumstances, be required to repurchase any unsold Remodulin inventory held by our distributors. We have also established a patient assistance program in the United States, which provides qualified uninsured or underinsured patients with Remodulin at no charge. None of our current agreements grants our distributors the distribution rights for inhaled or oral treprostinil in the United States.

International Distribution of Remodulin

We currently sell Remodulin to six distributors who have certain exclusive distribution rights for subcutaneous and intravenous Remodulin in EU member countries, and other non-EU countries, such as South America, Israel and parts of Asia. In the European markets where we are not licensed, we sell (but do not market) Remodulin under the named-patient system in which patients typically are approved for therapy on a case by case review by a national medical review board. We are working on expanding our sales of subcutaneous and intravenous Remodulin into new territories outside of the United States through our existing distributors and by creating relationships with new distributors. In March 2007, we entered into a distribution agreement with Mochida Pharmaceutical Co., Ltd. (Mochida) to obtain approval and exclusively distribute subcutaneous and intravenous Remodulin in Japan. In addition, Grupo Ferrer Internacional, S.A. (Grupo Ferrer) has been actively working toward commencing commercial sales of Remodulin in Taiwan and South Korea. However, certain countries, like Japan, may require that new clinical trials, called bridging studies, be conducted in order to demonstrate the efficacy and safety of a drug in their patient population. Commercial sales in such countries could therefore be several years from realization.

Inhaled Treprostinil

We are working to gain approval of an inhaled formulation of treprostinil for the treatment of PAH. During 2004 and 2005, independent clinical investigators in Europe and the United States performed small uncontrolled trials of inhaled formulations of treprostinil in patients with PAH. In April 2004, the EMEA granted orphan designation for inhaled treprostinil for the treatment of both PAH and chronic thromboembolic pulmonary hypertension. We also plan to seek orphan drug designation for inhaled treprostinil in the United States. If successful, we will be granted a seven-year period of orphan drug exclusivity for inhaled treprostinil that will begin upon the approval of our NDA.

In June 2005, we commenced a 12-week, randomized, double-blind, placebo-controlled Phase III trial of inhaled treprostinil in patients with PAH who were optimized (therapeutically well-maintained) on Tracleer®, an oral ERA marketed by Actelion Ltd (Actelion). In May 2006, the FDA agreed that we could also include in the trial PAH patients who were optimized on Revatio®, an oral PDE5 inhibitor marketed by Pfizer. During the 12-week trial, patients were administered inhaled treprostinil or placebo

in four daily inhalation sessions with a maximum dose of approximately 54 micrograms per session. The primary endpoint of the trial was the peak six-minute walk distance (6MWD) improvement test, which is a typical benchmark test of cardiovascular health. The 6MWD test measures the distance a patient walks in six minutes on a treadmill at the start of the trial as compared to additional pre-specified points in time during the trial in order to detect any improvement in the distance the patient is able to walk. This trial, TRIUMPH-1 (**TR**eprostinil Sodium **I**nhalation **U**sed in the **M**anagement of **P**ulmonary Arterial **H**ypertension), was conducted at approximately 36 centers in the United States and Europe.

In November 2007, we announced the completion of our TRIUMPH-1 trial. The study population consisted of 235 patients. Ninety-eight percent of patients were classified as New York Heart Association (NYHA) Class III. Patients in the trial were affected by PAH of varied etiologies, including idiopathic or familial PAH (~55%), collagen vascular disease associated PAH (~35%), and PAH associated with HIV, anorexigens (appetite suppressants) or other associated conditions (~10%). Mean baseline 6MWD was approximately 350 meters.

The primary efficacy endpoint of the trial was the 6MWD at 12 weeks measured at peak exposure, defined by the trial protocol as 10-60 minutes after inhalation of treprostinil, relative to baseline. Analysis of the TRIUMPH-1 results demonstrated an improvement in median 6MWD of approximately 20 meters ($p<0.0005$, using the Hodges-Lehmann estimate and non-parametric analysis of covariance in accordance with the trial's pre-specified statistical analysis plan), in patients receiving inhaled treprostinil as compared to patients receiving placebo.

At trough exposure, which was defined by the trial protocol as a minimum of four hours after inhalation of treprostinil, the treatment-related change in 6MWD at week 12 relative to baseline was also significantly improved, with an increase in median 6MWD of approximately 14 meters ($p<0.01$). Additionally, the 6MWD at week six measured at peak exposure relative to baseline was significantly improved, with an increase in median 6MWD of approximately 18 meters ($p<0.0005$). Quality of life was assessed using the Minnesota Living with Heart Failure Questionnaire. Both the Global Score ($p<0.03$) and the physical score ($p<0.04$) were significantly improved. NT-Pro BNP, a biomarker correlated with right ventricular function, also improved significantly at week 12 ($p<0.002$).

Analysis of other secondary endpoints, including change in Borg Dyspnea Scale rating (shortness of breath test), NYHA functional class, time to clinical worsening (as defined by death, transplant, the need for atrial septostomy (surgical opening of the septum), hospitalization due to PAH, or initiation of another approved PAH therapy, and the 6MWD at treatment day one, did not differ significantly between the inhaled treprostinil and placebo groups ($p>0.05$).

Inhaled treprostinil was generally well tolerated in the trial and adverse events appeared to be similar to those previously reported for treprostinil or due to administration by inhalation. The most common adverse events seen in the trial were transient cough, headache, nausea, dizziness and flushing. All patients in the trial had the option to continue receiving inhaled treprostinil in an open-label continuation study after completion of the 12-week study period. Of the 212 patients who completed the 12-week study period, approximately 200 patients entered the open-label continuation study. Approximately 125 patients continue to be treated with inhaled treprostinil, with the longest duration of treatment exceeding two years.

In June 2008, we submitted an NDA to obtain FDA approval to market inhaled treprostinil for the treatment of PAH in the United States with an expected action date of April 30, 2009. The Optineb® nebulizer (the ultra-sonic nebulizer that was exclusively used for administration of inhaled treprostinil in the TRIUMPH-1 trial) was submitted for approval as part of this filing. The Optineb is manufactured by NEBU-TEC International Med Products Eike Kern GmbH (NEBU-TEC), a German company. The Optineb is CE-marked in Europe, which means that NEBU-TEC asserts that the device conforms to EU health and safety requirements. In December 2008 we filed an MAA for inhaled treprostinil in the EU using the centralized filing process. The standard time for review of an NDA by the FDA and of an MAA by the EMEA is generally 10 to 12 months. See the section entitled *Governmental Regulation* below for further discussion on the centralized filing process for the EU.

This is the first time we have submitted a device to the FDA for approval. Since we do not manufacture the Optineb device, we relied on NEBU-TEC for certain design, mechanical, operational and study information needed for the filing. In December 2008, we entered into an Agreement of Sale and Transfer with NEBU-TEC under which NEBU-TEC will sell to us its Optineb business and all associated assets and rights. Closing and transfer of all the associated assets and rights is expected to occur within 30 days of receiving FDA approval for our inhaled treprostinil therapy and its use with the Optineb nebulizer. In the interim period prior to the closing of the Agreement of Sale and Transfer, both NEBU-TEC and we remain subject to an existing Clinical and Commercial Supply Agreement, as amended, pursuant to which NEBU-TEC is required to maintain all aspects of the FDA's required current good manufacturing practices. Refer to the section entitled *NEBU-TEC Agreement of Sale and Transfer* below for further details related to our asset acquisition.

We were recently notified that the FDA Office of Safety and Epidemiology has preliminarily approved the tradename Tyvaso for our inhaled treprostinil therapy. The FDA Division of Cardiorrenal Drug Products will conduct the final review and approval of the tradename, which usually occurs simultaneously with NDA approval.

Currently, the only FDA approved inhaled prostacyclin analogue is Ventavis®. Ventavis is marketed by Actelion in the United States and by Schering AG in Europe. The active ingredient in Ventavis, iloprost, has a half-life of approximately 20 to 30 minutes and lacks selectivity to the lungs. The lack of selectivity to the lungs can cause a decrease in patient blood pressure if the drug is administered at too high a dose. As a result, Ventavis is inhaled via a nebulizer six to nine times per day at a low dose. Per its label, each 15 minute session on the nebulizer must be continuously inhaled. Due to the longer half-life of treprostinil and its greater selectivity to the lungs, treprostinil is administered four times a day, in six to nine breaths over an approximately one-minute session. We are currently conducting an open-label study in the United States to investigate the clinical effects of switching patients from Ventavis to inhaled treprostinil. This study began enrollment in December 2008.

The inhalation device market is ever-changing, with new technologies being discovered and improved devices being developed constantly. We are interested in new technologies that would enable a more efficient and convenient means of administering inhaled treprostinil to patients. For this reason, in August 2007, our subsidiary, Lung Rx, Inc. (Lung Rx), entered into an exclusive license, development and commercialization agreement with Aradigm Corporation (Aradigm) for the rights to manufacture, develop and commercialize its AERx Essence® device, a pulmonary drug delivery system, for use as a next-generation metered-dose inhaler with inhaled treprostinil.

UT-15C Sustained Release (Oral Treprostinil)

Pulmonary Arterial Hypertension. We are developing an oral formulation of treprostinil, treprostinil diethanolamine, which is a novel salt form of treprostinil. During 2004, we completed studies of various formulations of treprostinil diethanolamine in healthy volunteers. Based on these studies, a formulation was selected that uses technology licensed from Supernus Pharmaceuticals, Inc. (Supernus), to provide for sustained release of treprostinil in tablets. The coating technology, which is resistant to being broken down by the body's digestive system, allows for treprostinil to be released into the body through an extremely small hole that is laser-drilled into the coating of each tablet. This technology releases treprostinil at a relatively even rate in the gastrointestinal tract. In 2005, a Phase I study of normal volunteers not diagnosed with PAH demonstrated that the formulation and coating provided sustained blood concentrations of treprostinil for 8 to 10 hours following a single oral dose. This duration may allow for twice daily dosing. In July 2005, the EMEA announced that oral treprostinil had been granted orphan product status in the EU. If we obtain a separate orphan drug designation in the United States for oral treprostinil for the treatment of PAH, then we may obtain a seven-year period of orphan drug exclusivity for oral treprostinil that will begin upon the approval of our NDA.

In October 2006, we commenced two Phase III multi-national, placebo-controlled clinical trials of oral treprostinil in patients with PAH to study both dosing and efficacy. The FREEDOM-C trial was a 16-week study of patients on approved background therapy using a PDE5 inhibitor, such as Revatio, or an ERA, such as Tracleer, or a combination of both. The FREEDOM-M trial is a 12-week study of patients who are not on any background therapy. Both trials have been conducted at approximately 60 centers throughout the United States and the rest of the world. During these trials, patients are administered oral treprostinil or placebo twice a day. The dosage initially began at 1 mg twice daily for both trials but during the trial, 0.5 mg and 0.25 mg tablet doses became available. The maximum dose is set at 16 mg twice daily for the FREEDOM-C trial and 12 mg twice daily for the FREEDOM-M trial, based on symptomatic benefit and tolerability. The primary study endpoint of the trials is 6MWD.

We commenced both trials using a 1 mg tablet, but during the open-label extension trial (and associated pharmacokinetic substudy) we discovered that the treprostinil concentrations were higher in PAH patients than in healthy individuals due to the difference in absorption rate between these two populations. This difference in absorption rate led to a number of discontinuations by patients randomized to receive drug due to tolerability-related side effects, including nausea, jaw-pain and headaches. As a result, we introduced a 0.5 mg tablet in July 2007 to enable more gradual dose titration (increase). The 0.25 mg tablet was introduced into the trials in April 2008.

In mid-November 2008, we announced that the FREEDOM-C trial did not meet statistical significance for its primary endpoint. The study population consisted of 354 patients. The majority (~75%) of patients were World Health Organization (WHO) Class III of varied etiologies, including idiopathic or familial PAH (~65%), collagen vascular disease associated PAH (~25%), and PAH associated with HIV or other associated conditions (~10%). Mean baseline 6MWD was approximately 345 meters.

The placebo-corrected median change in 6MWD at week 16 was 11 meters ($p=0.072$). A statistically significant treatment effect was observed at week 12, with a placebo-corrected median change in 6MWD of 13 meters ($p=0.015$).

Exploratory analyses suggest that the inability to dose titrate was a limiting issue that suppressed the overall treatment effect. Of the 174 patients who received active drug, 25 patients discontinued due to an adverse event and 33 patients completed the trial but were unable to titrate their doses above 1 mg twice daily. Accordingly, 58 (33%) of the patients in the active treatment group were only able to maintain a suboptimal dose of below 1 mg twice daily. Adverse events that led to discontinuation or inability to dose-escalate included headache, nausea and vomiting. Dropouts were most common in patients who only had access to the 1 mg tablets during the study, which was the only size tablet available when the trial began. There were no discontinuations among patients who had access to the 0.25 mg tablet.

Preliminary analysis of other secondary efficacy measures, including change in combined 6MWD, Borg dyspnea score and Dyspnea-Fatigue index demonstrated statistically significant improvements ($p<0.05$) compared to placebo. Other secondary efficacy measures including change in WHO functional class, time to clinical worsening, and PAH signs and symptoms, did not differ significantly between patients administered oral treprostinil versus placebo ($p>0.05$).

Enrollment in FREEDOM-M was closed on October 31, 2008, with 171 patients enrolled in the trial. However, based on what we learned from the FREEDOM-C trial relating to patient tolerability of our three different tablet strengths of oral treprostinil, we submitted a protocol amendment to the FDA on February 20, 2009, seeking to increase the number of patients enrolled in FREEDOM-M by approximately 140 patients. These new patients will start the study on the 0.25 mg tablet, which we know from the FREEDOM-C trial is the best-tolerated tablet strength.

We believe that this protocol amendment will allow us to more accurately assess the effectiveness of oral treprostinil for many reasons. First, by starting patients on the 0.25 mg tablets and titrating up to reach an effective maintenance dose, we expect there will be a reduced rate of premature discontinuation due to adverse events. Second, the study will be statistically powered using a reduced effect size (from a 50 to 45 meter change in 6MWD) and a change in statistical significance level (from 0.05 to 0.01). Finally, the primary endpoint of change in 6MWD will be tested only in patients who had access to the 0.25 mg tablets at the start of the study, which reflects the expected dosing regimen for oral treprostinil. Due to the anticipated time required to receive FDA consent to the protocol amendment and to package and ship new clinical trial supplies to study sites, we expect to begin enrolling additional patients in the second quarter of 2009.

We are also in the planning stages of designing a new FREEDOM-C clinical trial of patients with PAH who are on an approved background therapy, FREEDOM-C². This clinical trial is expected to enroll 300 patients, all using the 0.25 mg tablet. The FREEDOM-C² clinical trial is expected to commence in late 2009. Currently, we do not anticipate filing an NDA for oral treprostinil before 2012.

There are currently no approved oral prostacyclin therapies available to patients in the United States or Europe. If we are successful in developing oral treprostinil, patients and physicians may be encouraged to use prostacyclin earlier in the PAH disease continuum and for the treatment of other diseases.

Peripheral Arterial Disease/Critical Limb Ischemia. We are also developing oral treprostinil for a subset of late-stage peripheral arterial disease (PAD) known as critical limb ischemia (CLI). PAD is a narrowing of the blood vessels that carry blood to the upper or lower extremities, especially the legs. While the precise causes of PAD are unknown, diabetes, high blood pressure, smoking, eating a high fat diet and lack of exercise are associated with the disease. Blood vessels affected by PAD often have a reduced level of natural prostacyclin similar to those affected by PAH.

Severe PAD can often lead to CLI, which is characterized by extreme leg pain, non-healing ulcers or gangrene in the legs, severely reduced exercise capacity and blood flow in the legs. In the United States, it is estimated that 2 million people suffer from CLI but there are currently no drugs approved to treat it. Physicians often suggest surgical interventions, such as balloon angioplasty, stents and by-pass, to restore or improve blood flow in the limbs. These procedures can provide temporary relief to patients, but do not address the underlying causes of the disease. Due to the lack of adequate pharmaceutical treatment, approximately 160,000 leg amputations are performed each year on patients with CLI.

In September 1998, we completed a Phase II study assessing the safety and blood flow effects of intravenous Remodulin on patients with CLI. The study demonstrated that Remodulin can be administered safely to patients with CLI and that Remodulin substantially increases blood flow in the affected areas of the legs. We commenced a 30 patient placebo-controlled, pre-pivotal clinical study of Remodulin for CLI in 2002. Approximately 19 patients were enrolled but we ended the study early due to difficulty recruiting patients. We believe that more convenient formulations of treprostinil, such as our oral formulation, may be more appropriate for patients with CLI. Accordingly, we have commenced Phase I studies of oral treprostinil for patients with CLI.

We have also initiated a Phase II Study in 2009 to investigate the effectiveness of oral treprostinil in reducing the frequency and severity of ulcers located on the fingers and toes of scleroderma patients.

Tadalafil

Tadalafil is a PDE5 inhibitor and is also the active pharmaceutical ingredient in Cialis®, which is marketed by Lilly for the treatment of erectile dysfunction. Patients with PAH have been shown to have reduced levels of the enzyme responsible for producing NO, a naturally occurring substance in the body

that has the effect of relaxing pulmonary blood vessels, which is also a cause of erectile dysfunction. NO works to relax pulmonary blood vessels by increasing intracellular levels of an intermediary known as cGMP. An established therapeutic approach in the treatment of PAH is to use PDE5 inhibitors to increase levels of NO in patients to inhibit the degradation of cGMP.

Revatio is the only currently approved PDE5 inhibitor for the treatment of PAH, and is marketed by Pfizer. Sildenafil, the active ingredient in Revatio, is also the active ingredient in Viagra®, which is also marketed by Pfizer for erectile dysfunction. Revatio has a three times daily dosing regimen. We expect tadalafil to have a once daily dosing regimen.

The PHIRST Study, which was conducted by Lilly, was a Phase III 16-week, double-blind, placebo-controlled efficacy and safety study of once-daily tadalafil in PAH patients. 405 patients with idiopathic PAH or PAH associated with connective tissue disease, anorexigen use, HIV, atrial septal defect, or surgical repair of congenital left-to-right shunt were randomized to placebo or tadalafil (2.5, 10, 20 or 40 mg) orally once daily as monotherapy or as add on therapy to bosentan, the active ingredient in Tracleer. Demographics, clinical data, and health related quality of life (HRQoL) data were collected at baseline. Clinical and HRQoL data were again collected at weeks 4, 8, 12 and 16. Cardiopulmonary hemodynamics were conducted in a subset of patients (n=93).

The 40mg dose of tadalafil was shown to increase 6MWD compared to placebo ($p<0.001$ +41.1m versus +9.2m). Changes in WHO functional class and Borg dyspnea score did not differ significantly compared to placebo. The 40 mg dose also delayed the time to clinical worsening compared to placebo ($p<0.05$, relative risk reduction 68% less than placebo). Compared with placebo, improvements were observed in patients treated with 40 mg tadalafil-treated patients in six out of the eight SF-36 domains ($p<0.01$), the EuroQol (EQ-5D) U.S. and U.K. index scores, and for the visual analog scale (VAS) (all $p<0.05$). It was also shown to increase cardiac output (0.6 L/min) and reduced pulmonary artery pressures (-4.3mmHg) and pulmonary vascular resistance (-209dyn.s/cm⁵) compared to baseline ($p<0.05$). The most common treatment-related adverse event reported with tadalafil was headache (32% versus 15% with placebo). Discontinuation due to adverse events was low (tadalafil 11% versus placebo 16%). Of the 405 patients in the trial, 189 (47%) were not taking concomitant bosentan (the ERA marketed as Tracleer). In these patients, tadalafil 40mg dose increased 6MWD compared to placebo ($p<0.10$ +42.2m versus -2.9m).

Lilly submitted an NDA to the FDA based on these significant trial results with an expected action date of May 24, 2009.

On December 18, 2008, we completed the transactions contemplated by several agreements we entered into with Lilly and one of its subsidiaries on November 14, 2008, including a license agreement, a manufacturing and supply agreement and a stock purchase agreement. Pursuant to the license agreement, Lilly granted us an exclusive license for the right to develop, market, promote and commercialize tadalafil for the treatment of pulmonary hypertension in the United States and Puerto Rico. In connection with the license agreement, we also entered into a stock purchase agreement and a manufacturing and supply agreement. Pursuant to the manufacturing and supply agreement, Lilly agreed to manufacture tadalafil and distribute it via its wholesaler network, in the same manner that it distributes its own pharmaceutical products. In December 2008, upon closing, we made a one-time payment of \$125.0 million under the manufacturing and supply agreement and a one-time payment of \$25.0 million under the license agreement. Pursuant to the stock purchase agreement, we issued 3,150,837 shares of our common stock to Lilly from treasury for an aggregate purchase price of \$150.0 million. See the section entitled *Strategic Licenses and Relationships* below for more details on these agreements.

We intend to use our existing sales and marketing team to promote and sell tadalafil. We expect that the prescribers of tadalafil will include most of the same health care practitioners upon whom our sales force currently focuses on with respect to marketing our other PAH therapies.

Beraprost-MR

In June 2000, we entered into an agreement with Toray Industries, Inc. (Toray) for the exclusive right to develop and market a sustained release formulation of beraprost (beraprost-SR), an oral prostacyclin, in the United States and Canada for the treatment of cardiovascular indications. Beraprost is a chemically stable, orally bioavailable prostacyclin analogue. Like natural prostacyclin and Remodulin, beraprost is believed to dilate blood vessels, prevent platelet aggregation and prevent proliferation of smooth muscle cells surrounding blood vessels.

In March 2007, Lung Rx entered into an amended agreement with Toray to assume and amend the rights and obligations of our June 2000 agreement with Toray concerning the commercialization of a modified release formulation of beraprost (beraprost-MR). The amended agreement grants us additional exclusive rights to commercialize beraprost-MR in Europe and broadens the treatment indication to include vascular disease (excluding renal disease), among other revisions. Although earlier clinical trials of an immediate release formulation of beraprost sodium did not provide conclusive evidence of efficacy, these trials did provide encouraging results suggesting that beraprost-MR could prove to be safe and effective for PAH. Since individual PAH patients may have varied responses to different molecules within the same general class, we believe that the development of multiple molecules within the same family is a good strategy to treat PAH. In addition, we are in the early stages of exploring the use of beraprost-MR for the treatment of other cardiovascular and cardiopulmonary indications.

In October 2007, Toray announced that beraprost-MR received regulatory approval in Japan for use in the treatment of PAH. In July 2008, beraprost-MR was granted Orphan Medicinal Product Designation by the EMEA.

Products to Treat Cancer

3F8 and 8H9 Antibodies

In December 2007, we entered into two agreements with Memorial Sloan-Kettering Cancer Center (MSKCC) to license certain exclusive rights to two investigational monoclonal antibodies, 3F8 and 8H9, for the treatment of neuroblastoma and metastatic brain cancer. The monoclonal antibody 3F8 is a mouse IgG3 MAb, which is currently used in an investigational setting for the treatment of neuroblastoma, a rare cancer of the sympathetic nervous system mainly affecting children. It is the most common extracranial solid cancer in children and the most common cancer in infants. More than 400 patients have been treated with the 3F8 antibody since 1986 under investigator-initiated Investigational New Drug Applications. There are fewer than 1,000 new cases of neuroblastoma diagnosed each year. We expect to begin a patient trial in the second quarter of 2009 using the 3F8 antibody in patients with neuroblastoma.

The monoclonal antibody 8H9 is an IgG1 antibody that is also a mouse antibody. The 8H9 antibody is highly reactive with a range of human solid tumors, including human brain cancers. The 8H9 antibody is in early investigational development for metastases that develop in the brain from the spread of cancers from other tissues in the body. Metastatic brain cancers are ten times more common than cancers that originate in the brain, and prognosis is very poor. In the United States, more than 100,000 cases of metastatic brain cancer are diagnosed each year.

OvaRex

In April 2002, we entered into a license agreement with AltaRex Corp. which later became AltaRex Medical Corp., a wholly-owned subsidiary of ViRexx Medical Corp. (AltaRex). The license agreement with AltaRex provided us with certain exclusive rights to a platform of five investigational immunotherapeutic monoclonal antibodies: OvaRex, BrevaRex, OncoRex, ProstaRex and GivaRex.

These products were being developed by AltaRex to treat various forms of cancer, including ovarian, prostate, lung, breast, multiple myeloma and gastrointestinal cancers. The lead product, OvaRex® MAb for the treatment of advanced ovarian cancer, had completed Phase II studies when we entered into the license agreement.

Ovarian cancer is the deadliest form of women's reproductive cancer and is the fifth leading cause of cancer death among women in the United States. Over 25,000 cases of ovarian cancer are diagnosed in the United States every year, with over 16,000 women dying of the disease annually.

In December 2007, we announced the completion of our two pivotal trials of OvaRex. Analysis of the results demonstrated that the studies failed to reach statistical significance.

The identical studies, known as IMPACT I and II (**IM** munotherapy **P** ivotal ov **A** rian **C** ancer **T** rial), were randomized, double-blind, placebo-controlled trials conducted at over 60 centers across the United States. The studies enrolled 367 ovarian cancer patients and assessed the efficacy of OvaRex mono-immunotherapy during the so-called "watchful waiting" period following front-line carboplatin-paclitaxel based chemotherapy. The program sought to confirm data observed in a subset analysis of a prior randomized Phase II study, which suggested the potential of OvaRex to extend the time to disease relapse among patients who had successfully completed front-line therapy. The studies were well balanced in terms of patient demographics and the safety profile and quality of life were similar between active and control populations. The studies demonstrated no difference between active (standard of care followed by OvaRex) and control (standard of care followed by placebo) populations. The results of IMPACT I and II were consistent with each other.

Based on the results of the IMPACT I and II trials, we decided to terminate our license agreement with AltaRex and cease further development of the entire platform of antibodies licensed thereunder. We have incurred approximately \$2.0 million in total closeout costs for this program and do not anticipate significant additional future costs related to this program.

Products to Treat Infectious Diseases—Glycobiology Antiviral Agents

In March 2000, we entered into a license agreement with Synergy Pharmaceuticals, Inc. (Synergy), to obtain the exclusive worldwide rights to certain patents relating to novel antiviral compounds. Synergy was working with the Glycobiology Department at the University of Oxford to develop antiviral compounds, such as miglustat. We have the exclusive right to commercialize miglustat for certain infectious diseases and viruses. In 2003, by mutual consent, we terminated our license agreement with Synergy. We are now working directly with Oxford University on the development of new antiviral compounds. These glycobiology antiviral agents are small molecules that may be effective as oral therapies for the treatment of hepatitis B and C infections, as well as dengue fever, Japanese encephalitis and other infectious diseases. Currently, many of these agents are undergoing laboratory testing, and new agents are also being synthesized.

In January 2009, we entered into a license agreement with MIGENIX, Inc. (MIGENIX), a Canadian company, to obtain the exclusive worldwide rights to develop and commercialize celgosivir for hepatitis C and other viral diseases. Celgosivir is a novel antiviral agent that appears to be a potent inhibitor of alpha-glucosidase I, a host enzyme that is critical to the folding of viral proteins. Inhibition of alpha-glucosidase I leads to improper viral folding, which, in turn, prevents viral replication. This effect has many potential therapeutic applications. The rights to develop and commercialize celgosivir are contingent upon our acceptance of further preclinical studies to be performed by MIGENIX to assess celgosivir's utility in combating the hepatitis C virus. If the results of the studies are acceptable to us, MIGENIX will be entitled to milestone payments based upon the achievement of certain clinical and regulatory events and royalties based on net sales of celgosivir, if commercialized.

Products to Provide Telemedicine Services for Cardiac Arrhythmias and Ischemic Heart Disease

CardioPAL SAVI and Decipher Recorders

We provide telemedicine services to detect cardiac arrhythmias and ischemic heart disease through our wholly-owned subsidiary Medicomp, Inc. (Medicomp), which we acquired in December 2000. Cardiac arrhythmias and ischemic heart disease affect an estimated 20 million Americans, and possibly ten times that number worldwide. If left undetected and untreated, these conditions can result in heart attacks and death. Medicomp provides cardiac Holter monitoring (a 24-hour continuous test of heart rhythms), event monitoring (a test that typically extends to 30 days and looks for more elusive, intermittent arrhythmias), analysis, and pacemaker monitoring remotely via telephone and the Internet for hospitals, clinicians and other providers. Medicomp's services are delivered through its proprietary, miniaturized, digital Decipher Holter recorder/analyzer and its CardioPAL family of event monitors. In March 2005, Medicomp received FDA market clearance for a p-wave analysis in addition to its artificial intelligence algorithm that runs on all of its newly manufactured CardioPAL devices. The p-wave is a diminutive but important portion of the electrocardiograph that helps determine if an arrhythmia was generated from the top chambers of the heart, the atria, or from the bottom chambers of the heart, the ventricles. This level of analysis leads to more reliable, automatic detection of arrhythmias, like atrial fibrillation.

Holter, event and pacemaker services and systems are marketed to physicians, hospitals, and managed care providers directly by Medicomp's internal sales force. We recognized revenues of approximately \$9.5 million, \$7.7 million and \$6.6 million from the sales of telemedicine products and services in 2008, 2007 and 2006, respectively.

Arginine Products for Vascular Function

In December 2000, we expanded our cardiovascular focus when we acquired the assets and certain liabilities of Cooke Pharma, Inc., the exclusive maker of the HeartBar® line of arginine-enriched products, which was then operated as Unither Pharma, Inc., our wholly-owned subsidiary. Arginine is required by the body to produce NO. Unither Pharma Inc. is the exclusive licensee of patents entitling it to claim that arginine is critical for maintaining vascular function and certain other natural functions.

The HeartBar® and a related line of products were marketed directly to consumers by us, by independent distributors and through the Internet. In January 2006, we discontinued sales of the HeartBar line of products, after evaluating recent clinical trial results and market potential, among other factors.

In November 2006, we settled litigation with three companies that we believed were infringing our arginine patents. We received a settlement payment and will receive additional royalties from sales of products containing arginine from one of the parties.

In September 2007, we discontinued all sales of our remaining arginine products and we reevaluated our assumptions used in determining the value of our arginine patents, based on a then recent publication discounting the benefits of arginine supplementation and a June 2007 United States Supreme Court decision concerning the enforceability of patents. This decision had no effect on the terms of our settlement agreements with companies selling arginine products.

Approximately \$41,000, \$123,000 and \$100,000 of revenues were earned from the sales and royalties of arginine-related products in 2008, 2007 and 2006, respectively.

Strategic Licenses and Relationships

Northern Therapeutics, Inc.

In December 2000, we formed a new company in Canada, Northern Therapeutics, Inc. (Northern), in conjunction with the inventor of a new form of autologous gene therapy (gene transfer using materials derived from a patient's own body instead of foreign materials such as viruses) for the treatment of PAH and other diseases. Northern is currently conducting a Phase I gene therapy trial in Canada and, until February 2006, was distributing Remodulin in Canada.

In October 2006, Northern agreed to grant us an exclusive license to develop and commercialize the autologous gene therapy in the United States for PAH. Under this license, we are required to make incremental milestone payments to Northern depending on patient enrollment. If the planned 18 patient Phase I trial is successfully enrolled, such payments will total \$1.5 million. We did not incur any expenses associated with this agreement during 2008. For the twelve months ended December 31, 2007, we incurred approximately \$150,000 of expenses related to Northern. If the Phase I trial is successfully completed, we will assume the development program and related costs for the United States market. Northern will receive royalty payments following commercialization. As part of this agreement, we terminated the Remodulin distribution agreement with Northern for Canada. Our Canadian wholly-owned subsidiary, Unither Biotech Inc., contracts with a specialty distributor to distribute Remodulin in Canada. See the section entitled *Sales and Marketing* above for more information on our distribution arrangements in Canada.

Due to our \$5.0 million investment, we currently own approximately 68% of Northern, but only 49% of the voting rights of its common stock. Because minority shareholders possess substantive participating rights as defined under EITF Issue No. 96-16, *Investors Accounting for an Investee when the Investor Has a Majority of the Voting Interest but the Minority Shareholders or Shareholders Have Certain Approval or Veto Rights*, we are precluded from controlling Northern and thus do not consolidate Northern's financial statements with our own.

NEBU-TEC Supply Agreement

In June 2004 and September 2006, we entered into Clinical and Commercial Supply Agreements with NEBU-TEC to provide for the availability of Optineb nebulizers and related supplies for use in our TRIUMPH-1 clinical trial of inhaled treprostinil and for commercial use following regulatory approval. These non-exclusive agreements require NEBU-TEC to sell us Optineb devices and supplies for clinical and commercial use at specified prices and payment terms. These agreements also specify each party's obligations with respect to regulatory approvals. In February and April 2008, we entered into amendments to the September 2006 Clinical and Commercial Supply Agreement under which the term of the agreement was extended to the earlier of the first anniversary of the date of regulatory approval of inhaled treprostinil in the United States or EU. We also agreed to an advance order of Optineb devices and related supplies following satisfactory completion of a testing program in support of our NDA filing. The amendments also clarified certain regulatory obligations of the parties and provided NEBU-TEC with the first opportunity to sell devices in Europe for so long as NEBU-TEC was able to meet market demand.

NEBU-TEC Agreement of Sale and Transfer

In December 2008, we entered into an Agreement of Sale and Transfer with NEBU-TEC, under which NEBU-TEC agreed to sell us its Optineb line of business and all its related assets and rights. Upon signing the agreement, we paid NEBU-TEC €2.5 million. Closing and transfer of the related assets and rights is expected to occur within 30 days of receiving FDA approval for our inhaled treprostinil therapy and its use with the Optineb nebulizer. In the interim period prior to the closing of the Agreement of Sale and Transfer, both NEBU-TEC and we remain subject to an existing Clinical and Commercial Supply Agreement, as amended, pursuant to which NEBU-TEC is required to maintain all aspects of the FDA's current good manufacturing practices. At closing, we will pay NEBU-TEC an additional €2.5 million. In addition, we agreed to pay future consideration of up to €10.0 million depending on the occurrence of specific events and the attainment of a certain number of patients administering inhaled treprostinil using the Optineb or NEBU-TEC's next generation inhalation device currently under development. Furthermore, if we do not receive FDA approval for inhaled treprostinil under certain circumstances, we may cancel the Agreement of Sale and Transfer in which event NEBU-TEC will be required to refund the €2.5 million paid at signing.

Aradigm License Agreement

In August 2007, Lung Rx entered into an exclusive license, development and commercialization agreement with Aradigm for the rights to manufacture, develop and commercialize its AERx Essence pulmonary drug delivery system, for use as a next-generation metered-dose inhaler with our investigational inhaled treprostinil product in patients with PAH and other conditions. Under the terms of the agreement, Aradigm conducted and funded laboratory tests and a proof-of-concept clinical trial comparing the inhalation delivery of treprostinil using the AERx Essence technology to delivery using the Optineb nebulizer used in the TRIUMPH-1 trial.

The bridging clinical trial was completed in November 2008, and failed to prove that the drug dispersed with the AERx Essence was bioequivalent to that dispersed by the Optineb nebulizer. However, the clinical trial results revealed that the AERx Essence device delivered inhaled treprostinil with deeper lung penetration than the Optineb nebulizer. We believe that these results merit further clinical studies. Therefore, we agreed to pay the first milestone payment of \$2.0 million required under the terms of our agreement with Aradigm in the fourth quarter of 2008.

Our agreement with Aradigm specifies that second and third milestone payments are due no later than the second and third anniversaries of the effective date of the agreement, such payments increasing incrementally by \$1.0 million each year. The agreement allows for the extension of payment deadlines by the amount of time equal to the duration of any delay caused by a regulatory agency. In addition, we agreed to pay Aradigm royalty fees on a sliding scale based on net sales of the AERx Essence device once it is approved.

Toray Amended License Agreement

In June 2000, we licensed from Toray the exclusive right to develop and market beraprost-SR, a chemically stable oral prostacyclin analogue, in a sustained release formulation in the United States and Canada for the treatment of cardiovascular indications. In March 2007, Lung Rx entered into an amended agreement with Toray to assume and amend the rights and obligations of our June 2000 agreement with Toray concerning the commercialization of beraprost-MR. The amended agreement grants us additional exclusive rights to commercialize beraprost-MR in Europe and broadens the indication to vascular disease (excluding renal disease), among other revisions.

In accordance with the terms of the amended agreement, in March 2007 we issued 200,000 shares of our common stock to Toray in exchange for the cancellation of Toray's existing right to receive an option grant to purchase 500,000 shares of our common stock (the Option Grant). Under the June

2000 Agreement, Toray's right to receive the Option Grant was conditioned upon Toray's delivery to us of adequate documentation regarding the use of beraprost-SR in humans and its transfer of clinical trial material to us, neither of which had occurred as of the effective date of the amended agreement. Had the Option Grant been made, the exercise price of the options would have been set at the average closing price of our common stock for the period one month prior to the delivery date. Under the terms of the amended agreement, Toray has the right to request that we repurchase the newly issued 200,000 shares of our common stock upon 30 days prior written notice at the price of \$54.41 per share, which was the average closing price of our common stock between January 11, 2007, and February 23, 2007. Based on the average closing price of our common stock for the two trading days prior to and the two trading days after the effective date of the amended agreement (March 16, 2007), we recognized a research and development expense of approximately \$11.0 million relating to the issuance of the 200,000 shares, because beraprost-MR had not yet obtained regulatory approval for commercial sales. In accordance with the provisions of SFAS No. 133, *Accounting for Derivative Instruments and Hedging Activities*, EITF 00-19 and EITF Topic No. D-98, *Classification and Measurement of Redeemable Securities*, these shares of our common stock are reflected in mezzanine equity as common stock subject to repurchase valued at the repurchase price. If Toray requests that we repurchase these shares, then an amount equal to the repurchase price will be transferred to a liability account until the repurchase is completed.

The amended agreement also specifies that we make certain milestone payments to Toray during the development period and upon U.S. or EU regulatory approval. Upon execution of the amended agreement, we made a \$3.0 million payment to Toray in addition to the issuance of the 200,000 shares of our common stock discussed above. Additional annual milestone payments of \$2.0 million are specified in the amended agreement and commenced in the first quarter of 2008, increasing annually in \$1.0 million increments through 2011. These payments will be expensed when incurred. These payments are contingent upon the receipt of clinical trial material and commercial drug from Toray that meet all regulatory standards and requirements, including those relating to chemistry, manufacturing and controls, and are documented to the satisfaction of U.S. and EU regulatory authorities. In addition, if Toray elects to terminate production of beraprost-MR, no further payments would be due under the amended agreement. Conversely, if we elect to terminate development of beraprost-MR, then all remaining milestone payments would be due to Toray, unless certain regulatory standards and requirements have not been met, or if material problems have been identified with respect to manufacturing and regulatory compliance.

Lilly Agreements Related to Tadalafil

On December 18, 2008, we completed the transactions contemplated by several agreements we entered into on November 14, 2008 with Lilly, including a license agreement, a manufacturing and supply agreement, and a stock purchase agreement.

License Agreement. Under the terms of the license agreement, Lilly granted us an exclusive license for the right to develop, market, promote and commercialize tadalafil for the treatment of pulmonary hypertension in the United States and Puerto Rico. Tadalafil is also the active pharmaceutical ingredient in Cialis, which is developed and marketed by Lilly for the treatment of erectile dysfunction.

In exchange for the license, we agreed to pay Lilly a one-time fee of \$25.0 million, which was expensed upon the effective date of the agreement, December 18, 2008, since tadalafil has not yet received regulatory approval for commercial sales. We also agreed to pay Lilly royalties equal to 5% of our net sales of tadalafil in the United States and Puerto Rico, as a pass through of Lilly's third-party royalty obligations, for so long as Lilly is required to make such payments.

Lilly retained the exclusive rights to develop, manufacture and commercialize pharmaceutical products containing tadalafil for the treatment of pulmonary hypertension outside of the United States and Puerto Rico and for the treatment of other diseases worldwide. Lilly will retain authority for all regulatory activities with respect to tadalafil, including retail pricing, which is expected to be at price parity with Cialis.

Early in the third quarter of 2008, Lilly filed an NDA with the FDA for tadalafil for the treatment of PAH. Pursuant to our license agreement, we may conduct additional trials for tadalafil related to the treatment of pulmonary hypertension with Lilly's prior consent. Upon approval of tadalafil by the FDA, Lilly will be responsible for manufacturing tadalafil, pursuant to a separate manufacturing and supply agreement with us, which is discussed below.

If in the future Lilly seeks to grant rights to a third party to develop or commercialize tadalafil for the treatment of pulmonary hypertension in any other country (excluding Japan), the license agreement provides that we will have a right of first negotiation to acquire those rights.

The license agreement will continue in effect until the later of: (i) expiration, lapse, cancellation, abandonment or invalidation of the last to expire claim within a Lilly patent covering the commercialization of tadalafil for the treatment of pulmonary hypertension in the United States and Puerto Rico; or (ii) expiration of any government-conferred exclusivity rights to use tadalafil for the treatment of pulmonary hypertension in the United States and Puerto Rico.

We have the right to terminate the license agreement upon six months written notice to Lilly. Lilly has the right to terminate the license agreement if a separate brand name for tadalafil is not approved by the FDA for the treatment of PAH (in which event Lilly will refund the \$25.0 million license fee), or if we experience a change of control. Either party may terminate the license agreement upon a material breach by the other party of it or the manufacturing and supply agreement, described below.

Manufacturing and Supply Agreement. Under the terms of the manufacturing and supply agreement, Lilly has agreed to manufacture tadalafil and distribute it via its wholesaler network, in the same manner that it distributes its own pharmaceutical products. Under the terms of this agreement, we will take title to tadalafil upon its manufacture by Lilly. Tadalafil will be shipped to customers, generally pharmaceutical wholesalers, in accordance with customers' purchase orders received by Lilly. Upon receipt of tadalafil by the wholesaler, Lilly will invoice and collect the invoice amount due from the customer subject to customary discounts and rebates, if any. Although Lilly is providing these services on our behalf, we maintain the risk of loss as it pertains to inventory and nonpayment of sales invoices. The manufacturing and supply agreement will continue in effect until expiration or termination of the license agreement.

As consideration for Lilly's agreement to manufacture and supply tadalafil, we agreed to make a one-time payment to Lilly of \$125.0 million, which was expensed upon the effective date of the manufacturing and supply agreement. Lilly will refund this payment in the event that the FDA does not approve a separate brand name for tadalafil for the treatment of PAH. We also agreed to purchase tadalafil at a fixed cost, which may be adjusted by Lilly.

Stock Purchase Agreement. Under the terms of the stock purchase agreement, on December 18, 2008, we issued 3,150,837 shares of our common stock to Lilly from treasury for an aggregate purchase price of \$150.0 million, representing approximately 13.6% of the then-current outstanding shares of our common stock. The shares were issued at a price of \$47.61 per share, representing 90% of the average closing price of our common stock for the five trading days commencing on and including November 17, 2008. The weighted average acquisition price of the treasury stock issued was \$52.12 per share. The excess of the acquisition cost of the treasury stock above the price paid by Lilly for the shares was approximately \$14.2 million and has been included in our accumulated deficit.

Patents and Proprietary Rights

Our success depends in part on our ability to obtain and maintain patent protection for our products, preserve trade secrets, prevent third parties from infringing upon our proprietary rights and operate without infringing upon the proprietary rights of others in the United States and worldwide.

Glaxo Assignment

In January 1997, Glaxo assigned to us all rights to the use of the stable prostacyclin analogue now known as Remodulin. The patent covering the use of Remodulin for PAH expires in the United States in October 2014 (as extended—see *Patent Term Extensions* below) and on various dates from September 2009 to August 2013 in nine other countries.

Pfizer License

In December 1996, Pharmacia & Upjohn Company (now Pfizer) exclusively licensed to us certain patents, a patent application and know-how for the composition and production of the stable prostacyclin analogue now known as Remodulin. We filed our own United States patent application for a new synthesis and production method for Remodulin in October 1997, and the patent was granted in August 2002. Two additional patents covering this synthesis and production method were granted in March 2003 and August 2004. We believe that our method of synthesis is a substantial improvement over the Pharmacia method and we are using our unique synthesis method rather than the licensed Pharmacia method for the production of Remodulin. We have also registered two patents and have one pending patent application with respect to additional Remodulin synthesis improvements.

Lilly

In November 2008, we entered into a license agreement with Lilly pursuant to which Lilly granted us an exclusive right to develop, market, promote and commercialize tadalafil for the treatment of pulmonary hypertension in the United States and Puerto Rico. In connection with these license rights, we made a one-time, upfront payment to Lilly of \$25.0 million. Additionally, we agreed to pay Lilly royalties of 5% of our net sales of tadalafil as a pass through of Lilly's third-party royalty obligations for as long as Lilly is required to make such royalty payments. The term of the license agreement will continue generally until the later of: (1) the expiration or lapse of the last to expire claim within a Lilly patent covering commercialization of tadalafil, or (2) expiration of any government conferred exclusivity rights to tadalafil. In addition, the license agreement may be terminated in the event that a separate brand name for tadalafil is not approved by the FDA, in which case Lilly will refund our \$25.0 million payment.

Stanford University and New York Medical College Licenses

In 2000, we acquired the exclusive license to patents from Stanford University and New York Medical College related to arginine-based dietary supplements that work to enhance the level of naturally occurring NO in the vascular system. The licenses cover worldwide territories and are valid for the life of the patents (expiration dates ranging from 2010 to 2018). We will own all rights to any new products derived from these patents.

Supernus Pharmaceutical License

In June 2006, we entered into an exclusive license agreement with Supernus to use certain of its technologies in our sustained release oral treprostinil formulation. Under the agreement, in return for the license, we will pay Supernus certain amounts upon the achievement of specified milestones based on the development of oral treprostinil and its commercial launch. In addition, the agreement provides that we will pay a royalty to Supernus based on net worldwide sales of the initial product. Any such

royalty will be paid for approximately twelve years commencing with the first product sale and is subject to adjustments as specified in the agreement. Additional milestone payments and royalty payments may be due for the development and commercialization of other products developed using the technology granted under this license.

Aradigm Corporation

In August 2007, we entered into an exclusive license, development and commercialization agreement with Aradigm for the rights to manufacture, develop and commercialize the AERx Essence pulmonary drug delivery system, for use as a next-generation metered-dose inhaler with our investigational inhaled treprostinil product for patients with PAH and other conditions. The terms of the agreement include various payments to be made to Aradigm including those related to the completion of certain milestones and license fees over the course of the development period. In addition, we will fund the costs to develop, commercialize and manufacture inhaled treprostinil for use with AERx Essence.

TransMIT License

In March 2007, TransMIT Gesellschaft für Technologietransfer GmbH (TransMIT), an affiliate of the University of Giessen in Germany, assigned to Lung Rx its entire interest in the German patent rights to a portable ultrasonic nebulizer and related technology in order to make, have made, use and sell products based on such patent rights. As consideration for the assignment, Lung Rx paid to TransMIT approximately \$779,000 and agreed to pay a 5% running royalty on net sales of nebulizers using the technology in Germany. However, no royalty payments are due to TransMIT until royalties on net sales of products in Germany exceed the original payment of approximately \$779,000.

Memorial Sloan Kettering

In December 2007, we entered into two agreements with MSKCC to exclusively license certain rights to two investigational monoclonal antibodies, 3F8 and 8H9, for the treatment of neuroblastoma and metastatic brain cancer. The monoclonal antibody 3F8 is a mouse IgG3 MAb, which is currently used in an investigational setting for the treatment of neuroblastoma, a rare cancer of the sympathetic nervous system mainly affecting children. 8H9 is also a mouse monoclonal antibody, but of the IgG1 subclass. The 8H9 antibody is highly reactive with a range of human solid tumors, including brain cancers. The 8H9 antibody is in early investigational development for metastatic brain cancer.

Under the terms of the agreements, MSKCC granted us an exclusive license for the development and commercialization of the 3F8 and 8H9 antibodies for cancer throughout the universe. In exchange for these exclusive licenses, we agreed to pay a royalty fee on net sales, with an annual minimum royalty payment for each antibody. Milestone payments may also be due for the development and commercialization of these antibodies under our licenses.

Patent Term Extensions

In February 2005, we were granted a five-year patent term extension by the United States Patent and Trademark Office for a patent covering the method of treating PAH using Remodulin. U.S. Patent Number 5,153,222, entitled "Method of Treating Pulmonary Hypertension with Benzidine Prostaglandins", was originally scheduled to expire on October 6, 2009. It will now expire on October 6, 2014. The five-year Hatch-Waxman Act extension is the maximum extension allowed under 35 U.S.C. §156. Additional patents covering other products to which we have rights may also be eligible for extensions of up to five years based upon patent term restoration procedures under the Hatch-Waxman Act in the United States, and under similar procedures in Europe.

Research & Development Expenditures

We are engaged in research and development and have incurred substantial expenses for these activities. These expenses generally include the cost of acquiring or inventing new technologies and products, as well as new product development. Research and development expenses during 2008, 2007 and 2006 totaled approximately \$239.2 million, \$83.4 million and \$57.6 million, respectively. See *Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations—Major Research and Development Projects* for additional information regarding expenditures related to major research and development projects.

Manufacturing and Supply

We made treprostinil sodium, the active ingredient for Remodulin and inhaled treprostinil, and treprostinil diethanolamine, the active ingredient for oral treprostinil, at our manufacturing facility in Chicago, Illinois, until March 2007 at which time we transitioned these activities to our new laboratory facility in Silver Spring, Maryland. In July 2008, we submitted an application to the FDA for approval of the new facility for commercial manufacturing, and we expect to receive approval in the first half of 2009. Until we receive FDA approval, we cannot use or sell commercially any products manufactured in our Silver Spring facility. We currently maintain an inventory of formulated Remodulin that will meet over two years of expected demand.

With the transfer of our manufacturing operations to our Silver Spring facility, we have also changed our internal manufacturing process. When we began, we produced treprostinil sodium starting with basic chemicals and completed the full manufacturing process. Over the last several years, we have been modifying the manufacturing process to begin with advanced intermediate compounds made by outside vendors. We anticipate that, upon commercialization of oral treprostinil, the need for treprostinil diethanolamine will be greater than the need for treprostinil sodium. By beginning the manufacturing process with the advanced intermediate compound, we are able to make treprostinil diethanolamine and then convert that compound to treprostinil sodium as needed. We believe this process will give us the most flexibility and efficiency in meeting future demands for both forms of treprostinil. We have approved three vendors to supply the advanced intermediate compounds in order to reduce the risk of supply shortages.

Baxter Healthcare Corporation (Baxter) formulates the active ingredient we manufacture into Remodulin for us. The term of our initial agreement with Baxter ended in October 2004. The agreement is renewable for successive eighteen-month terms and has been continuously renewed since October 2004. In late 2008, Baxter gave us verbal notice that it does not intend to renew our agreement upon the expiration of its current term in late October 2010. We eventually intend to formulate Remodulin ourselves in the combination office and laboratory facility that we are currently constructing adjacent to our Silver Spring laboratory facility. In the meantime, we intend to engage another third party to formulate Remodulin prior to the termination of our agreement with Baxter to serve as a secondary manufacturer. Also, although we maintain a two-year inventory of Remodulin, we believe that engaging a third-party formulator will mitigate the risk that we might not be able to formulate sufficient quantities of Remodulin to meet patient demand. In addition, we expect to increase contingent inventory levels of formulated Remodulin from an approximate two-year supply to a three-year supply based on projected demand.

We rely on Catalent Pharma Solutions, Inc. (formerly Cardinal Health, Inc.) (Catalent) to conduct stability studies on Remodulin, formulate inhaled treprostinil, formulate oral treprostinil for clinical trials and to analyze other products we develop. We expect to begin manufacturing oral treprostinil in our new manufacturing facility in Research Triangle Park, North Carolina, during the second half of 2009.

In 2009, we anticipate commencing commercial development of the 3F8 and 8H9 antibodies licensed from MSKCC at our Silver Spring, Maryland, facility. We expect that we will be able to utilize much of the equipment that we obtained for the OvaRex manufacturing process for 3F8 and 8H9 antibody development.

Our telemedicine products are currently manufactured by Winland Electronics, Inc. Prior to 2008, our telemedicine products were made by MSI of Florida, Inc.

Although we believe that other manufacturers and suppliers could provide similar products, services and materials, there are few companies that could replace these manufacturers and suppliers. A change in supplier or manufacturer could cause a delay in the manufacture, distribution and research efforts associated with our respective products or result in increased costs. See also *Item 1A—Risk Factors* included elsewhere in this Annual Report on Form 10-K.

Competition

Many drug companies engage in research and development to commercialize products to treat cardiovascular and infectious diseases and cancer. For the treatment of PAH, we compete with many approved products in the United States and the rest of the world, including the following:

- Flolan. The first product approved by the FDA for treating PAH, Flolan is a prostacyclin analogue that is delivered by intravenous infusion. Glaxo began marketing Flolan in the United States in 1996. In 2006, Myogen, Inc. (Myogen) acquired the marketing rights from Glaxo for Flolan in the United States. In November 2006, Myogen was acquired by Gilead Sciences, Inc. (Gilead). The generic exclusivity period for Flolan expired in April 2007;
- Generic epoprostenol. In April 2008, Teva Pharmaceuticals Industries Ltd. (Teva) announced that the FDA approved its version of generic epoprostenol for the treatment of PAH. This is the first approved generic version of Flolan. In June 2008, GeneraMedix Inc. (GeneraMedix) received FDA approval for its version of generic epoprostenol, which is stable at room temperature. In February 2009, Actelion announced that it had entered into an agreement with GeneraMedix to acquire its generic epoprostenol product;
- Ventavis. Approved in December 2004 in the United States and in September 2003 in Europe, Ventavis is the only prostacyclin analogue that has been approved for inhalation. Ventavis was initially marketed by CoTherix, Inc. (CoTherix) in the United States and is marketed by Schering AG in Europe as Iloprost. In January 2007, CoTherix was acquired by Actelion, the manufacturer and distributor of Tracleer;
- Tracleer. The first oral drug to be approved for PAH, Tracleer is also the first drug in its class, known as ERAs. Tracleer was approved in December 2001 in the United States and in May 2002 in Europe. Tracleer is marketed worldwide by Actelion;
- Revatio. Approved in June 2005 in the United States, Revatio is also an oral therapy and is marketed by Pfizer Inc. Revatio contains sildenafil, the same active ingredient as Viagra, and is the first PDE5 inhibitor, to be approved for PAH;
- Letairis™. Approved in June 2007 in the United States, Letairis is an oral therapy marketed by Gilead for the treatment of PAH. Like Tracleer, Letairis is an ERA. In April 2008, Glaxo received marketing authorization from the EMEA for Letairis in Europe where it is known as Volibris®; and

- Thelin®. Approved in August 2006 in the EU, Thelin is an oral therapy, which was developed and initially marketed in Europe by Encysive Pharmaceuticals Inc. (Encysive), for the treatment of PAH. Like Tracleer and Letairis, Thelin is an ERA. In June 2008, Pfizer completed its acquisition of Encysive. Pfizer has stated that it plans to conduct a pivotal Phase III clinical trial to support registration of Thelin in the United States and eventually seek FDA approval.

Due to their ease of use, oral therapies, such as Tracleer and Revatio, are generally considered front-line therapies for newly diagnosed PAH patients. Flolan and Remodulin, more complex infusion therapies, are generally considered later-stage therapies for sicker patients. The use of the available oral therapies and Ventavis, either alone or in combination, will delay the need for infusion therapy for many patients. As a result, while we may not currently compete head-to-head with these drugs as front-line therapy, the success of their use affects our commercial operations. As we develop both inhaled and oral treprostinil therapies, we will be expanding our range of therapeutics to include front line and mid-range treatment options. Furthermore, the commercialization of generic forms of other approved PAH therapies may exert downward pressure on the pricing of our products. For further discussion on this risk, see *Item 1A—Risk Factors—We may not successfully compete with established drugs, products and the companies that develop and market them*

Holter and event monitoring analysis services and systems are provided by many local and regional competitors and a few national competitors.

We compete with all of these companies for customers, funding, access to licenses, personnel, third-party collaborators, product development and commercialization. Almost all of these companies have substantially greater financial, marketing, sales, distribution and technical resources, and more experience in research and development, product development and marketing, clinical trials and regulatory matters, than we have.

Governmental Regulation

The research, development, testing, manufacture, promotion, marketing and distribution of pharmaceutical products are extensively regulated by governmental agencies in the United States and in other countries. Drugs are subject to rigorous regulation by the FDA in the United States, the EMEA in the EU and similar regulatory authorities in other countries. The steps ordinarily required before a new drug may be marketed in the United States, which are similar to steps required in most other countries, include:

- Preclinical laboratory tests, preclinical studies in animals, formulation studies and the submission to the FDA of an Investigational New Drug Application (IND) for a new drug;
- Clinical studies in healthy volunteers;
- Adequate and well-controlled clinical trials to establish the safety and efficacy of the drug for each indication;
- The submission of an NDA to the FDA; and
- FDA review and approval of the NDA prior to any commercial sale or shipment of the drug.

Preclinical tests include laboratory evaluation of product chemistry, toxicity and formulation, as well as animal studies. The results of preclinical testing are submitted to the FDA as part of an IND. A 30-day waiting period after the filing of each IND is required prior to the commencement of clinical testing in humans. At any time during this 30-day period or at any time thereafter, the FDA may halt proposed or ongoing clinical trials until it authorizes trials under specified terms. The IND process may be extremely costly and may substantially delay development of our products. Moreover, positive results of preclinical tests will not necessarily indicate positive results in clinical trials.

Clinical trials in support of an NDA are typically conducted in three sequential phases, but the phases may overlap. During Phase I, the initial introduction of the drug into healthy human subjects or patients, the drug is tested to assess its effects on bodily functions and safety, including side effects associated with increasing doses. Phase II usually involves studies in a limited patient population to:

- assess the efficacy of the drug in specific, targeted indications;
- assess dosage tolerance and optimal dosage; and
- identify possible adverse effects and safety risks.

If a compound is found to be potentially effective and to have an acceptable safety profile in Phase II evaluations, then Phase III trials, also called pivotal studies, major studies or advanced clinical trials, are undertaken to further demonstrate clinical efficacy and to further test for safety within an expanded patient population at geographically diverse clinical study sites.

After successful completion of the required clinical testing, an NDA or a Biologics License Application is typically submitted to the FDA in the United States, and an MAA is typically submitted to the EMEA in the EU. The regulatory authorities may request additional information before accepting an application, in which case the application must be resubmitted with the additional information. Once the application has been accepted, the regulatory authority reviews the application and responds to the applicant. The review process is often significantly extended by requests from regulatory authorities for additional information or clarification. In the United States, the FDA may refer the application to an appropriate advisory committee for review, evaluation and recommendation as to whether it should be approved. The FDA is not bound by the recommendation of an advisory committee. The regulatory authorities may also inspect the manufacturing facility before approving an application.

In the United States, if FDA evaluations of the application and the manufacturing facilities are favorable, the FDA may issue either an approval letter or a complete response letter. A complete response letter will usually contain a number of conditions that must be met in order to secure final approval of the application and authorization of commercial marketing of the drug for certain indications.

At the request of an applicant, the FDA may designate a product as an "orphan drug" in the United States if the drug is intended to treat a rare disease or condition. A disease or condition is considered rare if it affects fewer than 200,000 people in the United States. If an applicant obtains the first FDA marketing approval for a certain orphan drug, the applicant will have a seven-year exclusive right as against generic versions to market the drug for the orphan indication. The FDA has approved the orphan designation for treprostinil for the treatment of PAH without regard to drug product formulation. We believe that the orphan designation of treprostinil includes all types of PAH, regardless of etiology. However, such designation does not preclude us from seeking orphan drug designation for other formulations of treprostinil or for other etiologies of PAH or medically plausible subsets of PAH, and does not preclude the FDA from granting a new seven-year period of orphan drug exclusivity upon the approval of an NDA for a new formulation of treprostinil for the designated new indication, provided we demonstrate that such new formulation is clinically superior to the older formulation of parenteral Remodulin.

Subcutaneous Remodulin was approved by the FDA for the treatment of PAH in patients with NYHA Class II-IV symptoms to diminish symptoms associated with exercise, and intravenous Remodulin was approved for those patients not able to tolerate subcutaneous infusion. If regulatory approval of our other products is granted, such approvals will similarly be limited to certain disease states or conditions. The manufacturers of approved products and their manufacturing facilities will be subject to continual review and periodic inspections. Furthermore, identification of certain side effects or the occurrence of manufacturing problems after a drug is on the market could cause subsequent

withdrawal of approval, reformulation of the drug, additional preclinical testing or clinical trials, and changes in labeling of the product.

The Hatch-Waxman Act provides that patent terms may be extended to compensate for some of the patent life that is lost during the FDA regulatory review period for the product. This extension period would generally be one-half the time between the effective date of an IND and the submission date of an NDA, plus all of the time between the submission date of an NDA and its approval, subject to a maximum extension of five years. Similar patent term extensions are available under European laws. Following FDA approval, we filed a patent term extension application with the United States Patent and Trademark Office for our patent covering the method of treating PAH using Remodulin. The application was approved in February 2005, and the patent for Remodulin is currently set to expire on October 6, 2014.

Outside of the United States, our ability to market our products will also be contingent upon receiving marketing authorizations from the appropriate regulatory authorities. The foreign regulatory approval process may include some or all of the risks associated with FDA approval set forth above. The requirements governing the conduct of clinical trials and marketing authorization vary widely from country to country. At present, foreign marketing authorizations are applied for at a national level, although, within Europe, procedures are available to companies wishing to market a product in more than one EU member state.

In the EU, marketing authorizations may be submitted through a centralized body or through a decentralized or a national level process. The centralized procedure is mandatory for the approval of biotechnology products and high technology products and is available at the applicant's option for other products. The centralized procedure provides for the grant of a single marketing authorization that is valid in all EU member countries. The decentralized procedure is available for all medicinal products that are not subject to the centralized procedure. The decentralized procedure provides for mutual recognition of national approval decisions, changes existing procedures for national approvals and establishes procedures for coordinated EU actions on products, suspensions and withdrawals. Under this procedure, the holder of a national marketing authorization for which mutual recognition is sought may submit an application to one or more EU member countries, certify that the dossier is identical to that on which the first approval was based, or explain any differences and certify that identical dossiers are being submitted to all EU member countries for which recognition is sought. Within 90 days of receiving the application and assessment report, each EU member country must decide whether to recognize approval. The procedure encourages member states to work with applicants and other regulatory authorities to resolve disputes concerning mutual recognition. Lack of objection of a given country within 90 days automatically results in approval in that country. Following receipt of marketing authorization in an EU member country, the applicant is then required to engage in pricing discussions and negotiations with a separate prescription pricing authority in that country. Commercial sales are only able to commence in a country once pricing approval has been received.

To secure European regulatory approvals for subcutaneous Remodulin for PAH, we used the mutual recognition process. Under the rules then applicable, centralized filing was not required and we perceived the decentralized procedure to be the most effective means for approval. We filed our first MAA in France in February 2001. Review of our application was completed in 2005. As a result, Remodulin was approved in 23 member countries of the EU under the mutual recognition process described above. We withdrew applications in Spain, the United Kingdom and Ireland with the intent of resubmitting the applications when we file for approval for intravenous Remodulin since these countries required additional information not required by the other European countries. We had to file for approval for intravenous Remodulin using the mutual recognition process since intravenous use of Remodulin is considered a variation to the original license. We filed our application with our reference member state, France, which has notified us that it is not satisfied with our filing. We are working to address France's concerns and believe that we will eventually receive commercial approval for

intravenous Remodulin in at least some European countries. We have regulatory applications pending in other countries as well.

To secure European regulatory approval for inhaled treprostinil, we are using the centralized process. Regulations in Europe have changed since we made our initial filing for Remodulin and all therapies for orphan diseases must use the centralized process. We submitted our application for European approval of inhaled treprostinil in December 2008.

To secure approval of the Optineb nebulizer in the United States, applicable regulations require a quality system for the design, manufacture, packaging, labeling, storage, installation and servicing of devices intended for commercial distribution. These quality system regulations require that various specifications and controls be established for devices, devices be designed under a quality system to meet these specifications, devices be manufactured under a quality system, finished devices meet these specifications, devices be correctly installed, checked and serviced, quality data be analyzed to identify and correct quality problems, and complaints be processed. Regulatory authorities may also require additional patient data to support approval for these devices. We are also subject to inspections by regulatory agencies and ensuring that NEBU-TEC and we meet all requirements during inspections.

To continue marketing our products after approval, applicable regulations require us to maintain a positive risk-benefit profile, maintaining regulatory applications through periodic reports to regulatory authorities, fulfilling pharmacovigilance requirements, maintaining manufacturing facilities to Good Manufacturing Practices requirements, and successfully completing regulatory agency inspections, among other requirements.

Our telemedicine products are manufactured at contract facilities that are regulated by the FDA under different laws and regulations that apply to medical devices. The telemedicine devices designed and sold by Medicomp have received marketing clearance from the FDA under Section 510(k) of the Food, Drug and Cosmetic Act. Medical devices are required to be manufactured in conformance with the FDA's Quality System Regulations.

In the United States, many independent third-party payers, as well as the Medicare and Medicaid programs, reimburse Remodulin. Medicare is the federal program that provides health care benefits to senior citizens and certain disabled and chronically ill persons. Medicaid is the federal program administered by the states to provide health care benefits to certain indigent persons. The Medicare contractors who administer the program provide reimbursement for Remodulin at a rate generally equal to 95% of the published average wholesale price, as recommended by us. The state Medicaid programs also generally provide reimbursement for Remodulin at a price that is below the published average wholesale price. Beginning in 2007, the Medicare Modernization Act requires that we and the Centers for Medicare and Medicaid Services negotiate a new price for Remodulin. We anticipate that the new rules will not have an impact on Remodulin reimbursement rates in 2009. In return for including Remodulin in the Medicare and Medicaid programs, we have agreed to pay a rebate to state Medicaid agencies that provide reimbursement for Remodulin. We have also agreed to sell Remodulin under contracts with the Veterans Administration, Department of Defense, Public Health Service and numerous other federal agencies as well as certain hospitals that are designated as 340B entities (entities designated by federal programs to receive drugs at discounted prices) at prices that are significantly below the price we charge to our specialty pharmaceutical distributors. These programs and contracts are highly regulated and impose restrictions on our business. Failure to comply with these regulations and restrictions could result in a loss of our ability to continue receiving reimbursement for Remodulin. We estimate that between 35-50% of Remodulin sales in the United States are reimbursed under the Medicare and Medicaid programs.

Employees

We had approximately 360 employees as of January 29, 2009. We also maintain active independent contractor relationships with various individuals, most of whom have month-to-month or annual consulting agreements. We believe our employee relations are excellent.

Industry Segments and Geographic Areas

We operate two business segments: pharmaceuticals and telemedicine. We sell our products in the United States and throughout the rest of the world. The information required by Item 101(b) and 101(d) of Regulation S-K relating to financial information about industry segments and geographical areas, respectively, is contained in Note 19 of the consolidated financial statements included in this Annual Report on Form 10-K.

Corporate Website

Our Internet website address is <http://www.unither.com> . Our filings on Form 10-K, Form 10-Q, Form 3, Form 4, Form 5, Form 8-K and any and all amendments thereto are available free of charge through this internet website as soon as reasonably practicable after they are filed or furnished to the Securities and Exchange Commission (SEC). They are also available through the SEC's EDGAR portal at <http://www.sec.gov/edgar/searchedgar/companysearch.html> .

EXECUTIVE OFFICERS OF THE REGISTRANT

The following is a list, as of February 21, 2009, setting forth certain information regarding our executive officers. Each executive officer holds office until the first meeting of the Board of Directors after the annual meeting of stockholders, and until his or her successor is elected and qualified or until his or her earlier resignation or removal. Each executive officer's employment will end pursuant to the terms of his or her employment contract. Each of the employment contracts generally provides for an initial term of service of five years, which five-year term may be renewed after each year for additional one-year periods.

<u>Name</u>	<u>Age</u>	<u>Position</u>
Martine A. Rothblatt, Ph.D., J.D., M.B.A.	54	Chairman, Chief Executive Officer and Director
Roger Jeffs, Ph.D.	47	President, Chief Operating Officer and Director
John M. Ferrari	54	Chief Financial Officer and Treasurer
Paul A. Mahon, J.D.	45	Executive Vice President for Strategic Planning, General Counsel and Corporate Secretary

Martine A. Rothblatt, Ph.D., J.D., M.B.A., started United Therapeutics in 1996 and has served as Chairman and Chief Executive Officer since its inception. Prior to founding United Therapeutics, she launched several satellite communications companies. She also represented the radio astronomy interests of the National Academy of Sciences' Committee on Radio Frequencies before the FCC and led the International Bar Association's efforts to present the United Nations with a draft Human Genome Treaty. Her book, *Y OUR L IFE OR M INE: H OW G EOETHICS C AN R ESOLVE THE C ONFLICT B ETWEEN P UBLIC AND P RIVATE I NTERESTS I N X ENOTRANSPLANTATION*, was published by Ashgate in 2004. She is a co-inventor on three of our patents pertaining to treprostinil.

Roger Jeffs, Ph.D., joined United Therapeutics in September 1998 as Director of Research, Development and Medical. Dr. Jeffs was promoted to Vice President of Research, Development and Medical in July 2000 and to President and Chief Operating Officer in January 2001. Prior to 1998, Dr. Jeffs worked at Amgen, Inc. as Manager of Clinical Affairs and Associate Director of Clinical Research from 1995 to 1998, where he served as the worldwide clinical leader of the Infectious Disease Program.

John M. Ferrari joined United Therapeutics in May 2001 as Controller. Mr. Ferrari was promoted to Vice President of Finance in December 2003 and to Vice President of Finance and Treasurer in June 2004. In August 2006 Mr. Ferrari was promoted to Chief Financial Officer and Treasurer. Prior to joining United Therapeutics, Mr. Ferrari served as Controller for Blackboard, Inc., from 1998 to 2001. Prior to his employment with Blackboard, Inc., Mr. Ferrari served in various senior financial management positions since beginning his accounting career in 1984.

Paul A. Mahon, J.D., has served as General Counsel and Corporate Secretary of United Therapeutics since its inception in 1996. In June 2001, Mr. Mahon joined United Therapeutics full-time as Senior Vice President, General Counsel and Corporate Secretary. In November 2003, Mr. Mahon was promoted to Executive Vice President for Strategic Planning, General Counsel and Corporate Secretary. Prior to June 2001, he served United Therapeutics, beginning with its formation in 1996, in his capacity as principal and managing partner of a law firm specializing in technology and media law.

ITEM 1A. RISK FACTORS

Forward-Looking Statements

This Annual Report on Form 10-K contains forward-looking statements made pursuant to the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934 (the Exchange Act) and the Private Securities Litigation Reform Act of 1995 which are based on our beliefs and expectations as to future outcomes. These statements include, among others, statements relating to the following:

- Expectations of revenues, profitability, and cash flows;
- The timing and outcome of clinical studies and regulatory filings;
- The achievement and maintenance of regulatory approvals;
- The existence and activities of competitors;
- The pricing of Remodulin;
- The expected levels and timing of Remodulin sales;
- The dosing and rate of patient consumption of Remodulin;
- The impact of generic products on Remodulin sales;
- The outcome of potential future regulatory actions from the FDA and international regulatory agencies;
- The adequacy of our intellectual property protections and expiration dates on our patents;
- The ability of third parties to market, distribute and sell our products;
- The current and expected future value of our goodwill and recorded intangible assets;
- The sufficiency of current and future working capital;
- The expectation that our Convertible Senior Notes will be held to maturity;
- The ability to obtain financing or raise cash in the future;
- The value of our common stock;
- The expectation of future repurchases of those shares of our common stock subject to repurchase from Toray Industries, Inc.;
- The timing and expectations of the completion and costs of our building projects;
- The expected impacts of new accounting standards including FSP APB 14-1;
- The expectation of liquidating our investment holdings without significant losses and expectations with respect to future credit market conditions;
- The potential effects of an auction-rate securities settlement offer and our expectations of not exercising our right to borrow under the settlement offer;
- The results of our clinical trials;
- The pace and timing of enrollment of our clinical trials;
- The expectation and timing of regulatory approvals for and the commencement of earning revenues from sales of inhaled treprostinil, oral tadalafil and oral treprostinil;
- The expectation and timing of regulatory approval for our manufacturing and laboratory facility in Silver Spring, Maryland (Phase I Laboratory);

- The expectation, outcome and timing of marketing approvals in European Union countries for intravenous Remodulin;
- The expectation, outcome and timing of marketing approvals in European Union countries for inhaled treprostinil;
- The timing, resubmission, completion and outcome of applications for marketing authorization of subcutaneous Remodulin in Ireland, Spain and the United Kingdom;
- The expected timing of commencing commercial activities in Japan with Mochida Pharmaceutical Co., Inc.;
- The expected timing of payments to third parties under license agreements;
- The outcome of any litigation in which we are or become involved;
- Our expectation that we will find and obtain regulatory approval of a formulator for Remodulin to replace Baxter;
- Any statements preceded by, followed by or that include any form of the words "believe," "expect," "predict," "anticipate," "forecast," "project," "intend," "estimate," "should," "could," "may," "will," or similar expressions; and
- Other statements contained or incorporated by reference in this Annual Report on Form 10-K that are not historical facts.

The statements identified as forward-looking statements may exist in the section entitled *Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations* or elsewhere in this Annual Report on Form 10-K. These statements are subject to risks and uncertainties and our actual results may differ materially from anticipated results. Factors that may cause such differences include, but are not limited to, those discussed below. We undertake no obligation to publicly update forward-looking statements, whether as a result of new information, future events or otherwise.

Risks Related to Our Business

We have a history of losses and may not maintain profitability.

Although we have maintained annual profitability from 2004 to 2007, we have experienced periods in which we recognized net losses. For the year ended December 31, 2008, we recognized a net loss primarily as a result of expensing one-time fees of \$150.0 million related to our license agreement and manufacturing and supply agreement with Lilly for tadalafil. In addition, we have previously incurred quarterly net losses. While we believe we formulate our annual operating budgets with reasonable assumptions and targets, certain non-cash charges and other factors that may be beyond our control could affect our profitability and cause uneven quarterly and annual operating results.

We rely heavily on sales of Remodulin to produce revenues.

During the year ended December 31, 2008, Remodulin sales accounted for approximately 96% of our total revenues. A wide variety of events, many of which are described in other risk factors below, could cause Remodulin sales to decline. For example, if regulatory approvals for Remodulin were withdrawn, we would be unable to sell our product and our revenues would suffer. In the event that Glaxo terminates its assignment agreement or Pfizer terminates its license agreement, we would have no further rights to utilize the assigned patents or trade secrets to develop and commercialize Remodulin. Any substantial change in the dosing pattern of patients using Remodulin, due to combination therapy, side effects, death or any other reason, could decrease related revenues. In addition, we rely on third parties to produce, market, distribute and sell Remodulin. The inability of one of these third parties to perform these functions, or the failure of any of these parties to perform

successfully, could cause our revenues to suffer. Because we are very dependent on sales of Remodulin, any reduction in Remodulin sales would cause our results of operations to suffer.

Most of our pharmaceutical products are in clinical development and may never generate profits.

Our only pharmaceutical product currently in commercial distribution is Remodulin for subcutaneous and intravenous administration. Most of our pharmaceutical products are in various stages of clinical development; therefore, many of these products may not become commercially available for a number of years, if at all. We might not maintain or obtain regulatory approvals for our pharmaceutical products and may not be able to sell our pharmaceutical products commercially. Even if we sell our products, we may not be profitable or may not be able to sustain any profitability we achieve.

We may not successfully compete with established and newly-developed drugs, products and the companies that develop and market them.

We compete with established drug companies during product development for, among other things, funding, licenses, expertise, personnel, clinical trial patients, and third-party collaborators. We also compete with these companies following the approval of our products. Most of these competitors have substantially greater financial, marketing, sales, distribution and technical resources than we do. These competitors also possess more experience in research and development, clinical trials, sales and marketing and regulatory matters than we do.

We are aware of existing treatments that compete with our products, especially in the field of PAH. Patients and doctors may perceive these competing products as safer, more effective, more convenient and/or less expensive than Remodulin. Accordingly, sales of Remodulin may not increase, or may decrease if doctors prescribe less Remodulin than they prescribe presently.

For the treatment of PAH, we compete with many approved products in the United States and worldwide, including the following:

- Flolan. The first product approved by the FDA for the treatment of PAH, Flolan is a prostacyclin analogue that is delivered by intravenous infusion. Glaxo began marketing Flolan in the United States in 1996. In 2006, Myogen acquired the marketing rights for Flolan in the United States. In November 2006, Myogen was acquired by Gilead. The generic exclusivity period for Flolan expired in April 2007;
- Generic epoprostenol. In April 2008, Teva announced that the FDA approved its version of generic epoprostenol for treatment of PAH. This is the first approved generic version of Flolan. In June 2008, GeneraMedix Inc. (GeneraMedix) received FDA approval for its version of generic epoprostenol. In February 2009, Actelion announced that it had entered into an agreement with GeneraMedix to acquire its generic epoprostenol product;
- Ventavis. Approved in December 2004 in the United States and in September 2003 in Europe, Ventavis is the only prostacyclin analogue that has been approved for inhalation. Ventavis was initially marketed by CoTherix, in the United States and is marketed by Schering AG in Europe as Iloprost. In January 2007, CoTherix was acquired by Actelion, the manufacturer and distributor of Tracleer;
- Tracleer. The first oral drug to be approved for PAH, Tracleer is also the first drug in its class of ERAs. Tracleer was approved in December 2001 in the United States and in May 2002 in Europe. Tracleer is marketed worldwide by Actelion;

- Revatio. Approved in June 2005 in the United States, Revatio is an oral therapy and is marketed by Pfizer. Revatio contains sildenafil, the same active ingredient as Viagra, and is the first PDE5 inhibitor to be approved for PAH;
- Letairis. Approved in June 2007 in the United States, Letairis is an oral therapy marketed by Gilead in the United States for the treatment of PAH. Like Tracleer, Letairis is an ERA. In April 2008, Glaxo received marketing authorization from the EMEA for Letairis in Europe where it is known as Volibris; and
- Thelin. Approved in August 2006 in the EU, Thelin is an oral therapy, and was developed and initially marketed by Encysive, for the treatment of PAH. Like Tracleer and Letairis, Thelin is an ERA. In June 2008, Pfizer completed its acquisition of Encysive. Pfizer has stated that it plans to conduct a pivotal Phase III clinical trial to support registration of Thelin in the United States and eventually receive FDA approval.

Doctors may reduce the dose of Remodulin they give to their patients if they prescribe our competitors' products in combination with Remodulin. In addition, certain of our competitors' products are less invasive than Remodulin and the use of these products may delay or prevent initiation of Remodulin therapy. Lastly, as a result of merger activity, Actelion, Gilead and Pfizer presently control six of the seven non-generic approved therapies for PAH in the United States (the seventh being Remodulin). Actelion, through its acquisition of the commercial rights to GeneraMedix's generic epoprostenol, now controls one of the two approved formulations of generic epoprostenol. In addition to reducing competition through acquisition, each of these companies exerts considerable influence over prescribers through the sales and marketing of their respective therapies and through market dominance in this therapeutic area. Furthermore, the commercialization of generic forms of other approved PAH therapies may exert downward pressure on the pricing of our products.

A number of drug companies are pursuing treatments for the hepatitis C virus and various forms of cancer that will compete with any products we may develop from our glycobiology antiviral agents and monoclonal antibodies platforms.

Many local and regional competitors and a few national competitors provide cardiac Holter and event monitoring services and systems that compete with our telemedicine products.

Discoveries or development of new products or technologies by others may make our products obsolete or less useful.

Companies may discover or introduce new products that render all or some of our technologies and products obsolete or noncompetitive. Researchers are continually making new discoveries that may lead to new technologies that treat the diseases for which our products are intended. In addition, alternative approaches to treat chronic diseases, such as gene therapy, may make our products obsolete or noncompetitive. Other investigational therapies for PAH could be used in combination with, or as a substitute for Remodulin. If this happens, doctors may reduce the dose of Remodulin they give to their patients or may prescribe other treatments instead of Remodulin. This could decrease demand for Remodulin and reduce related sales.

Remodulin and our other treprostinil-based products may have to compete with investigational products currently being developed by other companies, including:

- Cialis®. An approved oral treatment for erectile dysfunction, Cialis is currently marketed by Lilly. Prior to January 2007, when ICOS Corporation was acquired by Lilly, Cialis was jointly marketed by ICOS Corporation and Lilly. Cialis is in the same class of drugs as Revatio, PDE5 inhibitors. Tadalafil is the active ingredient in Cialis. The PHIRST-I trial of tadalafil for the treatment of PAH was successful. Although we have entered into a license agreement whereby Lilly has granted us the exclusive right to commercialize tadalafil for the treatment of pulmonary hypertension in

the United States and Puerto Rico, Lilly will retain the rights to commercialize tadalafil for the treatment of pulmonary hypertension outside the United States and Puerto Rico;

- Terguride. In May 2008, Ergonex Pharma announced that the FDA granted orphan drug status to Terguride for the treatment of PAH. Terguride is a serotonin receptor 5-HT_{2B} and 5-HT_{2A} antagonist. Terguride is currently being evaluated for the treatment of PAH in a pivotal Phase II clinical study in Europe;
- Actelion-1. Actelion-1 is a tissue-targeting ERA being developed by Actelion. Actelion is conducting a Phase III study of Actelion-1 to evaluate its safety and efficacy in delaying disease progression and mortality in patients with PAH;
- Gleevec®. An approved oral treatment for chronic myeloid leukemia (a cancer of the blood and bone marrow), Gleevec is currently marketed by Novartis Pharmaceuticals Corporation. A Phase II study presented at the European Respiratory Society showed promising results for Gleevec in the treatment of PAH. Other research is ongoing;
- Aviptadil. An inhaled formulation of a vasoactive intestinal peptide, Aviptadil is being developed by mondoBIOTECH Holding SA for the treatment of PAH. In September 2006, mondoBIOTECH Holding SA announced that it had outlicensed Aviptadil for the treatment of PAH to Biogen Idec Inc. A small study of Aviptadil showed that it tended to improve oxygenation in patients with PAH. Further studies are ongoing;
- PRX-08066. A serotonin receptor 5-HT_{2B} antagonist, PRX-08066 is being developed by Epix Pharmaceuticals, Inc. as an oral tablet for the treatment of PAH. In August 2008, Epix Pharmaceuticals, Inc. announced the initiation of a right-heart catheter study of PRX-08066 in patients with PAH from chronic obstructive pulmonary disease and moderate-to-severe pulmonary hypertension;
- PulmoLAR™. Currently in development by PR Pharmaceuticals, Inc., PulmoLAR is a once-a-month injectible therapy that contains a metabolite of estradiol and has been shown in animal and cell models to address certain processes associated with PAH;
- Fasudil. Oral and inhaled formulations of Fasudil, a rho-kinase inhibitor, may be developed by Actelion for the treatment of PAH. Fasudil is currently approved in Japan as an intravenous drug to treat a disease unrelated to PAH;
- Sorafenib. Originally marketed by Bayer HealthCare AG (Bayer) as Nexavar® for advanced renal cell cancer, Sorafenib is a small molecule that inhibits Raf kinase and may interfere with the thickening of blood vessel walls associated with PAH. On May 20, 2008, the results of a University of Chicago study were released demonstrating that PAH patients taking Nexavar showed improvement in their ability to exercise;
- Recombinant Elafin. Currently being developed by PROTEO Biotech AG, Recombinant Elafin is a synthetic version of a protein that is produced naturally in the body and may inhibit inflammatory reactions. In March 2007, Elafin was granted orphan drug status in the EU for the treatment of PAH and chronic thromboembolic pulmonary hypertension;
- NS-304. A novel orally available prostaglandin I₂ receptor agonist, NS-304 is being developed by Nippon Shinyaku and Actelion pursuant to an April 2008 license agreement. Under the terms of the agreement, Actelion will take over a Phase IIa clinical study of NS-304 for PAH being conducted by Nippon Shinyaku in Europe and will be responsible for global development and commercialization of NS-304 outside Japan;
- Cicletanine. Marketed by Navitas Pharma for hypertension in Europe, Cicletanine is an eNOS coupler that works to increase the flexibility of blood vessel linings. In May 2008, Gilead and

Navitas Assets, LLC announced that they entered into an agreement whereby Gilead acquired all of Navitas Pharma's assets related to its Cicletanine business. In December 2008, Gilead began a Phase II clinical trial to assess the efficacy, safety, and tolerability of cicletanine in PAH patients;

- 6R-BH4. A naturally occurring enzyme cofactor that is required for numerous biochemical and physiologic processes, including the synthesis of NO, 6R-BH4 is being developed by BioMarin Pharmaceutical Inc. for the treatment of various cardiovascular indications and phenylketonuria. Currently, several Phase II clinical trials of 6R-BH4 for cardiovascular disease are underway. A Phase II trial of 6R-BH4 for PAD failed to meet its primary endpoint;
- ONO-1301. ONO-1301 is a novel, long-acting prostacyclin agonist with thromboxane synthase inhibitory activity being developed by scientists at the National Cardiovascular Center Research Institute in Osaka, Japan. Current published reports have indicated that the compound has shown promising results;
- Riociguat (BAY 63-2521). Riociguat is an oral soluble guanylate cyclase stimulator that activates the major cellular receptor for NO and mediates a wide range of physiological effects through elevation of intracellular cGMP levels leading to pulmonary vasodilation and increased transpulmonary cGMP release. Riociguat is being developed by Bayer for the treatment of chronic thromboembolic pulmonary hypertension and PAH. A Phase II clinical trial of Riociguat was successfully completed and two Phase III trials are currently underway;
- Aironite™. Currently being developed by Aires Pharmaceuticals, Inc. under a license agreement with the National Institutes of Health. Aironite is a novel inhaled nitrite therapy that has been shown in preclinical models to prevent the progression of pulmonary hypertension. Aironite has been granted orphan drug status by the FDA. A Phase I study of Aironite for PAH has been completed; and
- Generic Iloprost. The orphan drug exclusivity on Iloprost will expire in 2011. We believe that multiple manufacturers are working on a generic formulation that will result in future sales upon expiration of the patent term.

There may be other drugs in development for PAH in addition to those listed above. Furthermore, there may be currently approved drugs that prove effective in treating PAH. If any of these drugs are marketed for the treatment of PAH, sales of Remodulin could decrease.

If third-party payers will not reimburse patients for our drug products or if third-party payers limit the amount of reimbursement, our sales will suffer.

Our commercial success depends heavily on third-party payers, such as Medicare, Medicaid and private insurance companies, which agree to reimburse patients for the costs of our pharmaceutical products. These third-party payers frequently challenge the pricing of new and expensive drugs, and it may be difficult for distributors selling Remodulin to obtain reimbursement from these third-party payers. Remodulin and the associated infusion pumps and supplies are very expensive. We believe our investigational products, if approved, will also be very expensive. Presently, most third-party payers, including Medicare and Medicaid, reimburse patients for the cost of Remodulin therapy. In the past, Medicare has not reimbursed the full cost of the therapy for some patients. The Medicare Modernization Act requires that we negotiate a new price for Remodulin with the Centers for Medicare and Medicaid Services (CMS). As a result of the staggered implementation of this Act, Remodulin has not yet been subject to the pricing provisions. To the extent that private insurers or managed care programs follow any reduced Medicaid and Medicare coverage and payment developments, the negative impact on our business would be compounded. Additionally, some states have enacted health care reform legislation. Further federal and state developments are possible and such potential legislative activity could adversely impact our business.

Third-party payers may not approve our new products for reimbursement or may not continue to approve Remodulin for reimbursement. Furthermore, third-party payers may reduce the amount of reimbursement for Remodulin based on changes in pricing of other therapies for PAH, including generic formulations of other approved therapies, such as Flolan. If third-party payers do not approve a product of ours for reimbursement or limit the amount of reimbursement, sales will decline, as patients could opt for a competing product that is approved for reimbursement.

The growth of our cardiac monitoring business is dependent upon physicians utilizing our services. If we fail to maintain our current level of physician utilization, our cardiac monitoring revenues may stagnate and our business could be adversely affected.

Our ability to provide our cardiac monitoring services is dependent upon physicians prescribing our diagnostic tests for their patients. Our success in obtaining patients to monitor will be directly influenced by the relationships we develop and maintain with physicians and physician groups in accordance with government regulations affecting such relationships. If we are unable to maintain such relationships and create new relationships, the number of patients using our cardiac monitoring services will decline. This could adversely affect our cardiac monitoring revenues.

If we are unable to educate physicians regarding the benefits of our CardioPAL® SAVI and Decipher Holter monitor systems and fail to achieve sufficient levels of utilization, revenues from our cardiac monitoring services may not grow and could decrease.

Reimbursement for cardiac monitoring services by Medicare is highly regulated and subject to change. The operation of our cardiac monitoring facility is subject to rules and regulations governing Independent Diagnostic Testing Facilities (IDTFs). Failure to comply with these rules could prevent us from receiving reimbursement for our cardiac services from Medicare and some commercial payers.

We receive approximately 15 percent of our cardiac monitoring service revenues from Medicare reimbursements. Reimbursement from Medicare for cardiac monitoring services is subject to statutory and regulatory changes, rate adjustments and administrative rulings. All of these factors could materially affect the range of services covered or the reimbursement rates paid by Medicare for use of our cardiac monitoring services. In 2007, CMS instituted a change in the method for calculating reimbursement under the Physician Fee Schedule that will be implemented over a four-year period. Consequently, CMS has reduced reimbursement for our cardiac monitoring services each year since 2007. Similar reductions are expected through 2010. We cannot predict whether future modifications to Medicare's reimbursement policies could reduce the amounts we receive from Medicare for the services we provide. Additionally, Medicare's reimbursement rates can affect the rate that commercial payers are willing to pay for our products and services.

The Medicare program is administered by CMS. CMS imposes extensive and detailed requirements on medical service providers. These requirements include, but are not limited to, rules that govern how we structure our relationships with physicians, how and when we submit reimbursement claims, how we operate our monitoring facilities and how we provide our cardiac monitors and monitoring services. Our failure to comply with applicable Medicare rules could result in the discontinuance of our reimbursements, the return of funds paid to us, civil monetary penalties, criminal penalties and/or exclusion from the Medicare program.

Additionally, in order for us to receive reimbursement for cardiac monitoring services from Medicare and some commercial payers, we must maintain a call center certified as an IDTF. Certification as an IDTF requires that we follow strict regulations governing how the center operates, such as requirements regarding certifications of the technicians who review data transmitted from our cardiac monitors. If regulations change, we may have to alter operating procedures at our monitoring facilities, which could increase our costs significantly. If we fail to obtain and maintain IDTF

certification, our services may no longer be reimbursed by Medicare and some commercial payers, which could negatively affect our telemedicine business.

We rely in part on third parties to market, distribute and sell most of our products and those third parties may not perform.

We are currently marketing three products in our cardiovascular therapeutic platform: Remodulin in our prostacyclin analogue platform and CardioPAL SAVI cardiac event monitors and Decipher Holter monitors in our telemedicine platform. We also have several products across all of our therapeutic platforms in the clinical trial stage. We do not have the ability to independently conduct clinical studies, obtain regulatory approvals, market, distribute and sell all of our products. Therefore, we rely on experienced third parties to perform some of these functions. We may not locate acceptable contractors or enter into favorable agreements with them. If third parties do not successfully carry out their contractual duties or meet expected deadlines, we might not be able to market, distribute and sell our products and future revenues could suffer.

We rely on Accredo, CuraScript and Caremark to market, distribute, and sell Remodulin in the United States. Accredo, CuraScript and Caremark are also responsible for convincing third-party payers to reimburse patients for the cost of Remodulin, which is very expensive. If our distributors do not achieve acceptable profit margins, they may not continue to sell our products. Furthermore, if our distributors in the United States and abroad are unsuccessful in their efforts, our revenues will suffer.

Since the commercial launch of Remodulin, all of our distributors in the United States have merged with larger companies. When these distributors were smaller and independently managed, the Remodulin franchise commanded a more prominent share of their business. As divisions or subsidiaries of much larger organizations, these distributors may place less emphasis on selling Remodulin. There can be no assurance that the mergers experienced by each of our distributors will not adversely affect Remodulin distribution. In addition, since January 2007, Accredo became the exclusive distributor in the United States for Flolan. If our distributors devote fewer resources to sell Remodulin, our sales could be negatively affected.

Interruptions or delays in telecommunications systems or in network or related services could impair the delivery of our services and harm our telemedicine business.

The success of our telemedicine services and devices is dependent upon our ability to store, retrieve, process and manage data. Furthermore, we must be able to maintain and upgrade our data processing and communication capabilities. As we expand our commercial activities with respect to our cardiac monitoring business, an increased burden will be placed upon our telecommunications and data processing systems and the equipment upon which they rely. Telecommunication disruptions for any extended length of time, or other systems-related problems could have an adverse effect on our telemedicine business.

Our operations depend on compliance with complex FDA and comparable international regulations. Failure to obtain broad approvals on a timely basis or to achieve continued compliance could delay or halt commercialization of our products.

The products we develop must be approved for marketing and sale by regulatory agencies and, once approved, are subject to extensive regulation by the FDA and comparable regulatory agencies outside the United States. The process of obtaining and maintaining regulatory approvals for new drugs is lengthy, expensive and uncertain. The manufacture, distribution, advertising and marketing of these products are also subject to extensive regulation. Any new product approvals we receive in the future could include significant restrictions on the use or marketing of the product. Potential products may fail to receive marketing approval on a timely basis, or at all. If granted, product approvals can be

withdrawn for failure to comply with regulatory requirements. Product approvals can also be withdrawn upon the occurrence of adverse events following commercial introduction. In addition, our marketed products and how we manufacture and sell these products are subject to extensive continued regulation and review.

Although we have never experienced product specification failures with respect to Remodulin vials, discovery of previously unknown problems with our marketed products or problems with our manufacturing, regulatory, promotional or commercialization activities could result in regulatory restrictions on our products, including withdrawal of the products from the market. If we fail to comply with applicable regulatory requirements, we could be subject to penalties that may consist of fines, suspensions of regulatory approvals, product recalls, seizure of products and criminal prosecution.

Reports of side effects, such as sepsis, associated with intravenous Remodulin could cause physicians and patients to avoid or discontinue use of Remodulin in favor of alternative treatments.

Sepsis is a serious and potentially life-threatening infection of the bloodstream caused by a wide variety of bacteria. Intravenous prostacyclins are infused continuously through a catheter placed in a large vein in the patient's chest. Sepsis is an expected consequence of this type of delivery. As a result, sepsis is included as a risk in both the Remodulin and Flolan package inserts.

In 2007, the Scientific Leadership Committee (SLC) of the Pulmonary Hypertension Association announced new guidance relating to the treatment of PAH patients on long-term intravenous therapy. The SLC reminded physicians to be aware of the range of possible gram negative and gram-positive infectious organisms in patients with long-term central catheters and to treat them appropriately. We have been informed that the SLC is planning a study to evaluate the risk of sepsis and sepsis sub-types among parenterally-delivered prostanoids. In February 2008, the FDA approved a revised Remodulin package insert that more fully described the known infection risk and appropriate techniques to be practiced when preparing and administering Remodulin intravenously. In May 2008, the SLC issued a statement that it had created catheter maintenance guidelines for intravenous prostacyclin administration to minimize the risks of developing bloodstream infections.

Although a discussion of the risk of sepsis is currently included in the Remodulin label, and the occurrence of sepsis is familiar to physicians who prescribe intravenously administered therapies, concerns about bloodstream infections may adversely affect a physician's prescribing practice of Remodulin. If that occurs, sales of Remodulin and our profitability could suffer.

We have transitioned our manufacturing operations to a new location and if the FDA and other international agencies do not approve our new location for commercial use, our ability to produce treprostinil sodium, the active ingredient in Remodulin, could suffer.

In July 2008, we submitted a supplement to the Remodulin NDA for approval of our Phase I Laboratory. We plan to manufacture treprostinil in our Phase I Laboratory on a larger scale than we did in our facility in Chicago, Illinois, which we closed in May 2007. Until we receive FDA and international approvals of our Phase I Laboratory, we cannot sell products containing compounds manufactured there. We have maintained two years of formulated Remodulin based on anticipated demand. If we experience unexpected delays for approval of our Phase I Laboratory of more than two years, we may encounter a shortage of treprostinil and this could reduce the availability of our commercial products. Consequently, both our commercial sales and our ability to conduct clinical trials would suffer.

We depend on third parties to formulate and manufacture our products and related devices. Our ability to generate commercial sales or conduct clinical trials could suffer if our third-party vendors fail to perform.

We manufacture treprostinil with raw materials and advanced intermediate compounds supplied by vendors. The inability of our vendors to supply these raw materials and advanced intermediate compounds in the quantities we require could delay the manufacture of treprostinil for commercial use and for use in clinical trials.

We also rely on third parties to formulate our treprostinil-based products. Baxter formulates Remodulin from the treprostinil sodium we supply. Recently, Baxter verbally informed us that it intends to discontinue the formulation of Remodulin by the end of our contractual renewal term in October 2010 due to the retirement of the formulation line that is used to produce Remodulin. We are in the process of evaluating alternative supply arrangements, including formulating Remodulin in the combination office and laboratory facility that we are currently constructing adjacent to our Phase I Laboratory. We expect to have completed construction of this facility by the end of 2009. We are also pursuing other third-party formulation arrangements. We plan on increasing our supply of formulated Remodulin to three years during 2009 and maintaining this supply level thereafter to ensure we have enough to meet expected patient demand. However, if we experience significant delays in receiving FDA approval for an alternative supply arrangement or for our Phase I Laboratory, we may not have sufficient Remodulin in stock to meet commercial demand and our revenues will suffer.

Catalent conducts stability studies on Remodulin for us, formulates treprostinil in both inhaled and oral forms for our clinical trials and analyzes other products that we are developing. Beginning in 2009, we are planning to formulate oral treprostinil at our new manufacturing facility in Research Triangle Park, North Carolina. This will be our first attempt at formulating oral treprostinil without the use of a third party. Additionally, we rely on third parties to manufacture all of our products other than treprostinil.

Winland Electronics, Inc. manufactures our telemedicine devices, and other manufacturers produce our investigational drugs and devices for use in clinical trials.

We engage NEBU-TEC to manufacture the Optineb nebulizer used with inhaled treprostinil. NEBU-TEC is responsible for managing the manufacturing process of the Optineb nebulizer in accordance with all applicable regulatory requirements. Because regulatory approval of inhaled treprostinil will be linked to regulatory approval of the Optineb nebulizer, any regulatory compliance problems encountered by NEBU-TEC relative to the manufacture of this device could delay or adversely affect regulatory approvals of inhaled treprostinil. Consequently, this could impede our growth and our revenues could suffer. In addition, following regulatory approval of inhaled treprostinil, any inability to manufacture nebulizers in sufficient quantities to meet patient demand could have an adverse effect on our revenue growth.

Pursuant to a license agreement, effective December 18, 2008, Lilly has agreed to grant us the exclusive right to commercialize tadalafil, the active ingredient in Cialis, for the treatment of pulmonary hypertension in the United States and Puerto Rico. Upon FDA approval, Lilly will manufacture tadalafil for us and we will use their wholesaler network to distribute the drug pursuant to our manufacturing and supply agreement with them. We have agreed to purchase tadalafil from Lilly at a fixed cost, which may be adjusted by Lilly from time to time. The Cialis patent expires in late 2017. As a result, there is a limited time period before generic tadalafil will be available. Any delays in FDA approval would further shorten the time period during which we are able to market tadalafil before a generic competitor becomes available and our revenues could suffer.

Although there are a few companies that could replace our current suppliers, we believe other suppliers could provide similar services and materials. A change in suppliers, could cause a delay in the

distribution of Remodulin and our other products and services, and impede the progress of our clinical trials and commercial launch plans. This would adversely affect our research and development and future sales efforts.

Our manufacturing strategy presents the following risks:

- The manufacturing processes for some of our investigational products have not been tested in quantities necessary for commercial sales;
- We are planning to produce all forms of treprostinil ourselves and have never done so previously;
- Delays in scale-up to commercial quantities and process validation could delay clinical studies, regulatory submissions and commercialization of our investigational products;
- A long lead time is needed to manufacture treprostinil and Remodulin, and the manufacturing process is complex;
- Both we and the manufacturers and formulators of our products are subject to the FDA's Current Good Manufacturing Practices in the United States and similar or more stringent regulatory standards internationally. Although we can control compliance issues with respect to our internal synthesis and manufacturing processes, we do not have control over regulatory compliance by our third-party manufacturers;
- Even if we and the manufacturers and formulators of our products were to comply with domestic and international drug manufacturing regulations, the sterility and quality of the products being manufactured and formulated could be deficient. If this were to occur, such products would not be available for sale or use;
- If we have to replace a manufacturing or formulation contractor for any reason or abandon our own manufacturing operations, the FDA and international drug regulators would require new testing and compliance inspections. Furthermore, a new manufacturer or formulator, including any replacement for Baxter (who intends to discontinue formulating Remodulin in October 2010), would have to be educated in the processes necessary to manufacture and commercially validate our product;
- We may be unable to manufacture or formulate products internally other than Remodulin as planned, or at all;
- We may be unable to obtain manufacturers and formulators for those products that we do not plan to manufacture or formulate internally;
- We may be unable to obtain manufacturers and formulators to serve as additional sources for products that we manufacture or formulate internally;
- The supply of materials and components necessary to manufacture and package Remodulin and our other products may become scarce or interrupted. Disruptions to the supply of these materials could delay the manufacture and subsequent sale of such products. Any products manufactured with substituted materials or components would be subject to approvals from the FDA and international regulatory agencies before they could be sold. The timing of such FDA and international regulatory approval is difficult to predict and may be delayed;
- We may not have sufficient intellectual property rights, or we may have to share intellectual property rights to many of the improvements in the manufacturing processes or to new manufacturing processes for our products; and
- Suppliers may increase the prices at which they are willing to sell materials, components or finished products, and we may be unable to adjust our prices accordingly.

Any of these factors could delay clinical studies or commercialization of our products, entail higher costs, and result in our inability to effectively sell our products.

If our products fail in clinical studies, we will be unable to obtain or maintain FDA and international approvals and will be unable to sell those products.

In order to sell our pharmaceutical products, we must receive regulatory approvals. To obtain those approvals, we must conduct clinical studies demonstrating that our drug products, including their delivery mechanisms, are safe and effective. The FDA and international regulatory agencies may require us to perform additional clinical studies beyond those for which we have planned. If we cannot obtain approval from the FDA and international regulatory agencies for a product, that product cannot be sold and our future revenue growth may decline.

In the past, several of our product candidates have failed or been discontinued at various stages in the product development process. Some of these products include: OvaRex MAb for the treatment of advanced ovarian cancer; immediate release beraprost for early stage peripheral vascular disease; Ketotop for osteoarthritis of the knee and UT-77 for chronic obstructive pulmonary disease.

In November 2008, we reported that our FREEDOM-C trial of oral treprostinil did not meet statistical significance for its primary endpoint. As a result, we are in the process of redesigning our current FREEDOM-M trial and planning for a new FREEDOM-C² trial and thus expect delays in completing our clinical trials for oral treprostinil. Currently, we do not anticipate filing an NDA for oral treprostinil before 2012.

The length of time that it takes for us to complete clinical trials and obtain regulatory approval for product marketing varies by product and by product use. Furthermore, we cannot predict with certainty the length of time it will take to complete necessary clinical trials or obtain regulatory approval of our future products.

Our ongoing and planned clinical studies might be delayed or halted for various reasons. These reasons include:

- The drug is ineffective, or physicians believe that the drug is ineffective;
- Patients do not enroll in our studies at the rate we expect;
- Patients experience severe side effects during treatment;
- Other investigational or approved therapies are viewed as more effective or convenient by physicians or patients;
- Our clinical study sites do not adhere to the study protocol;
- Our studies do not comply with applicable regulations or guidelines;
- Patients die during the study because their disease is too advanced or because they experience medical problems unrelated to the drug being studied;
- Other ongoing or new clinical trials conducted by other drug companies or ourselves may reduce the number of patients available for our studies;
- Drug supplies are unavailable or unsuitable for use in our studies; and
- The results of preclinical testing cause delays in our studies.

In addition, the FDA and international regulatory authorities have substantial discretion over the approval process for pharmaceutical products. The FDA and international regulatory authorities may not agree that we have demonstrated the requisite level of product safety and efficacy.

Our corporate compliance program cannot guarantee that we comply with all potentially applicable federal, state and international regulations.

The development, manufacture, distribution, pricing, sales, marketing, and reimbursement of our products, together with our general operations, are subject to extensive federal, state, local and international regulations. While we have developed and instituted corporate compliance programs, we cannot ensure that our employees or we are or will always be in compliance with these regulations. If we fail to comply with any of these regulations, we could be subject to a range of penalties including but not limited to: the termination of clinical trials, the failure to approve a product candidate, restrictions on our products or manufacturing processes, withdrawal of our products from the market, significant fines, exclusion from government healthcare programs, and other sanctions or litigation.

If the licenses, assignments and alliance agreements we depend on are breached or terminated, we would lose our right to develop and sell the products covered by such agreements.

Our business depends upon the acquisition, assignment and license of drugs and other products that have been discovered and initially developed by others. Related drugs and other products include Remodulin, tadalafil and all other products in our prostacyclin, glycobiology antiviral agents, and monoclonal antibodies platforms. Under our product license agreements, we receive certain rights to existing intellectual property owned by third parties subject to the terms of each license agreement. Our assignment agreements transfer all right, title and interest in and to the intellectual property to us, subject to the terms of each agreement. We also obtain licenses to other third-party technologies to conduct our business. In addition, we may be required to obtain licenses to other third party technologies to commercialize our early-stage products. This dependence contains the following risks:

- We may be unable to obtain future licenses or assignment agreements at a reasonable cost or at all;
- If any of our licenses or assignment agreements are terminated, we will lose our rights to develop and market the products covered by such licenses or assignment agreements;
- Our licenses and assignment agreements generally provide the licensor or assignor the right to terminate in the event we breach such agreements--e.g., we fail to timely pay royalties and other fees;
- If a licensor or assignor fails to maintain the intellectual property licensed or assigned to us as required by most of our licenses and assignment agreements, we may lose our rights to develop and market some or all of our products. In addition, we may be forced to incur substantial costs to maintain the intellectual property ourselves or force the licensor or assignor to do so; and,
- If Lilly is unable to obtain or maintain FDA approval for tadalafil, we will be unable to develop and commercialize tadalafil for the treatment of pulmonary hypertension.

Certain license and assignment agreements relating to our products may restrict our ability to develop products in certain countries and/or for particular diseases and may impose other restrictions on our freedom to develop and market our products.

When we acquire, license, or receive assignments of drugs and other products that have been discovered and initially developed by others, our rights may be limited. For instance, our rights to market tadalafil are limited to the United States and Puerto Rico, unless Lilly decides not to market the drug in another country, at which time we would have the opportunity to negotiate for rights to market the drug in that country.

Provisions in our license and assignment agreements may impose other restrictions that affect the development and marketing of our products. For example, in assigning Remodulin to us, Glaxo retained

an exclusive option and right of first refusal to negotiate a license agreement with us if we decide to license any aspect of the commercialization of Remodulin anywhere in the world. Similarly, our amended license agreement with Toray to develop and market beraprost-MR includes a conditional non-compete clause benefiting Toray in that it grants Toray the right to be our exclusive provider of beraprost-MR drug substance. We must also meet certain minimum annual sales to maintain our exclusive rights to beraprost-MR. In addition, Lilly has retained authority over all regulatory activities with respect to tadalafil, and will have the right to determine the retail price for tadalafil (which will be at price parity with Cialis) and the price at which we purchase tadalafil from Lilly. Lilly also has the right to approve any additional investigatory work we do with tadalafil in other indications of pulmonary hypertension. These restrictions could affect our freedom to develop and market our products in the future.

If our or our suppliers' patents or other intellectual property protections are inadequate, our sales and profits could suffer or our competitors could force our products out of the market.

Our U.S. patent for the method of treating PAH with Remodulin will expire in October 2014. The patents for inhaled treprostinil will expire in 2018, and Lilly's patents for tadalafil will expire in 2017. We believe that certain patents to which we have rights may be eligible for extensions of up to five years pursuant to patent term restoration procedures in Europe and the Hatch-Waxman Act in the United States. Our patent for treating PAH with Remodulin has already received the maximum five-year extension. Competitors may develop products based on the same active ingredients as our products and market those products after our patents expire, or design around or seek to invalidate our existing patents before they expire. If this happens, our sales would suffer and our profits could decline significantly. In addition, if our suppliers' intellectual property protection is inadequate, our sales and profits could be adversely affected.

We have been granted patents in the United States for the synthesis of Remodulin, but patent applications that have been or may be filed by us may not result in the issuance of additional patents. The scope of any patent may not be sufficient to protect our technology. Furthermore, the laws of international jurisdictions where we intend to sell our products may not protect our rights to the same extent as the laws of the United States.

In addition to patent protection, we also rely on trade secrets, proprietary know-how and technological advances. We enter into confidentiality agreements with our employees and others, but these agreements may be ineffective in protecting our proprietary information. Others may independently develop substantially equivalent proprietary information or obtain access to our know-how.

Litigation, which can be costly, may be necessary to enforce or defend our patents or proprietary rights and may not conclude in our favor. While we have settled previous litigation to enforce our arginine patents, we may initiate future litigation against other parties we believe have violated our patents or other proprietary rights. If such litigation is unsuccessful or if the patents are invalidated or canceled, we may have to write off related intangible assets which could significantly reduce our earnings. Any licensed rights, patents or other intellectual property we possess may be challenged, invalidated, canceled, infringed or circumvented and therefore, may not provide any competitive advantage to us.

In July 2005, Vanderbilt University filed a lawsuit in the United States District Court for the District of Delaware against ICOS Corporation (ICOS) seeking to add three of its scientists as co-inventors on the tadalafil compound and method-of-use-patents. Lilly has since acquired ICOS. The patents that are the subject of this lawsuit are the same patents licensed to us by Lilly under our December 2008 license agreement. In January 2009, the district court judge ruled in favor of ICOS/Lilly, declining to add any of these scientists as an inventor on either patent. The plaintiff may appeal this ruling. Lilly believes these claims are without legal merit and expects to prevail in any

appeal of this litigation; however, it is not possible to determine the outcome. An unfavorable final outcome could have a material adverse impact on our license for tadalafil for pulmonary hypertension.

Patents may be issued to others and this could impede the manufacture or sale of our products. We may have to license those patents and pay significant fees or royalties to the owners of those patents in order to keep marketing our products. These added fees could reduce our profits.

To the extent valid third-party patents cover our products or services, we or our strategic collaborators would be required to seek licenses from the holders of these patents in order to manufacture, use, or sell our products and services. Payments under these licenses would reduce our profits from the sale of related products and services. We may be unable to obtain these licenses on acceptable terms, or at all. If we fail to obtain a required license or are unable to alter the design of our technology to avoid infringing a third-party patent, we may be unable to market some of our products and services, which would limit our sales and future growth.

Proposed changes to United States patent law are currently pending in Congress. If these proposed patent reforms become law, it could make it easier for patents to be invalidated and/or could reduce the amount of damages awarded in cases of patent infringement. Because we rely on patents to protect our products, proposed patent reform could negatively impact our business.

Pursuant to our agreements with certain business partners, any new inventions or intellectual properties arising from our activities will be jointly owned by us and these partners. If we do not have rights to new developments or inventions that arise during the terms of these agreements, or we have to share the rights with others, we may lose some or all of the benefit of these new developments or inventions, which may mean a loss of future profits or cost savings.

Our success depends in large part on our ability to operate without infringing third-party patents or other proprietary rights.

If we infringe third-party patents, we may be prevented from commercializing products or may be required to obtain licenses from those third parties. We may be unable to obtain alternative technologies or acquire a license on reasonable terms or at all. If we fail to obtain such licenses or alternative technologies, we may be unable to develop or commercialize some or all of our products.

If our highly qualified management and technical personnel leave us, our business may suffer.

Our success is highly dependent on key members of our management team, including: our founder and Chief Executive Officer, Martine Rothblatt, Ph.D.; our President and Chief Operating Officer, Roger Jeffs, Ph.D.; our Chief Financial Officer and Treasurer, John Ferrari; our Executive Vice President for Strategic Planning and General Counsel, Paul Mahon; our Chief Manufacturing Officer and Executive Vice President for Pharmaceutical Development, David Zaccardelli, Pharm.D.; and our Executive Vice President for Regulatory Affairs and Compliance, Dean Bunce. While these individuals are employed by us pursuant to multi-year employment agreements, such agreements do not ensure their continued retention. We do not maintain key person life insurance on these officers. However, we do incentivize our key personnel to remain employed by us until at least age 60 through our Supplemental Executive Retirement Plan. The success of our business will depend in part on retaining the services of our existing key management personnel and attracting and retaining new highly qualified personnel. Few individuals possess expertise in the field of cardiovascular medicine, infectious disease and oncology. As such, competition for qualified management and personnel is considerable.

We may not maintain adequate insurance and this could expose us to significant product liability claims.

The testing, manufacturing, marketing, and sale of human drugs and diagnostics involve product liability risks. Although we currently are covered by product liability insurance for claims of up to \$35 million per occurrence and in the aggregate, we may not be able to maintain this insurance at an acceptable cost, if at all. In addition, our insurance coverage may not be adequate for all potential claims. If claims or losses significantly exceed our liability insurance coverage, we may be forced out of business.

Our marketable investments maybe subject to loss.

There has been significant deterioration and instability in the financial markets. Even though we believe we take a conservative approach to investing our funds, these periods of extraordinary disruption and readjustment in the financial markets expose us to investment risk, including the risk that the value and liquidity of our investments could deteriorate significantly and the issuers of the securities we hold could be subject to credit rating downgrades. This could result in future impairment charges with respect to our investment portfolio and our cash flows and operating results could be negatively affected.

If we need additional financing and cannot obtain it, product development and sales efforts may be limited.

We may need to spend more money than anticipated. Unplanned expenditures could be significant and may result from necessary modifications to product development plans or product offerings in response to difficulties encountered with clinical studies. We may also face unexpected costs in preparing products for commercial sales, or in maintaining sales of Remodulin. We may be unable to obtain additional funds on commercially reasonable terms or at all. If additional funds are unavailable, we may be compelled to delay clinical studies, curtail operations or obtain funds through collaborative arrangements that may require us to relinquish rights to certain products or potential markets.

Settlement of our 0.50% Convertible Senior Notes due October 2011 (Convertible Senior Notes), will involve significant outlays of our cash. Specifically, the Convertible Senior Notes will require us to repay in cash, upon maturity or conversion, the \$250 million principal balance or the conversion price, whichever is less. Under the current market conditions, some of the holders of our Convertible Senior Notes may seek liquidity, which could cause them to convert their notes prior to the maturity date. If we do not have sufficient financial resources or are unable to obtain suitable financing to pay amounts due upon the maturity or conversion of the Convertible Senior Notes, we would be in default.

We adopted our Share Tracking Awards Plan (STAP) in June 2008. Awards granted under our STAP entitle participants to receive in cash an amount equal to the appreciation in our common stock, which is calculated as the positive difference between the closing price of our common stock on the date of grant and the date of exercise. Consequently, we may be required to make significant cash payments under our STAP. If we do not have sufficient funds to meet our obligations under our STAP, or are unable to secure alternative sources of financing on terms acceptable to us, we may lose key employees and could face litigation.

Improper handling of hazardous materials used in our activities could expose us to significant liabilities.

Our research and development and manufacturing activities involve the controlled use of chemical and hazardous substances. Furthermore, we are expanding these activities to new locations. Such activities subject us to numerous federal, state, and local environmental and safety laws and regulations. These laws and regulations govern the management, storage and disposal of hazardous materials. We

may be required to incur significant costs in order to comply with current or future environmental laws and regulations. We may also be subject to substantial fines and penalties for failure to comply with these laws and regulations. While we believe we comply with laws and regulations governing these materials, the risk of accidental contamination or injury from these materials cannot be completely eliminated. Furthermore, once chemical and hazardous materials leave our site, we cannot control what our hazardous waste removal contractors choose to do with these materials. In the event of an accident, we could be liable for substantial civil damages or costs associated with the cleanup of the release of hazardous materials. Any related liability could exceed our resources and could have a materially adverse effect on our business, financial condition and results of operations.

We may encounter substantial difficulties managing our growth.

Several risks are inherent in our business development plans. Achieving our goals will require substantial investments in research and development, sales and marketing, and facilities. For example, we have spent considerable resources building and seeking regulatory approvals for our laboratories and manufacturing facilities. These facilities may be insufficient to meet future demand for our products. Conversely, we may have excess capacity at these facilities if future demand falls short of our expectations. In addition, constructing our facilities is expensive, and our ability to recover our investment will depend on sales of the products manufactured at these facilities in sufficient volume to substantially increase our revenues.

If we experience sales growth, we may have difficulty managing inventory levels. Marketing new therapies is complicated, and gauging future demand is difficult and uncertain.

We invest in auction-rate securities that are subject to market risk and the recent problems in the financial markets could adversely affect the value and liquidity of our investments in these securities.

As of December 31, 2008, our non-current marketable securities included approximately \$36.8 million (par value) in auction-rate securities that are currently illiquid. In November 2008, we elected to participate in the court-ordered repurchase program by the investment firm from which we purchased our auction-rate securities. From the period beginning on June 30, 2010 and ending July 2, 2102, we can require the investment firm to repurchase any of our auction-rate securities at par value. Our ability to fully recover the carrying amount of these investments is limited in the near term and may never be fully recoverable if the investment firm fails to perform its obligations under the repurchase program or we cannot sell these securities ourselves under satisfactory terms.

Our ability to recognize the full value of our business tax credits may be limited.

As of December 31, 2008, we had approximately \$79.3 million of business tax credit carryforwards. These tax credit carryforwards expire on various dates through 2028. The Internal Revenue Service (IRS) has not yet audited or reviewed these business tax credits since we have not yet utilized them. We have conducted reviews of these business tax credits with the help of outside tax experts, including our independent auditors, Ernst & Young, LLP. Although we have recognized reserves for those business tax credits that we believe may be disallowed upon examination by the IRS, it is possible that the IRS may reduce our business tax credits further. Any reduction of business tax credits will increase our tax expense and shorten the time period before we are required to pay federal income taxes.

In addition, certain business tax credit carryforwards that were generated at various dates prior to December 2007 may be subject to limitations on their use pursuant to Internal Revenue Code Section 382 (Section 382) as a result of ownership changes as defined by Section 382. However, we do not expect that these business tax credits will expire unused. If we are deemed to undergo any further ownership changes in the future, then certain business tax credit carryforwards might be deferred or expire unused.

Furthermore, our future operations might not generate sufficient profits to be offset by these business tax credit carryforwards. In such an event, all or a portion of our business tax credit carryforwards might expire unused.

Risks Related to Our Common Stock

The price of our common stock could be volatile and could decline.

The market prices for the securities of drug and biotechnology companies are highly volatile, and there are significant price and volume fluctuations in the market that may be unrelated to particular companies' operating performances. The table below sets forth the high and low closing prices for our common stock for the periods indicated:

	High	Low
January 1, 2006—December 31, 2006	\$ 71.33	\$47.96
January 1, 2007—December 31, 2007	\$108.62	\$47.87
January 1, 2008—December 31, 2008	\$115.98	\$49.01

The price of our common stock could decline suddenly due to the following factors, among others:

- quarterly and annual financial and operating results;
- failure to meet estimates or expectations of securities analysts or our projections;
- the pace of enrollment in and results of our clinical trials;
- physician, patient, investor or public concerns as to the efficacy and/or safety of products marketed or being developed by us or by others;
- changes in, or new legislation and regulations affecting reimbursement of Remodulin by Medicare or Medicaid and changes in reimbursement policies of private health insurance companies;
- announcements by us or others of technological innovations or new products or announcements regarding our existing products;
- developments in patent or other proprietary rights;
- disagreements with our licensors and critical vendors;
- future sales of substantial amounts of our common stock by us or our existing stockholders;
- future sales of our common stock by our directors and officers;
- future issuances of common stock by us or any other activity which could be viewed as being dilutive to our shareholders;
- rumors among investors and/or analysts concerning our company, our products, or operations;
- failure to maintain, or changes to, our approvals to sell Remodulin;
- failure to obtain approval of NDAs, from the FDA and international regulatory agencies;
- failure to successfully obtain approval for our new Phase I Laboratory from the FDA and international regulatory agencies;
- the accumulation of significant short positions in our common stock by hedge funds or other investors or the significant accumulation of our common stock by hedge funds or other institutional investors with investment strategies that may lead to short-term holdings;
- timing and outcome of additional regulatory submissions and approvals; and

- general market conditions.

We may fail to meet third-party projections for our revenue or profits.

Many independent securities analysts publish quarterly and annual projections of our revenues and profits. These projections are developed independently by the securities analysts based on their own analyses. Such estimates are inherently subject to uncertainty, particularly because we do not generally provide forward-looking guidance to the public. As a result, actual revenues and net income may differ from what was projected by securities analysts. Even small variations in reported revenues and profits compared to securities analysts' expectations can lead to significant changes in our stock price.

Sales of shares of our common stock may depress our stock price.

The price of our common stock could decline upon the occurrence of any of the following events: if we issue common stock to raise capital or to acquire a license or business; if our stockholders transfer ownership of our common stock, or sell substantial amounts in the public market; or, if investors become concerned that substantial sales may occur. All of our executive officers and some of our directors have announced their adoption of prearranged trading plans under Rule 10b5-1 of the Exchange Act. In accordance with these plans, our executive officers and directors periodically sell a specified number of shares of our common stock either owned by them or acquired through the exercise of stock options. However, our executive officers and directors may choose to sell additional shares outside of these trading plans and several have done so. A decrease in the price of our common stock could make it difficult for us to raise capital or fund acquisitions through the use of our stock.

The conversion of some or all of the Convertible Senior Notes when the price of our common stock reaches or exceeds \$105.67 per share would dilute the ownership interests of our existing stockholders. The Convertible Senior Notes are convertible initially into 3.3 million shares of our common stock. Any sales in the public market of our common stock issued upon such conversion could adversely affect the prevailing market price of our common stock. Furthermore, the existence of the Convertible Senior Notes may encourage short selling by market participants because the conversion of the Convertible Senior Notes could depress the price of our common stock.

To the extent outstanding options are exercised or additional shares of capital stock are issued, existing stockholder ownership may be further diluted.

The fundamental change purchase feature of the Convertible Senior Notes may delay or prevent an otherwise beneficial attempt to take over our company.

The terms of the Convertible Senior Notes require us to purchase them for cash in the event of a fundamental change of ownership. A takeover of our company would trigger the requirement that we purchase the Convertible Senior Notes. This may delay or prevent a takeover of our company that would otherwise be beneficial to our stockholders.

Provisions of Delaware law and our certificate of incorporation, by-laws, shareholder rights plan, and employment and license agreements could prevent or delay a change of control or change in management that may be beneficial to our public stockholders.

Certain provisions of Delaware law and our certificate of incorporation, by-laws and shareholder rights plan may prevent, delay or discourage:

- a merger, tender offer or proxy contest;
- the assumption of control by a holder of a large block of our securities; and
- the replacement or removal of current management by our stockholders.

For example, our certificate of incorporation divides our Board of Directors into three classes. Members of each class are elected for staggered three-year terms. This provision may make it more difficult for stockholders to change the majority of directors. It may also deter the accumulation of large blocks of our common stock by limiting the voting power of such blocks.

Non-compete and other restrictive covenants in most of our employment agreements will terminate upon a change in control that is not approved by our Board of Directors.

We enter into certain license agreements that generally prohibit our counterparties to these agreements or their affiliates from taking necessary steps to acquire or merge with us, either directly or indirectly throughout the term of these agreements, plus a specified period thereafter. We are also party to certain license agreements that restrict our ability to assign or transfer the rights licensed to us thereunder to third parties, including parties with whom we wish to merge, or those attempting to acquire us. These agreements often require that we obtain the prior consent of the counterparties to these agreements if we are contemplating a change in control. If our counterparties to these agreements withhold their prior consent, related agreements could be terminated and we would lose all rights thereunder. These restrictive change in control provisions could impede or prevent mergers that could benefit our stockholders.

Our existing directors and executive officers own a substantial portion of our common stock and might be able to influence the outcome of matters requiring stockholder approval.

Our directors and executive officers beneficially owned approximately 6% of our outstanding common stock as of December 31, 2008. Shares beneficially owned include stock options that could be exercised by those directors and executive officers within 60 days of December 31, 2008. Accordingly, these stockholders as a group may be able to influence the outcome of matters requiring stockholder approval, including the election of our directors. Such stockholder influence could delay or prevent a change in control that could benefit our stockholders.

Because we do not intend to pay dividends, stockholders must rely on stock appreciation for any return on their investment in us.

We have never declared or paid cash dividends on any of our capital stock. We currently intend to retain our earnings for future growth and therefore do not anticipate paying cash dividends in the future. As a result, the success of an investment in our common stock will depend entirely upon any future appreciation. There is no guarantee that our common stock will appreciate in value or even maintain the price at which stockholders have purchased their shares.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Maryland—We own the office building that houses our corporate headquarters in Silver Spring, Maryland. We also own the four buildings and land adjacent to our corporate headquarters. We lease our Phase I Laboratory adjacent to our corporate headquarters, which is used for the synthesis of treprostinil-based compounds and monoclonal antibodies. In late 2007 we began construction of a new combination office and laboratory, which will connect to our Phase I Laboratory in Silver Spring. Construction on this facility is expected to be completed in late 2009. We also lease space at a warehouse near Silver Spring to maintain some of our raw material inventory used in our Remodulin manufacturing and synthesis process.

Florida—We own our Remodulin Therapy Assistance office building in Satellite Beach, Florida. Lung Rx also occupies a portion of this building. Our subsidiaries, Lung Rx and Medicomp Inc., lease manufacturing and office space, respectively, in Melbourne, Florida.

North Carolina—We lease office space in Research Triangle Park, North Carolina, for our clinical development and Remodulin commercialization staff. In June 2006, we purchased approximately 54 acres of land in Research Triangle Park, and in February 2009, we completed a new 200,000 square foot manufacturing facility and office building, which is occupied by our clinical research and development and Remodulin commercialization staffs. The manufacturing facility will formulate oral treprostinil.

Other locations—In March 2007, we purchased land and a building adjacent to our leased legal and governmental affairs office in Washington, D.C., which houses our virology-related government contracting operations. Our subsidiary, Unither Neurosciences, Inc., leases office space in Burlington, Vermont. Our subsidiary, United Therapeutics Europe, Ltd., purchased land and a building near London, which will be the headquarters for this subsidiary. It also purchased a building in Oxford, which will serve as laboratory space for our glycobiology projects. In addition, United Therapeutics Europe, Ltd., and LungRx Limited lease office space near London, England. Our Canadian subsidiary, Unither Biotech Inc., leases office space in Magog, Quebec, Canada.

We believe that these facilities are adequate for our current operations and that additional land and facilities for future expansion are reasonably available.

The office space in Melbourne, Florida, is used in our telemedicine segment. All other properties and leased facilities are used in our pharmaceutical segment.

ITEM 3. LEGAL PROCEEDINGS

Currently, and from time to time, we are involved in litigation incidental to the conduct of our business. We are not a party to any lawsuit or proceedings that, in the opinion of our management and based on consultation with legal counsel, is likely to have a material adverse effect on our financial position or results of operations.

ITEM 4. SUBMISSION OF MATTERS TO A VOTE OF SECURITY HOLDERS

No matters were submitted to a vote of security holders during the fourth quarter of the fiscal year covered by this report.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES

Market for Common Equity

Our common stock (and associated preferred stock purchase rights) trades on the NASDAQ Global Select Market under the symbol "UTHR". The table below sets forth the high and low closing prices for our common stock for the periods indicated:

	2008		2007	
	High	Low	High	Low
January 1—March 31	\$103.15	\$74.80	\$ 59.13	\$47.87
April 1—June 30	\$ 97.75	\$82.16	\$ 67.64	\$52.03
July 1—September 30	\$115.98	\$99.37	\$ 70.04	\$63.96
October 1—December 31	\$106.04	\$49.01	\$108.62	\$65.53

As of February 20, 2009, there were 43 holders of record of our common stock. We estimate that included within the holders of record are approximately 14,150 beneficial owners of our common stock. As of February 23, 2009, the closing price for our common stock was \$71.00 per share.

Dividend Policy

We have never paid and have no present intention to pay dividends on our common stock in the foreseeable future. We intend to retain any earnings for use in our business operations.

ITEM 6. SELECTED FINANCIAL DATA

The following selected consolidated financial data should be read in conjunction with our consolidated financial statements and the notes accompanying the consolidated financial statements and *Item 7—Management's Discussion and Analysis of Financial Condition and Results of Operations* included elsewhere in this Annual Report on Form 10-K. The historical results are not necessarily indicative of results to be expected for future periods. The following information is presented in thousands, except per share data.

	Year Ended December 31,				
	2008	2007	2006	2005	2004
Consolidated Statements of Operations Data:					
Revenues	\$281,497	\$210,943	\$159,632	\$115,915	\$73,590
Operating expenses:					
Research and development	239,181	83,352	57,570	36,052	30,713
Selling, general and administrative	94,306	99,027	56,052	24,655	21,418
Cost of sales	30,066	22,261	17,028	12,315	8,250
Total operating expenses	363,553	204,640	130,650	73,022	60,381
(Loss) income from operations	(82,056)	6,303	28,982	42,893	13,209
Other income (expense):					
Interest income	11,025	13,602	10,700	5,359	2,986
Interest expense	(16)	(2,175)	(482)	(29)	(4)
Equity loss in affiliate	(226)	(321)	(491)	(754)	(785)
Other, net	(1,025)	(826)	1,199	53	43
Total other income (expense), net	9,758	10,280	10,926	4,629	2,240
Net (loss) income before income tax	(72,298)	16,583	39,908	47,522	15,449
Income tax benefit	29,509	3,276	34,057	17,494	—
Net (loss) income	<u><u>\$ (42,789)</u></u>	<u><u>\$ 19,859</u></u>	<u><u>\$ 73,965</u></u>	<u><u>\$ 65,016</u></u>	<u><u>\$15,449</u></u>
Net (loss) income per share:					
Basic(1)	<u><u>\$ (1.87)</u></u>	<u><u>\$ 0.94</u></u>	<u><u>\$ 3.21</u></u>	<u><u>\$ 2.85</u></u>	<u><u>\$ 0.71</u></u>
Diluted(1)	<u><u>\$ (1.87)</u></u>	<u><u>\$ 0.88</u></u>	<u><u>\$ 3.06</u></u>	<u><u>\$ 2.58</u></u>	<u><u>\$ 0.66</u></u>
Weighted average number of common shares outstanding:					
Basic	<u><u>22,901</u></u>	<u><u>21,224</u></u>	<u><u>23,010</u></u>	<u><u>22,825</u></u>	<u><u>21,726</u></u>
Diluted	<u><u>22,901</u></u>	<u><u>22,451</u></u>	<u><u>24,138</u></u>	<u><u>25,206</u></u>	<u><u>23,351</u></u>

	Year Ended December 31,				
	2008	2007	2006	2005	2004
Consolidated Balance Sheet Data:					
Cash, cash equivalents and marketable investments(2)	\$336,318	\$299,792	\$264,163	\$ 170,347	\$ 139,140
Total assets	871,319	587,018	478,550	291,413	207,158
Notes payable	249,978	250,000	250,000	—	—
Accumulated deficit	(78,514)	(21,501)	(41,360)	(115,325)	(180,341)
Total stockholders' equity	507,699	295,790	204,606	275,102	191,636

- (1) See Note 11 to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for the computation of basic and diluted net income per share.
- (2) Excludes restricted marketable investments and cash.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion should be read in conjunction with our consolidated financial statements and related notes to the consolidated financial statements included in this Annual Report on Form 10-K. The following discussion contains forward-looking statements made pursuant to the safe harbor provisions of Section 21E of the Securities Exchange Act of 1934 and the Private Securities Litigation Reform Act of 1995. These statements are based on our beliefs and expectations about future outcomes and are subject to risks and uncertainties that could cause actual results to differ materially from anticipated results. Factors that could cause or contribute to such differences include those described under the section entitled , *Item 1A—Risk Factors—Forward Looking Statements* appearing elsewhere in this Annual Report on Form 10-K and factors described in other cautionary statements, cautionary language and risk factors set forth in other documents filed with the SEC. We undertake no obligation to publicly update forward-looking statements, whether as a result of new information, future events or otherwise.

Overview

We are a biotechnology company focused on the development and commercialization of unique products to address the unmet medical needs of patients with chronic and life-threatening cardiovascular and infectious diseases and cancer. Since our inception in June 1996, we have devoted substantially all of our resources to research and development programs and acquisitions.

Our key therapeutic platforms include:

- Prostacyclin analogues: stable synthetic forms of prostacyclin, an important molecule produced by the body that has powerful effects on blood vessel health and function;
- Phosphodiesterase 5 (PDE5) inhibitors: molecules that act to inhibit the degradation of cyclic guanosine monophosphate (cGMP) in cells. cGMP is activated by nitric oxide (NO), a naturally occurring substance in the body that signals the relaxation of vascular smooth muscle;
- Monoclonal antibodies: antibodies that activate patients' immune systems to treat cancer; and
- Glycobiology antiviral agents: a novel class of small, sugar-like molecules that have shown pre-clinical indications of efficacy against a broad range of viruses, such as hepatitis C.

We focus most of our resources on these key therapeutic platforms. In addition, we devote resources to the commercialization and development of telemedicine products and services, principally for the detection of cardiac arrhythmias (abnormal heart rhythms).

We began generating pharmaceutical revenues in 2002 upon receiving approval from the United States Food and Drug Administration (FDA) for our lead product, Remodulin® (treprostinil sodium) Injection (Remodulin) to be administered via subcutaneous (under the skin) infusion for the treatment of pulmonary arterial hypertension (PAH). Since 2002, the FDA has expanded its approval of Remodulin for intravenous (in the vein) use and for the treatment of patients who require transition from Flolan®. In addition to the United States, Remodulin is approved in many other countries worldwide, primarily for subcutaneous use. In June 2008, we filed a new drug application (NDA) with the FDA for our inhaled formulation of treprostinil. In December 2008, we filed a Marketing Authorization Application (MAA) for inhaled treprostinil with the European Medicines Agency (EMA) using the centralized filing process.

Revenues

We derive substantially all of our revenues from the sale of Remodulin.

Our sales and marketing team included approximately 80 employees as of December 31, 2008, up from approximately 65 employees as of December 31, 2007. We anticipate continued growth in our sales force in the near-term as we continue to position our business for expansion. We divide our sales force into two teams. One sales team is primarily responsible for medical practice accounts that are historical Remodulin prescribers. The other sales team focuses on medical practices that have not historically prescribed Remodulin. In addition, our specialty pharmaceutical distributors supplement the efforts of our sales force. The market in which we operate is highly competitive. We face stiff competition from other companies that market and sell competing therapies, and we expect competition to increase in the future.

Our domestic distributors, Accredo Therapeutics, Inc. (Accredo), CuraScript, Inc. (CuraScript), and CVS Caremark Corporation (Caremark), sell Remodulin to patients in the United States. We also engage various international distributors to sell Remodulin abroad. Because discontinuation of Remodulin therapy can be life-threatening, we require that our distributors maintain minimum contingent inventory levels. Due to this requirement, sales of Remodulin to our distributors in any given quarter may not be entirely indicative of patient demand. Our distributors typically place one bulk order per month in the first half of the month. The size of bulk distributor orders is based on estimates of future demand and considerations of contractual minimum inventory requirements. As such, our sales of Remodulin are affected by the timing and magnitude of these bulk orders by our distributors.

Subsequent to receiving FDA approval of Remodulin in 2002, we have funded our operations mainly from sales of Remodulin in the United States and abroad. In addition to revenues derived from sales of Remodulin, we have generated revenues from telemedicine products and services sold in the United States. Our telemedicine products and services are designed to detect cardiac arrhythmias, and ischemic heart disease, a condition that causes poor blood flow to the heart.

Expenses

Since our inception, we have devoted substantial resources toward our research and development activities. Accordingly, we incur considerable costs relating to our clinical trials and research, conducted both internally and by third parties, on a variety of projects to develop pharmaceutical therapies. We also seek to acquire promising technologies and/or compounds from third parties to be incorporated in our developmental projects and products through licensing arrangements or acquisitions. Principal components of our operating expenses consist of research and development, selling, general and administrative, and cost of both product and service sales.

Major Research and Development Projects

Our major research and development projects focus on the use of treprostinil and tadalafil to treat cardiovascular diseases, monoclonal antibodies to treat a variety of cancers and glycobiology antiviral agents to treat infectious diseases.

Cardiovascular Disease Projects

Inhaled treprostinil. We are developing an inhaled formulation of treprostinil sodium for the treatment of PAH. In June 2005, we commenced a 12-week randomized, double-blind, placebo-controlled Phase III trial of inhaled treprostinil in patients with PAH who were also being treated with Tracleer®, an oral endothelin receptor antagonist (ERA), or Revatio®, a PDE5 inhibitor. This trial, TRIUMPH-1 (**TR**eprostinil **I**nhalation **U**sed in the **M**anagement of **P**ulmonary Arterial **H**ypertension), was conducted at approximately 36 centers in the United States and Europe. In November 2007, we announced the completion of our TRIUMPH-1 trial. Analysis of the TRIUMPH-1 results demonstrated a highly statistically significant improvement in median six-minute walk distance (6MWD) of

approximately 20 meters in patients receiving inhaled treprostinil compared to patients receiving placebo.

Consequently, we submitted an NDA on June 27, 2008, to obtain FDA approval to market inhaled treprostinil in the United States. The Optineb® nebulizer (the ultra-sonic nebulizer that was used exclusively for administration of inhaled treprostinil in the TRIUMPH-1 trial) was submitted for approval as part of this filing. Optineb is manufactured exclusively by NEBU-TEC International Med Products Eike Kern GmbH (NEBU-TEC). The Optineb is CE-marked in Europe, which means that NEBU-TEC has asserted that the device conforms to European Union health and safety requirements. On December 15, 2008, we executed an Agreement of Sale and Transfer and related agreements (Agreement) with NEBU-TEC to acquire the Optineb business and all of the assets, properties and rights used in the Optineb business (Acquired Assets). We entered into the Agreement to reduce the risks associated with our dependency on NEBU-TEC and to obtain control over the production of the Optineb nebulizer. Pursuant to the Agreement, the aggregate purchase price consists of €5.0 million, and up to €10.0 million in contingent consideration (see Note 18 to the consolidated financial statements appearing elsewhere in this Annual Report on Form 10-K). The Acquired Assets under the Agreement will not transfer to us until the closing, which is to occur following the FDA's approval of our NDA for inhaled treprostinil. Standard FDA review of an NDA generally takes 10 to 12 months from the date of submission. The Optineb nebulizer was also included as part of our December 2008 MAA submission.

We were recently notified that the FDA Office of Safety and Epidemiology has preliminarily approved the tradename Tyvaso for our inhaled treprostinil therapy. The FDA Division of Cardiorenal Drug Products will conduct the final review and approval of the tradename, which usually occurs simultaneously with NDA approval.

We are conducting a Phase IV open-label study in the United States to investigate what occurs when patients on Ventavis®, the only currently approved inhaled prostacyclin, are switched to inhaled treprostinil. Enrollment for this study is expected to range from 300 to 400 patients. We commenced enrollment for this study in December 2008.

Oral treprostinil. We are developing an oral formulation of treprostinil (treprostinil diethanolamine). In October 2006 we initiated two multi-national, placebo-controlled clinical trials of oral treprostinil in patients with PAH at approximately 60 centers to study both dosing and efficacy. The FREEDOM-C trial was a 16-week study of patients currently on approved background therapy using a PDE5 inhibitor, such as Revatio® or an ERA, such as Tracleer®, or a combination of both. We completed enrollment for the FREEDOM-C trial at 354 patients in May 2008 and subsequently announced the results of the FREEDOM-C trial in November 2008. Analysis of the results demonstrated that the trial did not achieve statistical significance for its primary endpoint (the change in 6MWD at week 16 compared to baseline). Initial investigation of the results suggested that the inability to dose titrate (increase the dose to tolerability) oral treprostinil above what appeared to be suboptimal dosing levels in this study was a limiting factor that suppressed the overall treatment effect. We believe that the results of the FREEDOM-C trial, particularly as they relate to treatment effect and dosing achieved, warrant the continued development of oral treprostinil. We are planning a second FREEDOM-C trial, FREEDOM-C², to continue studying dosage and efficacy of oral treprostinil in PAH patients on approved background therapy. We estimate enrolling 300 patients in the FREEDOM-C² clinical trial beginning in late 2009.

The FREEDOM-M trial is a 12-week study of newly diagnosed patients not currently on any background therapy. Enrollment in FREEDOM-M was closed on October 31, 2008 with 171 patients enrolled in the trial. Based on what we learned from the FREEDOM-C trial relating to patient tolerability of our three different tablet strengths of oral treprostinil, we submitted a protocol amendment to the FDA on February 20, 2009 seeking to increase the number of patients enrolled in

FREEDOM-M by approximately 140. These new patients will start the study on the 0.25 mg tablet, which we learned from the FREEDOM-C trial is the best-tolerated tablet strength. In addition, our amendment to the FREEDOM-M protocol seeks to limit the primary statistical analysis of the trial to those patients who started the trial using the 0.25 mg tablet.

We believe that this protocol amendment will allow us to more accurately assess the effectiveness of oral treprostinil. We hope that by starting the additional patients on the 0.25 mg tablets and titrating the doses, patients will be able to reach an effective maintenance dose with the lower dosage tablet. The study should have a reduced rate of premature discontinuation due to adverse events. If we are successful in enrolling patients for this extended portion of the study, we will then be able to statistically power our analysis using a reduced effect size (from a 50 to 45 meter change in 6MWD), a change in the study's statistical significance (from 0.05 to 0.01) and a change the 6MWD study endpoint to include only patients who had access to the 0.25 mg tablets at randomization (when study drug is first administered at the beginning of the trial). If these amendments to the study are successful, we believe that the results will reflect the expected dosing regimen for oral treprostinil. Due to the time required to receive FDA consent for the protocol amendment and to package and ship new clinical trial supplies to study sites, we expect to begin enrolling additional patients in the second quarter of 2009.

Tadalafil. In November 2008, we entered into the following agreements with Eli Lilly and Company and one of its subsidiaries (collectively, Lilly): a license agreement, a manufacturing and supply agreement and a stock purchase agreement. We completed the initial transactions contemplated by these agreements in December 2008. Pursuant to the license agreement, we paid an upfront fee to Lilly of \$25.0 million for the exclusive right to develop, market, promote and commercialize the orally administered tadalafil for the treatment of pulmonary hypertension in the United States and Puerto Rico. Tadalafil is the active ingredient in Cialis®, also developed and marketed by Lilly for the treatment of erectile dysfunction. Additionally, we agreed to pay Lilly royalties equal to 5% of net sales of tadalafil for pulmonary hypertension as a pass through of Lilly's third-party royalty obligations. We will purchase tadalafil from Lilly pursuant to the manufacturing and supply agreement. The terms of the manufacturing and supply agreement provide that Lilly will manufacture and distribute tadalafil through its wholesaler network as Lilly would for its other pharmaceutical products and included an upfront fee of \$125.0 million. The total upfront fees paid to Lilly in December 2008 of \$150.0 million under the license and manufacturing and supply agreements were charged to research and development expenses during the quarter ended December 31, 2008, because tadalafil had not yet received marketing approval from the FDA and therefore, commercial feasibility had not yet been established. Pursuant to the stock purchase agreement, we issued 3,150,837 shares of our common stock from treasury to Lilly in exchange for \$150.0 million. See Note 15 to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K.

Beraprost-MR. We are developing a modified release formulation of beraprost (beraprost-MR) for PAH. Beraprost-MR is an oral prostacyclin analogue. In March 2007, our subsidiary Lung Rx., Inc. (Lung Rx) entered into an amended version of the June 2000 license agreement between Toray Industries, Inc. (Toray) and us to expand our rights related to the commercialization of beraprost-MR. We are currently enrolling a Phase II clinical study of beraprost-MR to explore multiple-dose tolerability in patients with PAH and planning a Phase III clinical trial to evaluate the efficacy of beraprost-MR for the treatment of PAH. In October 2007, Toray announced that beraprost-MR received regulatory approval in Japan for the treatment of PAH. In July 2008, beraprost-MR was granted Orphan Medicinal Product Designation by the EMEA.

We incurred expenses of approximately \$210.5 million, \$49.4 million and \$33.0 million for the years ended December 31, 2008, 2007 and 2006, respectively, on our cardiovascular programs. We have spent approximately \$453.9 million from inception to December 31, 2008, on our cardiovascular programs.

Cancer Disease Projects

In December 2007, we announced the completion of our IMPACT I and II pivotal trials of OvaRex® MAb (OvaRex), which we had exclusively licensed from AltaRex Medical Corp. (AltaRex). Results of the trials failed to reach statistical significance. Based on the results of these trials, we terminated our license agreement with AltaRex and discontinued further development of our ovarian cancer program of monoclonal antibodies. We do not expect to incur additional significant costs related to this program.

In December 2007, we entered into two agreements with Memorial Sloan-Kettering Cancer Center (MSKCC) to exclusively license certain rights to two investigational monoclonal antibodies (3F8 and 8H9) for the treatment of neuroblastoma and metastatic brain cancer. The monoclonal antibody 3F8 is a mouse IgG3 MAb, which is currently used in an investigational setting for the treatment of neuroblastoma. Neuroblastoma is a rare cancer of the sympathetic nervous system mainly affecting children. The FDA granted orphan drug status to 3F8 on October 16, 2008. 8H9 is also a mouse monoclonal antibody, but of the IgG1 subclass. The 8H9 antibody is highly reactive with a range of human solid tumors, including brain cancers. The 8H9 antibody is in early investigational development for metastatic brain cancer. We are currently working on clinical development plans for both antibodies and expect to begin clinical development of the 3F8 antibody in 2009.

We incurred expenses of approximately \$2.8 million, \$13.9 million and \$10.5 million for the years ended December 31, 2008, 2007, and 2006, respectively, on our cancer programs. We have spent approximately \$59.6 million from inception to December 31, 2008, on our cancer programs.

Infectious Disease Projects

Pursuant to our research agreement with Oxford University, we have the exclusive right to commercialize miglustat as an anti-viral agent for the treatment of all sugar-coated viruses, including hepatitis C. Our infectious disease program also includes glycobiology antiviral drug candidates in various preclinical and clinical stages of testing for the treatment of a wide variety of viruses. Through our agreement with Oxford University, we are also supporting research into new glycobiology antiviral drug candidates and technologies.

In January 2009, we entered into a license agreement with MIGENIX, Inc. (MIGENIX), a Canadian company, to obtain the exclusive worldwide rights to develop and commercialize celgosivir. Celgosivir is a novel antiviral agent that appears to be a potent inhibitor of alpha-glucosidase I, a host enzyme critical to the folding of the viral proteins. Inhibition of alpha-glucosidase I leads to improper viral folding, which, in turn, prevents viral replication. This effect has many applications. The rights to develop and commercialize celgosivir are contingent upon our acceptance of further preclinical studies to be performed by MIGENIX to assess celgosivir's ability in combating the hepatitis C virus. We incurred expenses of approximately \$1.6 million, \$824,000 and \$753,000 for the years ended December 31, 2008, 2007 and 2006, respectively, on our infectious disease projects. We have spent approximately \$38.1 million from inception to December 31, 2008, on our infectious disease programs.

Project Risks

There are inherent uncertainties involved in the drug development process as well as the associated regulatory review and approval processes. Consequently, we cannot reliably estimate completion dates, expected costs or the amounts and timing of cash flows associated with our various drugs currently under development. Risks and uncertainties associated with completing the development of the products discussed above include the following:

- Products may fail in clinical studies;
- Hospitals, physicians and patients may not be willing to participate in clinical studies;

- Hospitals, physicians and patients may not properly adhere to clinical study protocols;
- The drugs may not be safe and effective or may be perceived as unsafe and ineffective;
- Other approved or investigational therapies may be viewed as safer, more effective or more convenient;
- Patients may experience severe side effects during treatment;
- Patients may die during a clinical study because their disease is too advanced or because they experience medical problems that are not related to the drug being studied;
- Other ongoing or new clinical trials conducted by other drug companies or ourselves may reduce the number of patients available for our studies;
- Patients may not enroll in our studies at the rate we expect;
- The FDA, international regulatory authorities or local internal review boards may delay or withhold approvals to commence clinical trials or to manufacture our drugs;
- The FDA or international regulatory authorities may request that additional studies be performed;
- We may incur higher than anticipated costs with respect to third-party manufacturers or service providers we engage to perform research or to conduct clinical trials on our behalf;
- Drug supplies may be insufficient to treat patients in the studies; and
- The results of preclinical testing may cause delays in the commencement of clinical trials.

If our projects are not completed in a timely manner, regulatory approvals could be delayed and our operations, liquidity and financial position could suffer. Without regulatory approvals, we cannot commercialize and sell these products. Therefore, potential revenues and profits from these products could be delayed or may never be realized.

Selling, general and administrative expenses

Selling, general and administrative expenses consist primarily of salaries and related expenses for corporate and marketing personnel, travel, office expenses, insurance, rent and utilities, professional fees, advertising and marketing and depreciation and amortization.

Cost of product sales

Cost of product sales comprises costs to manufacture or acquire products sold to customers. We manufacture treprostinil using advanced intermediate compounds purchased in bulk from third-party vendors. We utilize multiple vendors that are capable of manufacturing greater quantities of these compounds less expensively than we are. We expect to begin commercial production of treprostinil in our new facility in Silver Spring, Maryland, upon receiving FDA approval for the facility, which is anticipated to occur during the first half of 2009. Upon commercialization of oral treprostinil, we believe the demand for treprostinil diethanolamine, the form of treprostinil used in our oral tablet, will exceed that for treprostinil sodium, the form of treprostinil used in Remodulin and inhaled treprostinil. Accordingly, our planned manufacturing process has been designed to give us the flexibility to produce both forms of treprostinil efficiently in proportion to forecasted demand.

Cost of service sales

Cost of service sales includes salaries and related expenses, share-based compensation expense, and related overhead necessary to provide telemedicine services to customers.

Future Prospects

Our future initiatives include expanding use of our prostacyclin therapy from the last line of treatment for patients with advanced stages of PAH to front-line therapy for newly diagnosed patients. We also hope to expand the use of treprostinil-based drugs and other therapies in development to treat diseases other than PAH.

In June 2008, we submitted an NDA to the FDA for marketing approval of inhaled treprostinil. If we are successful in obtaining FDA approval within our anticipated time frame, then we expect to begin selling inhaled treprostinil in 2009. In connection with these activities, we intend to enter into new distribution agreements for our inhaled formulation of treprostinil.

In December 2008, we obtained license rights from Lilly to develop, market, promote and commercialize the orally administered drug, tadalafil, for the treatment of pulmonary hypertension in the United States and Puerto Rico. Currently, Lilly is seeking FDA approval for tadalafil. If the FDA review process proceeds as anticipated, we could begin to recognize related revenues during 2009.

Our trial for our inhaled formulation of treprostinil was successful and we believe that our FREEDOM-M and FREEDOM-C² trials for our oral formulation of treprostinil will also be successful. We expect that the products developed under these trials will generate future sources of revenue. However, prior to FDA approval of inhaled and/or oral treprostinil for marketing, we could be required to perform additional studies. If this were to occur, related delays in the possible commercialization of these products could impede our continued rate of revenue growth. However, because PAH is a progressive disease with no cure, many patients continue to deteriorate on the currently approved oral and inhaled therapies. This presents market growth opportunities for Remodulin as a viable alternative or complementary treatment to these therapies. Furthermore, we believe that the market for Remodulin will continue to expand as more patients are diagnosed with PAH each year.

Our future growth and profitability will depend on many factors. These factors include, but are not limited to, the timing of commercialization of products in the later stages of development, the selling prices of, and demand for, our products and services, the degree of reimbursement by public and private insurance organizations, and the competition we face from others within our industry.

Financial Position

Cash, cash equivalents and marketable investments (excluding all restricted amounts) at December 31, 2008, were approximately \$336.3 million, compared to approximately \$299.8 million as of December 31, 2007. This increase resulted from the continued growth in sales of Remodulin offset, in part, by expenditures related primarily to funding the construction and acquisition of real property.

Restricted cash and marketable investments of \$45.8 million at December 31, 2008, comprise approximately \$40.7 million pledged as security for our financing arrangements related to our Silver Spring, Maryland laboratory facility (Phase I Laboratory) and approximately \$5.1 million placed in a Rabbi Trust to fund our Supplemental Executive Retirement Plan (SERP). At December 31, 2007, approximately \$39.2 million was pledged as security for our Phase I Laboratory and approximately \$5.0 million was placed in the Rabbi Trust.

Property, plant and equipment at December 31, 2008, was approximately \$221.1 million, up \$151.7 million from approximately \$69.4 million at December 31, 2007. Since December 31, 2007, we have funded approximately \$88.8 million toward the construction of our facilities in North Carolina and Maryland. Construction of the North Carolina facility was completed in February 2009 and the Maryland facility is expected to be complete in late 2009. Additionally, as of September 30, 2008, we capitalized \$29.0 million and recognized a corresponding lease obligation associated with our Phase I Laboratory (see Note 10 to the consolidated financial statements for further details). Lastly, we

purchased a building in the United Kingdom for approximately \$16.3 million in August 2008 to serve as the new headquarters for our wholly-owned subsidiary, United Therapeutics Europe, Ltd.

Noncurrent deferred tax assets increased by approximately \$82.3 million from approximately \$93.7 million at December 31, 2007, to \$176.0 million at December 31, 2008, primarily as a result of the deferred tax asset created by expensing the \$150.0 million upfront payment to Lilly pursuant to a license agreement and a related manufacturing and supply agreement regarding the rights to commercialize tadalafil for pulmonary hypertension. For tax purposes, the \$150.0 million upfront payment is considered to be a tax intangible asset which is expensed for tax purposes over an expected 15 year period.

Accounts payable increased by approximately \$18.3 million from approximately \$2.0 million at December 31, 2007 to \$20.3 million at December 31, 2008. We attribute this increase to the timing of payments based on our semi-monthly payment cycle and the timing and volume of activity with respect to our construction projects.

The classification of approximately \$250.0 million of our 0.50% Convertible Senior Notes due October 2011 (Convertible Senior Notes) shifted from a current liability at December 31, 2007, to a non-current liability at December 31, 2008, because contingent conversion criteria had not been satisfied at December 31, 2008. Specifically, the closing price of our common stock did not exceed 120% of the initial conversion price for more than 20 days during the 30 consecutive trading day period ending on December 31, 2008. As a result, the Convertible Senior Notes were not convertible at the election of their holders (Note Holders). This conversion determination is measured as of the end of each quarter. Accordingly, classification of the Convertible Senior Notes may change in future quarters.

Stockholders' equity was approximately \$507.7 million at December 31, 2008, compared to approximately \$295.8 million at December 31, 2007. The net increase of \$211.9 million in stockholders' equity was driven in large part by the following significant transactions during the year ended December 31, 2008:

- Additional paid-in capital increased by approximately \$110.9 million as a result of: (1) the receipt of \$41.9 million in proceeds from the exercise of stock options during 2008; (2) the recognition of \$28.5 million in stock-option based compensation expense; and (3) the recognition of \$40.5 million in tax benefits primarily associated with share-based compensation.
- Treasury stock decreased by approximately \$164.2 million. The decrease represents the cost basis of approximately 3.2 million treasury shares that we issued to Lilly in December 2008 in exchange for \$150.0 million pursuant to our November 2008 stock purchase agreement. This transaction was one of several pursuant to agreements entered into with Lilly regarding the license, manufacture and supply of tadalafil for the treatment of pulmonary hypertension.
- Our accumulated deficit rose by approximately \$57.0 million during the year ended December 31, 2008 due to our \$42.8 million net loss incurred for the year ended December 31, 2008 and the loss we recognized in connection with the issuance of treasury stock to Lilly. The excess of the cost basis of the treasury shares issued over the purchase price of approximately \$14.2 million was included in our accumulated deficit.

Results of Operations

Years ended December 31, 2008 and 2007

Revenues for the year ended December 31, 2008, were approximately \$281.5 million, compared to approximately \$210.9 million for the year ended December 31, 2007. The growth in revenues experienced during 2008 resulted in large part from the increase in the number of patients prescribed Remodulin.

The following table presents the components of net revenues (dollars in thousands):

	Year Ended December 31,		Percentage Change
	2008	2007	
Remodulin	\$269,718	\$200,879	34.3%
Telemedicine services and products	9,485	7,725	22.8%
Distributor fees	2,234	2,160	3.4%
Other products	60	179	(66.5)%
Total revenues	<u>\$281,497</u>	<u>\$210,943</u>	<u>33.5%</u>

For the year ended December 31, 2008 and 2007, approximately 89% and 87%, respectively, of net Remodulin revenues were earned from our three distributors located in the United States.

Total revenues are reported net of estimated government rebates, prompt pay discounts and fees due to distributors for services. We pay government rebates to state Medicaid agencies that pay for Remodulin. We estimate our liability for such rebates based on the historical level of government rebates invoiced by state Medicaid agencies relative to sales of Remodulin in the United States. Prompt pay discounts are offered on sales of Remodulin if the related invoices are paid in full, generally within 60 days from the date of sale. We estimate our liability for prompt pay discounts based on historical payment patterns. Fees paid to distributors for services are estimated based on contractual rates for specific services applied to the estimated units of service provided by the distributors for the period.

The table below presents a reconciliation of the liability accounts associated with estimated government rebates, prompt pay discounts and fees to distributors for services and the net reductions to revenues relating to these items (in thousands):

	Year Ended December 31,	
	2008	2007
Liability accounts, at beginning of period	\$ 2,879	\$ 2,366
Additions to liability attributed to sales in:		
Current period	14,498	12,439
Prior period	129	278
Payments or reductions attributed to sales in:		
Current period	(10,725)	(9,838)
Prior period	(2,685)	(2,366)
Liability accounts, at end of period	<u>\$ 4,096</u>	<u>\$ 2,879</u>
Net reductions to revenues	<u>\$ 14,627</u>	<u>\$12,703</u>

The table below summarizes research and development expense by major project and non-project components (dollars in thousands):

	Year Ended December 31,		Percentage
	2008	2007	Change
Project and non-project:			
Cardiovascular	\$ 60,549	\$38,459	57.4%
License fees	150,000	11,013	1262.0%
Cancer	2,771	13,874	(80.0)%
Infectious disease	1,556	824	88.8%
Share-based compensation	16,200	12,373	30.9%
Other	8,105	6,809	19.0%
Total research and development expense	<u>\$239,181</u>	<u>\$83,352</u>	<u>187.0%</u>

Cardiovascular projects. Expenses associated with our inhaled and oral treprostinil programs increased by approximately \$8.9 million for the year ended December 31, 2008. The increase in expenditures related to these programs resulted from activities associated with: (1) the progression of ongoing clinical trials; (2) the filing for regulatory approval for inhaled treprostinil in the United States and EU; and (3) the announcement of results of the FREEDOM-C trial. In addition, during the year ended December 31, 2008, expenses incurred in connection with the development of beraprost-MR rose by approximately \$6.0 million when compared to the year ended December 31, 2007. This increase was largely attributable to milestone payments made to Toray pursuant to our license agreement for the development of beraprost-MR. Lastly, the growth during 2008 of our clinical staff to focus on new and investigational cardiovascular projects resulted in a corresponding increase in salaries and related expenses of approximately \$5.1 million.

Cardiovascular license fees. During the quarter ended December 31, 2008, we made a one-time, upfront payment of \$150.0 million pursuant to a license agreement and a related manufacturing and supply agreement entered into with Lilly regarding the commercialization of tadalafil. We expensed these payments as research and development since tadalafil has not been approved for marketing by the FDA and therefore commercial feasibility has not yet been demonstrated.

Cancer projects. In December 2007, we terminated our ovarian cancer program based on the results of the IMPACT I and II trials relating to OvaRex. Consequently, expenditures associated with our cancer programs decreased substantially in the year ended December 31, 2008 compared to the year ended December 31, 2007.

Share-based compensation. The increase in share-based compensation in 2008 resulted from: (1) achievement awards in connection with the attainment of specific company-wide performance milestones of which a portion is paid with awards granted under Share Tracking Awards Plan (STAP); and (2) an increase in the number of employees during the 2008.

The table below summarizes selling, general and administrative expense by major categories (dollars in thousands):

	Year Ended December 31,		Percentage Change
	2008	2007	
Category:			
General and administrative	\$41,284	\$38,515	7.2%
Sales and marketing	32,899	24,159	36.2%
Share-based compensation	20,123	36,353	(44.6)%
Total selling, general and administrative expense	<u>\$94,306</u>	<u>\$99,027</u>	<u>(4.8)%</u>

General and administrative. The increase in general and administrative expenses in 2008 reflects in part headcount growth and corresponding personnel-related expenses of approximately \$2.0 million as we expanded our administrative staff to support the anticipated growth of our business. In addition, professional fees rose by approximately \$3.5 million in 2008 and relate to services provided in connection with prospective and consummated business transactions during the year. The increases in personnel-related expenses and professional fees were partially offset by a decrease of approximately \$3.1 million in impairment-related charges during 2008.

Sales and marketing. For the year ended December 31, 2008, personnel-related costs increased by approximately \$3.6 million as a direct result of increases in departmental headcount. In addition, expenses associated with new marketing campaigns and initiatives and other promotional activities rose by approximately \$3.7 million during 2008.

Share-based compensation. During the year ended December 31, 2007, we recognized share-based compensation expense of approximately \$23.7 million, representing the fair value of the Chief Executive Officer's year-end stock option grant, which is determined based on a formula set forth in her employment agreement. Based on this formula, our Chief Executive Officer did not receive a stock option grant for the year ended December 31, 2008. The decrease in share-based compensation recognized relating to this award was partially offset by an increase in share-based compensation of approximately \$7.5 million in 2008 and resulted from: (1) achievement awards in connection with the attainment of specific company-wide performance milestones of which a portion is paid with awards granted under the STAP; and (2) an increase in the number of employees during the 2008.

Income Tax Benefit. As a result of our net loss incurred before income taxes for the year ended December 31, 2008, we recognized income tax benefits of \$29.5 million for the year then ended. For the year ended December 31, 2007, we recognized income tax benefits of approximately \$3.3 million, resulting principally from the generation of business tax credits during the year for our orphan drug related research and development activities.

Years ended December 31, 2007 and 2006

Revenues for the year ended December 31, 2007, were approximately \$210.9 million, compared to approximately \$159.6 million for the year ended December 31, 2006.

The following table presents the components of net revenues (dollars in thousands):

	Year Ended December 31,		Percentage Change
	2007	2006	
Remodulin	\$200,879	\$152,478	31.7%
Telemedicine services and products	7,725	6,597	17.1%
Distributor fees	2,160	—	N/A
Other products	179	557	(67.9)%
Total revenues	<u>\$210,943</u>	<u>\$159,632</u>	<u>32.1%</u>

For the year ended December 31, 2007 and 2006, approximately 87% and 90% of our Remodulin revenues, respectively, were earned from our three distributors located in the United States.

Total revenues are reported net of estimated government rebates, prompt pay discounts and fees due to distributors for services. We pay government rebates to state Medicaid agencies that pay for Remodulin. We estimate our liability for such rebates based on the historical level of government rebates invoiced by state Medicaid agencies relative to sales of Remodulin in the United States. Prompt pay discounts are offered on sales of Remodulin if the related invoices are paid in full--generally within 60 days from the date of sale. We estimated our liability for prompt pay discounts based on historical payment patterns. Fees paid to distributors for services are estimated based on contractual rates for specific services applied to the estimated units of service provided by the distributors for the period.

The table below presents a reconciliation of the liability accounts associated with estimated government rebates, prompt pay discounts and distributor fees for services and the net reductions to revenues relating to these items (in thousands):

	Year Ended December 31,	
	2007	2006
Liability accounts, at beginning of period	\$ 2,366	\$ 1,590
Additions to liability attributed to sales in:		
Current period	12,439	9,442
Prior period	278	—
Payments or reductions attributed to sales in:		
Current period	(9,838)	(7,163)
Prior period	(2,366)	(1,503)
Liability accounts, at end of period	<u>\$ 2,879</u>	<u>\$ 2,366</u>
Net reductions to revenues	<u>\$12,703</u>	<u>\$ 9,442</u>

The table below summarizes research and development expense by major project and non-project components (dollars in thousands):

	Year Ended December 31,		Percentage
	2007	2006	Change
Project and non-project:			
Cardiovascular	\$38,459	\$33,005	16.5%
Cancer	13,874	10,462	32.6%
Infectious disease	824	753	9.4%
Stock option	12,373	9,240	33.9%
Other	6,809	4,110	65.7%
License fee	11,013	—	N/A
Total research and development expense	<u>\$83,352</u>	<u>\$57,570</u>	<u>44.8%</u>

For the year ended December 31, 2007, the increase in cardiovascular expense was primarily due to expensing a \$3.0 million milestone payment to Toray in connection with our amended license agreement for modified release beraprost (beraprost-MR). For the year ended December 31, 2007, the increase in our cancer program expenses, as compared to the year ended December 31, 2006, was primarily related to the development of our OvaRex manufacturing processes. Research and development license fee expense is related to the 200,000 shares of our common stock issued to Toray under our amended license agreement for beraprost-MR.

The table below summarizes selling, general and administrative expense by major categories (dollars in thousands):

	Year Ended December 31,		Percentage
	2007	2006	Change
Category:			
General and administrative	\$34,933	\$25,434	37.3%
Sales and marketing	24,159	14,438	67.3%
Impairment charges	3,582	2,024	77.0%
Stock option	36,353	14,156	156.8%
Total selling, general and administrative expense	<u>\$99,027</u>	<u>\$56,052</u>	<u>76.7%</u>

The increase in general and administrative expenses was due primarily to increased expenses of approximately: (1) \$3.2 million for salaries and related expenses from headcount growth to support expanding operations; and (2) \$1.1 million for other operating expenses supporting the growth in our operations. The increase in sales and marketing related expenses was the result of an increase in salaries and related expenses of approximately \$5.4 million primarily due to an increase in staffing and an increase in travel expenses of approximately \$1.3 million. In November 2006, we settled an arginine infringement case and the \$1.6 million settlement payment that we received was recorded as a reduction to general and administrative expense.

Under the terms of her employment agreement, as amended, our Chief Executive Officer is entitled to receive stock options in December of each calendar year based on the average closing price of our common stock for the month of December. At December 31, 2007, we granted her options to purchase 582,607 shares of our common stock, which represents one-eighteenth of one percent of the increase in our market capitalization from its average in December 2006 based on the average closing price of our common stock for the month of December 2007. Our stock market capitalization increased approximately \$1.0 billion from January 1, 2007, to December 31, 2007. We recognized stock option

expense in December 2007 of approximately \$20.3 million, representing the fair market value of these stock options in excess of the \$3.5 million recognized at September 30, 2007. Our market capitalization increased by approximately \$814.7 million from September 30, 2007, to December 31, 2007. The offset to this expense was an increase to additional paid-in capital.

An impairment of the intangible assets related to the HeartBar® product trade name totaling approximately \$2.0 million was recorded during the year ended December 31, 2006. This impairment was required since the HeartBar product was discontinued in January 2006 and is no longer sold. In September 2007, based on a United States Supreme Court decision concerning the enforceability of patents and a publication discounting the benefits of arginine supplementation, we decided to discontinue selling any arginine related products and we reevaluated our assumptions used in determining the recoverability of our arginine patents. As a result, an impairment charge of \$1.6 million was recorded.

In December 2007, based on the announcement of the failure of our IMPACT I and II Phase III trials of OvaRex for advanced ovarian cancer, the stock price of ViRexx Medical Corp. declined. We considered this decline to be an other-than-temporary impairment of approximately \$1.9 million. Based on the quoted market price at December 31, 2007, the book value of our ViRexx investment was approximately \$505,000.

Cost of product sales was approximately 10% of net product sales for each of the years ended December 31, 2007 and 2006. Cost of service sales was approximately 32% and 33% of service sales for the years ended December 31, 2007 and 2006, respectively.

We recognized income tax benefit of approximately \$3.3 million and \$34.1 million for the years ended December 31, 2007 and 2006, respectively. The tax benefit generated for 2007 was primarily due to the amount of tax credits generated during the year from our orphan drug related research and development activities. For the year ended December 31, 2006, the tax benefit recognized was due primarily to reductions of approximately \$45.7 million in the valuation allowance against our deferred tax assets based on our determination that certain of these deferred tax assets are more likely than not to be realizable.

Liquidity and Capital Resources

Subsequent to the FDA's initial approval of Remodulin in 2002, we have funded our operations principally from Remodulin-related revenues and expect to do so in the future. We believe that our existing revenues and working capital resources will be adequate to fund our operations as demand for Remodulin has grown steadily since 2002 and our customer base remains stable. Furthermore, we believe that our customer base presents minimal credit risk. We have several therapies that are in the later stages of development and believe that, if approved for marketing, they will augment future revenue growth and cash flows. However, any projections of future cash needs and cash flows are inherently subject to uncertainty. To compensate for such uncertainty, we may raise additional cash in the future and believe we have options and the ability to do so. See *Item 1A—Risk Factors—We have a history of losses and may not maintain profitability* and *Item 1A—Risk Factors—We may fail to meet third-party projections for our revenue or profits*.

Operating Cash Flows and Working Capital

Net cash used by operating activities was approximately \$49.2 million for the year ended December 31, 2008, compared to approximately \$48.9 million in net cash provided by operations for the year ended December 31, 2007. The decrease in operating cash flows was driven by a one-time upfront payment of \$150.0 million to Lilly for the license rights to tadalafil, pursuant to the licensing and the manufacturing and supply agreements which became effective in December 2008. The related one-time fee was expensed as research and development in December 2008, and was the principal factor that led to our net loss for the year. In a related transaction, we issued approximately 3.2 million shares of our common stock from treasury to Lilly for \$150.0 million pursuant to a stock purchase agreement entered into with Lilly in connection with the acquisition of license rights to tadalafil. As such, collectively, our transactions with Lilly had no impact on net cash flows.

At December 31, 2008, we had working capital of approximately \$239.6 million compared to approximately \$79.7 million at December 31, 2007. The increase in working capital corresponded to the classification of Convertible Senior Notes as a non-current liability because contingent conversion criteria had not been satisfied at December 31, 2008. Specifically, the closing price of our common stock did not exceed 120% of the initial conversion price for more than 20 days during the 30 consecutive trading day period ending on December 31, 2008. As a result, the Convertible Senior Notes were not convertible at the election of the Note Holders as of December 31, 2008. This conversion determination is measured as of the end of each quarter. Accordingly, classification of the Convertible Senior Notes may change in future quarters. However, it is our expectation, based on our understanding of the historical behavior of holders of convertible notes with terms similar to ours, that most, if not all of our outstanding Convertible Senior Notes will be held until they mature in October 2011. The increase in working capital for the year ended on December 31, 2008, was offset in part by: (1) the decrease in cash and short-term investments of approximately \$54.0 million as we invested excess cash in long-term marketable investments; (2) the funding of our construction projects in North Carolina and Maryland; and (3) the increase in accounts payable and other current liabilities of approximately \$32.2 million as a result of the timing of disbursements, the increased volume of activity with respect to our construction projects and the recognition of a liability associated with our STAP.

Auction-Rate Securities

At December 31, 2008, we held approximately \$36.8 million (par value) of illiquid non-current municipal notes with an auction reset feature (ARS). The decline in value of these securities reflects market-related liquidity conditions resulting from the general collapse of the credit markets and not the issuers' creditworthiness. The ARS are collateralized by student loan portfolios that are approximately 91% guaranteed by the federal government and maintain a credit rating of AAA. Historically, these securities provided liquidity to investors through their interest rate reset feature—i.e., interest rates on these securities are reset through a bidding process (or auction) at frequent, pre-determined intervals (typically every 7 to 28 days). At each reset date, investors could either rollover and maintain their holdings or liquidate them at par value. Since February 2008, auctions related to our ARS have failed as a result of the deterioration of the credit markets, rendering these securities illiquid.

In November 2008, we entered into an Auction Rate Securities Rights Offer (Rights Offer) with the investment firm that maintains our ARS account. Pursuant to the Rights Offer, we can sell the ARS to the investment firm for a price equal to the par value of these securities at any time between June 30, 2010 and July 2, 2012 (Put Option). In addition, at any time through July 2, 2012, the investment firm, acting as principal, can purchase the ARS from us or sell them on our behalf provided that the par value of the ARS is deposited in our account on the next business day following settlement of the transaction. While we believe we have the ability to hold these investments until the credit markets improve sufficiently to allow us to liquidate the ARS without realizing significant losses, we entered into the Rights Offer to provide us with additional flexibility to recover the full cost of our investment prior to maturity of these securities. In addition, to help meet any immediate liquidity needs, the Rights Offer provides that we can borrow up to the par value of the ARS. The Rights Offer and the related Put Option, however, carries with it counterparty credit risk. Based on our anticipated cash requirements and cash flows, we do not believe that the risks associated with the ARS will have a material impact on our ability to meet our obligations.

Construction Projects

In February 2009, we completed the construction of a facility in Research Triangle Park, North Carolina (RTP facility), which includes a manufacturing operation and offices. The facility is approximately 200,000 square feet. The manufacturing operation will be used primarily to formulate oral treprostinil. In addition, it is expected that the RTP facility will support the production and

distribution of other drug candidates that we are developing. The offices are used by our clinical development and sales and marketing staffs.

In December 2007, we began construction of a combination office and laboratory facility that will attach to our Phase I Laboratory in Silver Spring, Maryland (Phase II Facility). Projected costs to construct this facility are anticipated to be \$100.0 million. In November 2008, we agreed to the terms of a construction management agreement with the Whiting-Turner Contracting Company (Whiting-Turner) relating to the construction of the Phase II Facility (GMP Contract). Under the terms of the GMP Contract, costs to complete the construction of the Phase II Facility generally cannot exceed \$61.3 million (the Guaranteed Maximum Price). The Guaranteed Maximum Price excludes certain costs of construction that we expect to incur and that have been included in our projected costs to complete the Phase II Facility. Whiting-Turner will be responsible for any cost overruns above the Guaranteed Maximum Price and will share a portion of the savings in the event costs of constructing the Phase II Facility are less than the Guaranteed Maximum Price. In addition, Whiting-Turner is subject to penalties in the event that construction of the Phase II Facility is not completed by November 16, 2009, unless an agreed-upon change order alters the scope of work set forth under the GMP Contract. We spent approximately \$61.2 million and \$24.5 million relating to the construction of the RTP facility and Phase II facility, respectively, during 2008. As of December 31, 2008, inception-to-date expenditures approached \$109.0 million on these two construction projects. We expect to continue to fund our construction projects using our existing cash and cash flows to be generated by our operations.

Share Tracking Awards Plan

Effective June 2, 2008, we adopted the STAP. Awards granted under the STAP entitle participants to receive in cash the appreciation in our common stock, which is calculated as the positive difference between the closing price of our common stock on the date of grant and the date of exercise. Accordingly, the STAP could require substantial cash payments as awards vest and participants begin exercising them. Our operating budgets incorporate anticipated outlays of cash relating to the STAP, and we believe future cash flows will be sufficient to accommodate our obligations under the STAP and the future operating requirements of our business.

License Fees

Under our existing license agreements, we are obligated to make royalty payments on sales of Remodulin that exceed annual net sales of \$25.0 million. Royalty obligations on sales of currently marketed products range up to 10 percent of related sales.

Convertible Senior Notes

On October 30, 2006, we issued at par value \$250.0 million of Convertible Senior Notes. We pay interest on the Convertible Senior Notes in arrears semi-annually on April 15 and October 15 of each year—approximately \$1.3 million annually. The Convertible Senior Notes are unsecured, unsubordinated obligations that rank equally with all of our other unsecured and unsubordinated indebtedness. The initial conversion price is \$75.2257 per share. Conversion can occur: (i) anytime after July 15, 2011; (ii) during any calendar quarter that follows a calendar quarter in which the price of our common stock exceeded 120% of the initial conversion price for at least 20 days during the 30 consecutive trading-day period ending on the last trading day of the quarter; (iii) during the ten consecutive trading-day period following any five consecutive trading-day period in which the trading price of the Convertible Senior Notes was less than 95% of the closing price of our common stock multiplied by the then current conversion rate; or (iv) upon specified distributions to our shareholders, corporate transactions, or in the event that our common stock ceases to be listed on the NASDAQ Global Select Market (NASDAQ) and is not listed for trading on another U.S. national or regional securities exchange.

Upon conversion, a Note Holder will receive: (i) cash equal to the lesser of the principal amount of the note or the conversion value (equal to the number of shares underlying the Convertible Senior Notes multiplied by the then current conversion price per share); and (ii) to the extent the conversion value exceeds the principal amount of the note, shares of our common stock. In the event of a change in control, as defined in the indenture under which the Convertible Senior Notes have been issued, Note Holders may require us to purchase all or a portion of their Convertible Senior Notes for 100% of the principal plus accrued and unpaid interest, if any, plus shares of our common stock.

Lease Obligation

We currently lease the Phase I Laboratory pursuant to a synthetic lease arrangement (Lease) entered into in June 2004 with Wachovia Development Corporation and its affiliates (Wachovia). Under the Lease, Wachovia funded \$32.0 million toward the construction of the Phase I Laboratory on land we own. Subsequent to the completion of construction in May 2006, Wachovia leased the Phase I Laboratory to us. Monthly rent is equal to the 30-day London Interbank Offered Rate (LIBOR) plus 55 basis points (1.0% as of December 31, 2008) applied to the amount Wachovia funded toward construction. The base term of the Lease ends in May 2011 (Base Term). Upon the end of the Base Term, we will have the right to exercise one of the following options under the Lease: (1) renew the lease for an additional five-year term (subject to the approval of both parties); (2) purchase the Phase I Laboratory from Wachovia for approximately \$32.0 million; or (3) sell the Phase I Laboratory and repay Wachovia's construction costs with the proceeds from the sale. If sales proceeds are insufficient to repay Wachovia's construction costs, we must fund the shortfall up to the maximum residual value guarantee of approximately \$27.5 million. From the inception of the Lease through August 2008, we accounted for the Lease as an off-balance sheet arrangement, i.e., an operating lease.

Since December 2007, we have been constructing the Phase II Facility with funds generated from our operations. As of September 30, 2008, substantial structural progress had been made in the construction of the Phase II Facility. In addition, we received Wachovia's acknowledgement of our plan to make structural modifications to the Phase I Laboratory in order to connect it to the Phase II Facility. As a result, we could no longer consider the Phase I Laboratory a standalone structure, which was required to maintain operating lease classification. Consequently, as of September 30, 2008, we were considered the owners of the Phase I Laboratory for accounting purposes. Because the Lease failed to meet criteria set forth in EITF Issue No. 97-10, *The Effect of Lessee Involvement in Asset Construction*, and FASB Statement No. 98, *Accounting for Leases*, we are accounting for the Lease as a financing obligation. Accordingly, as of September 30, 2008, we capitalized the estimated fair value of the Phase I Laboratory, totaling \$29.0 million, and recognized a corresponding lease obligation on our consolidated balance sheet. We are accreting (increasing) the lease obligation to \$32.0 million, the purchase price of the Phase I Laboratory, through the recognition of periodic interest charges using the effective interest method. The accretion period began on September 30, 2008, and will run through the end of the Base Term. Interest charges related to the accretion of the lease obligation for the year ended December 31, 2008, were approximately \$261,000. In addition, we are depreciating the Phase I Laboratory over its estimated economic useful life. The change in accounting recognition of the Lease did not affect our cash flow requirements under the arrangement.

Using the 30-day LIBOR as of December 31, 2008, plus 55 basis points, our estimated annual rent under the Lease would be \$314,000. Approximately \$40.7 million of our marketable investments at December 31, 2008 have been pledged as collateral for the Lease and are included within restricted marketable investments and cash on our consolidated balance sheet.

Common Stock Subject to Repurchase

In March 2007, we amended our June 2000 agreement with Toray to expand our rights to commercialize beraprost-MR. Pursuant to our amended agreement, we issued 200,000 shares of our

common stock to Toray in March 2007. The terms of our amended agreement give Toray the right to request that we repurchase these shares at the price of \$54.41 per share upon 30 days prior written notice. To date, we have not received notification from Toray that they would like us to repurchase these shares.

Contractual Obligations and Off-Balance Sheet Arrangements

At December 31, 2008, we had the following contractual obligations (in thousands):

	Payments Due by Period				
		Less than			More than
	Total	1 year	2-3 Years	4-5 Years	6 Years
Convertible Senior Notes(1)	\$249,978	\$ —	\$249,978	\$ —	\$ —
Lease obligation(2)	32,000	—	32,000	—	—
Operating lease obligations	6,214	2,088	2,762	1,351	13
Construction commitment(3)	59,536	59,536	—	—	—
Obligations under the STAP(4)	20,214	6,738	13,476	—	—
Purchase commitments	3,217	1,217	2,000	—	—
Milestone payments(5)	32,715	2,530	16,675	10,590	2,920
Total(6)	<u>\$403,874</u>	<u>\$72,109</u>	<u>\$316,891</u>	<u>\$11,941</u>	<u>\$ 2,933</u>

- (1) The principal balance of the Convertible Senior Notes is to be repaid in cash. Convertibility may vary depending on whether our stock price meets specified criteria which is determined on a quarterly basis.
- (2) The lease obligation assumes that the purchase option will be elected at the end of the Base Term. Refer to Note 10 to the consolidated financial statements for a complete discussion of the arrangement.
- (3) Representing our remaining obligations under agreements currently in effect relating to our construction projects in Silver Spring, Maryland and Research Triangle Park, North Carolina.
- (4) We estimated the obligation based on the intrinsic value of outstanding STAP awards expected to vest as of December 31, 2008 assuming that awards will be exercised immediately upon vesting.
- (5) We license products from other companies under various license agreements. These agreements generally require that we make specific cash payments upon the achievement of specific product development milestones and commercialization. The timing and amounts of related milestone payments have been estimated based on: (1) when we believe milestones will be achieved; and (2) the assumption that all milestones established within these license agreements will be successfully attained.
- (6) As of December 31, 2008, we had approximately \$5.9 million of unrecognized tax benefits. The contractual obligations disclosed above exclude these amounts due to the uncertainty surrounding the amounts and timing of future payments.

Summary of Critical Accounting Policies and Estimates

We prepare our consolidated financial statements in conformity with generally accepted accounting principles in the United States (GAAP). GAAP requires that we make estimates and assumptions that affect the amounts reported in our consolidated financial statements. As additional information becomes available, these estimates and assumptions can change and impact amounts reported in the future. We have identified the following accounting policies, which require the use of our judgment and estimation in their application. We consider these policies to be critical because of the degree of judgment that is inherent in their application.

Sales of Remodulin

Sales of Remodulin, including related pumps and supplies, are recognized when title and risk of ownership pass to our distributors, which occurs upon delivery. We record sales of Remodulin and related equipment and supplies net of product sales allowances. These sales allowances consist of prompt payment discounts, Medicaid rebates and fees paid to distributors. Calculating these allowances involves the use of significant estimates and judgments and information from external sources. Sales allowances are estimated and recognized as reductions to revenue in the period that associated revenues are recognized. Prompt pay discounts are calculated based on the gross amount of invoices and are recorded on a net basis as our distributors have routinely taken advantage of these discounts. Medicaid rebates are generally invoiced and paid in the subsequent quarter from the date of sale. Accruals and related revenue reductions for Medicaid rebates are based on historical rebate data adjusted for anticipated changes in product sales trends and government rebate programs with regard to eligibility requirements and/or rebate pricing. We pay two of our distributors service fees. Accruals for these fees are estimated based on contracted rates applied to the estimated units of service provided by distributors for a given period.

Our distributors do not possess return rights; however, we provide exchange rights in the event that product was damaged during shipment, or has expired. We account for exchange rights in accordance with Statement of Financial Accounting Standards (SFAS) No. 48, *Revenue Recognition When Right of Return Exists* (SFAS 48). The shelf life of Remodulin is 2.5 years from the date of its manufacture; accordingly, an exchange for expired vials generally occurs months after a vial is sold. The financial effects of this exchange right have been immaterial and we expect the historic volume of exchanges to remain consistent in the future. Obsolescence due to dating expiration has historically been minimal given the fast pace at which our products move through the distribution channel. Specifically, product exchanges have comprised substantially less than 1% of the volume of vials that we sell. As such, reserves for exchange rights are not recognized in the period of sale, unless product expiration or damage occurs during shipment and are known to us. We closely monitor levels of inventory in the distribution channels for contractual compliance and do not provide incentives to our distributors to assume additional inventory levels beyond what is customary in the ordinary course of business.

Marketable Investments

Pursuant to SFAS No. 115, *Accounting for Certain Investments in Debt and Equity Securities* (SFAS 115) we are required to periodically review our marketable investments to determine whether a decline in the value of a security is other than temporary. This review requires us to make judgments, particularly as they relate to: (1) the materiality and duration of a decline in the value of a security; (2) the probability, extent and timing of a recovery in a security's value; and (3) our ability and intent to hold a security until we can recover our initial cost, or until maturity. The scope of this evaluation requires forward-looking assessments pertaining to a security and the relevant financial markets, as well as an issuer's financial condition and business outlook. Accordingly, we must make assessments regarding current conditions, as well as future events, which involve a considerable degree of

uncertainty. When we determine that the decline in value of a security is other than temporary, we are required to recognize an impairment charge within our consolidated statement of operations and establish a new cost basis for the security at its then current fair value. During the year ended December 31, 2008, we recognized an impairment charge of \$6.3 million within earnings related to our investments in ARS. Refer to Note 4 to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K for a complete discussion.

In addition, pursuant to SFAS 115, we classify certain marketable investments as held-to-maturity because we believe we have the positive intent and ability to hold related securities until they mature. This assertion requires us to make forward-looking judgments regarding our future cash flow requirements relative to the maturity dates of such securities. To reduce the level of uncertainty associated in making this determination, we invest in securities that do not possess extended maturities.

Fair Value Measurements

SFAS No. 157, *Fair Value Measurements* (SFAS 157), requires that we disclose assets and liabilities subject to fair value measurements within a fair value hierarchy (SFAS 157 Hierarchy). The SFAS 157 Hierarchy gives the highest priority to fair value measurements based on unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to fair value measurements derived through the use of unobservable inputs (Level 3 measurements). Assets and liabilities are classified within the SFAS 157 Hierarchy, in their entirety, based on the lowest level input that is significant to the related fair value measurement. Determining where within the fair value hierarchy a particular asset or liability should be disclosed involves judgment regarding the significance of inputs relative to a fair value measurement and where such inputs lie within the SFAS 157 Hierarchy. Furthermore, securities that are illiquid, or are not traded, have little or no price transparency (Level 3 measurements). As such, estimating the fair value of our Level 3 securities involves the use of significant subjective assumptions that we believe market participants would consider in pricing such securities. We employ a discounted cash flow model to estimate the fair value of our Level 3 securities. Accordingly, inputs to the model that include estimating the amounts and timing of expected cash flows, the expected term of the securities and a discount rate appropriately adjusted for illiquidity or other risks involve a significant degree of judgment.

Investment in Affiliate

We use the equity method of accounting for our investment in Northern Therapeutics, Inc. (Northern). The equity method of accounting requires that we report our share of our Northern's net losses or earnings in our consolidated financial statements. Consolidation is not required unless we possess the ability to control Northern. Generally, the ability to exercise control over an entity occurs when voting interests in that entity exceed 50%. We maintain an ownership interest in Northern of approximately 68%. However, because Northern's minority owners have substantive participation rights as described in EITF Issue No. 96-19, *Investors' Accounting for an Investee When the Investor has a Majority of the Voting Interest but Minority Shareholder or Shareholders Have Certain Approval or Veto Rights*, we concluded that we do not have the ability to control Northern's operations. Therefore, Northern's financial statements have not been included in our consolidated financial statements.

Income Taxes

Income taxes are accounted for in accordance with the asset and liability method set forth under SFAS No. 109, *Accounting for Income Taxes* (SFAS 109). Accordingly, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their tax bases. Deferred tax assets and liabilities are measured using the enacted tax rates that are expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. Deferred tax assets

are reduced by a valuation allowance when, in our opinion, it is more likely than not that some or all of the deferred tax assets will not be realized. Evaluating the realizability of deferred assets requires us to review forecasts of earnings and taxable income, among other considerations. Accordingly, the evaluation process as it relates to the realizability of deferred tax assets requires us to make significant judgments and forward-looking assessments regarding amounts and the availability of future taxable income.

We account for uncertain tax positions pursuant to FASB Interpretation No. 48, *Accounting for Uncertainty in Income Taxes—an Interpretation of FASB Statement No. 109* (FIN 48). Financial statement recognition of a tax position taken or expected to be taken in a tax return is determined based on a more likely than not threshold of that position being sustained. If the tax position meets this threshold, the benefit to be recognized is measured as the largest amount that is more than 50 percent likely to be realized upon ultimate settlement. Application of FIN 48 involves considerable judgment in assessing the future tax consequences of amounts that have been recognized in our financial statements or tax returns. The ultimate resolution of uncertain tax positions could result in amounts different from those recognized on our consolidated financial statements.

Goodwill

We are required under SFAS No. 142, *Goodwill and Other Intangible Assets*, to test goodwill at the reporting unit level for impairment annually or more frequently if impairment indicators exist. Evaluating goodwill for impairment requires judgment particularly as it relates to determining the fair value of a reporting unit to which goodwill has been assigned. We generally use a discounted cash flow model to test goodwill for impairment, which involves the use of significant and subjective inputs. Related inputs, among others, requiring our judgment include the estimation of future cash flows, future growth rates and profitability of a reporting unit and the expected life related cash flows will occur. Changes in our business strategy or adverse changes in market conditions could impact impairment analyses and require the recognition of an impairment charge equal to the excess of the carrying value of goodwill over its estimated fair value.

Phase I Laboratory Lease

We currently lease the Phase I Laboratory pursuant to the Lease we entered into in June 2004 with Wachovia. Under the Lease, Wachovia funded \$32.0 million toward the construction of the Phase I Laboratory on land we own. Subsequent to the completion of construction in May 2006, Wachovia leased the Phase I Laboratory to us. Upon the end of the Base Term in May 2011, we will have the right to exercise one of the following options under the Lease: (1) renew the lease for an additional five-year term (subject to the approval of both parties); (2) purchase the Phase I Laboratory from Wachovia for approximately \$32.0 million; or (3) sell the Phase I Laboratory and repay Wachovia's construction costs with the proceeds from the sale. If such sales proceeds are insufficient to repay Wachovia's construction costs, we must fund the shortfall up to the maximum residual value guarantee of approximately \$27.5 million. From the inception of the Lease through the quarter ended June 30, 2008, we accounted for the Lease as an operating lease (an off-balance sheet arrangement).

Since December 2007, we have been constructing the Phase II Facility with funds generated from our operations. As of September 30, 2008, substantial structural progress had been made in the construction of the Phase II Facility. In addition, we received Wachovia's acknowledgement of our plan to make structural modifications to the Phase I Laboratory in order to connect it to the Phase II Facility. As a result, the Phase I Laboratory is no longer considered a standalone structure, which is required to maintain off-balance sheet accounting for the Lease. Consequently, as of September 30, 2008, we were considered the owners of the Phase I Laboratory for accounting purposes. Because the Lease failed to meet criteria set forth in EITF Issue No. 97-10, *The Effect of Lessee Involvement in Asset Construction*, and SFAS No. 98, *Accounting for Leases*, we are accounting for the Lease as a

financing obligation. Accordingly, as of September 30, 2008, we capitalized the estimated fair value of the Phase I Laboratory, totaling \$29.0 million, and recognized a corresponding lease obligation on our consolidated balance sheet. We are accreting the lease obligation to \$32.0 million, the purchase price of the Phase I Laboratory, through the recognition of periodic interest charges using the effective interest method. The accretion period began on September 30, 2008 and will run through May 2011. In addition, we are depreciating the Phase I Laboratory over its estimated economic useful life.

Pension Benefit Obligation

We account for the SERP in accordance with SFAS No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans* (SFAS 158), and related standards and interpretations. Accordingly, we recognize on our consolidated balance sheet a liability equal to the unfunded status of the SERP (equal to the projected benefit obligation, as we do not fund the SERP) and measure our projected benefit obligation as of the end of our fiscal year. Estimating the SERP obligation involves the use of judgments and estimates. The SERP obligation and related pension expense are derived from actuarial valuations that are developed using a number of assumptions. A key assumption to the valuation is the discount rate. The discount rate should be representative of the rate associated with high-quality, fixed-income debt securities. Changes in the discount rate can significantly impact the measurement of the SERP obligation. Other actuarial assumptions include participant demographics such as the expected rate of salary increases and withdrawal rates, among others. Actual experience may differ from actuarial assumptions. Changes in any of these assumptions can also affect the measurement of the SERP obligation.

Share-based Compensation

We account for share-based awards in accordance with SFAS No. 123 (revised 2004), *Share-Based Payment* (SFAS 123R), and related interpretive guidance. Our share-based awards are classified as either equity (stock options) or as liabilities (STAP awards) and compensation expense to be recognized is determined based on the fair value of related awards. We estimate the fair value of these awards using the Black-Scholes-Merton valuation model. Valuation models, like the Black-Scholes-Merton model, require the use of subjective assumptions that could materially impact the estimation of fair value and related compensation expense to be recognized. These assumptions include, among others, the expected volatility of our stock price, the expected term of awards and the expected forfeiture rate. Developing these assumptions requires the use of judgment.

Recently Issued Accounting Standards

In May 2008, the FASB issued Staff Position APB 14-1, *Accounting for Convertible Debt Instruments That May Be Settled in Cash Upon Conversion (Including Partial Cash Settlement)* (FSP APB 14-1). FSP APB 14-1 applies to certain convertible debt instruments that may be settled in cash or other assets, or partially in cash, upon conversion. Issuers of such instruments are required under FSP APB 14-1 to account for the liability and equity components separately in a manner that reflects the issuer's nonconvertible debt borrowing rate when interest expense is subsequently recognized. Specifically, FSP APB 14-1 requires the difference between the convertible debt proceeds and the fair value of the liability, absent any conversion rights, to be assigned to the equity component and recognized as part of stockholders' equity and as a discount for determining the carrying value of the debt. The discounted carrying value of the debt is amortized as interest expense using the interest method over the expected life of the debt. FSP APB 14-1 is effective for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years and is to be applied retrospectively to all periods presented. Our Convertible Senior Notes fall within the scope of FSP APB 14-1—see Note 9 to the consolidated financial statements included in this Annual Report on Form 10-K. While adoption of FSP APB 14-1 will not change the cash flow requirements of our Convertible Senior Notes, non-cash interest expense

associated with the amortization of the discount on the Convertible Senior Notes is expected to increase significantly. Upon the adoption of FSP APB 14-1, we will no longer recognize interest expense based on the Convertible Senior Notes' stated rate of interest.

The expected impact of the retrospective application of FSP APB 14-1 from the period of issuance (October 2006) through the end of the Senior Convertible Notes' expected life excluding any effects of capitalized interest and income taxes is shown below (in thousands):

Year Ended December 31,	Interest Expense Based on the Stated Rate of Interest	Interest Expense Under FSP APB 14-1	Incremental Impact of Adoption of FSP APB 14-1
2006	\$ 208	\$ 2,227	\$ 2,019
2007	1,250	13,533	12,283
2008	1,250	14,696	13,446
2009	1,250	15,723	14,473
2010	1,250	16,829	15,579
2011(1)	1,042	15,104	14,062
Total	\$ 6,250	\$ 78,112	\$ 71,862
Debt Discount and equity component to be recognized under FSP APB 14-1	N/A	N/A	\$ 71,862

(1) Through October 2011, the end of the expected life of the Convertible Senior Notes.

In June 2008, the FASB issued EITF Issue No. 07-5, *Determining Whether an Instrument (or Embedded Feature) Is Indexed to an Entity's Own Stock* (EITF 07-5). EITF 07-5 supersedes EITF Issue No. 01-6, *The Meaning of 'Indexed to a Company's Own Stock'*, and provides guidance in evaluating whether certain financial instruments or embedded features can be excluded from the scope of SFAS No. 133, *Accounting for Derivatives and Hedging Activities* (SFAS 133). EITF 07-5 sets forth a two-step approach that evaluates an instrument's contingent exercise and settlement provisions for the purpose of determining whether such instruments are indexed to an issuer's own stock (a requirement necessary to comply with the scope exception under SFAS 133). EITF 07-5 will be effective for financial statements issued for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years. We are currently assessing the impact related to the adoption of EITF 07-5 on our financial instruments that fall within its scope.

In May 2008, the FASB issued SFAS No. 162, *The Hierarchy of Generally Accepted Accounting Principles* (SFAS 162). SFAS 162 identifies sources of accounting principles and the framework for selecting the principles to be used in the preparation of financial statements of non-governmental entities that are presented in conformity with GAAP (GAAP Hierarchy). SFAS 162 became effective November 15, 2008. Adoption of SFAS 162 did not impact our consolidated financial statements.

In March 2008, the FASB issued SFAS No. 161, *Disclosures about Derivative Instruments and Hedging Activities—an Amendment of FASB Statement No. 133* (SFAS 161). SFAS 161 requires companies to provide enhanced disclosures regarding derivative instruments and hedging activities and requires companies to better convey the purpose of derivative use in terms of the risks they intend to manage. Disclosures required under SFAS 161 include (a) how and why a company uses derivative instruments, (b) how derivative instruments and related hedged items are accounted for under SFAS 133 and its related interpretations, and (c) how derivative instruments and related hedged items affect a company's financial position, financial performance, and cash flows. SFAS 161 retains the same scope as SFAS 133 and is effective for fiscal years and interim periods beginning after November 15, 2008. We do not expect the adoption of SFAS 161 to have a material impact, if any, on our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 160, *Noncontrolling Interests in Consolidated Financial Statements—an amendment of ARB No. 51* (SFAS 160). SFAS 160 establishes accounting and reporting standards for the noncontrolling interest in a subsidiary and for the deconsolidation of a subsidiary. This statement is effective, prospectively, for fiscal years beginning after December 15, 2008 except for certain retrospective disclosure requirements. We do not expect the adoption of SFAS 160 to have any impact on our consolidated financial statements upon initial adoption.

In December 2007, the FASB issued SFAS No. 141 (Revised 2007), *Business Combinations—a replacement of FASB Statement No. 141* (SFAS 141R). SFAS 141R significantly changes the principles and requirements for how the acquirer of a business recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, and any non-controlling interest in the acquiree. SFAS 141R also provides guidance for recognizing and measuring goodwill acquired in a business combination and determines what information to disclose to enable users of the financial statements to evaluate the nature and financial effects of a business combination. SFAS 141R is effective, prospectively, for fiscal years beginning after December 15, 2008, except for certain retrospective adjustments to deferred tax balances. The potential impact of adopting SFAS 141R on our consolidated financial statements will depend on whether we enter into any future acquisitions and the magnitude of such acquisitions.

In June 2007, the FASB ratified EITF Issue No. 07-1, *Accounting for Collaboration Arrangements Related to the Development and Commercialization of Intellectual Property* (EITF 07-1). EITF 07-1 provides guidance on how the parties to a collaborative agreement should account for costs incurred and revenue generated on sales to third parties and how sharing payments pursuant to a collaboration agreement should be presented in the income statement. EITF 07-1 will be effective for fiscal years beginning after December 15, 2008 and interim periods within those fiscal years and shall be applied retrospectively. We are assessing the potential impact, if any, the adoption of EITF 07-1 will have on our consolidated financial statements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As of December 31, 2008, we hold investments of approximately \$36.8 million (par value) in ARS. We are exposed to market risk related to the ARS as a result of the general collapse of the credit markets and the continued uncertainty surrounding the financial markets. The ARS maintain an AAA credit rating and are backed by student-loan portfolios that are approximately 91% guaranteed by the federal government. However, since February 2008, auctions for the ARS have failed, rendering these securities illiquid. Consequently, the fair value of the ARS has continued to decline in value. Through November 2008, we classified the ARS as available-for-sale and accounted for the decline in their value as temporary within other comprehensive losses (equity) based on our intent and ability to hold these securities until they recover their value. However, upon our entering into the Rights Offer in November 2008, we could no longer assert our positive intent to hold these securities indefinitely. Consequently, we recognized an other-than-temporary impairment loss of approximately \$6.3 million within earnings during the quarter ended December 31, 2008. Concurrently, we reclassified the ARS from the available-for-sale to the trading category. With this transfer into the trading classification, all future changes in fair value of the ARS will be recognized within earnings until the securities are liquidated or otherwise disposed. Furthermore, there can be no assurances that the ARS will ever fully recover their value.

To mitigate the risks associated with our investment, we entered into the Rights Offer, under which we have a Put Option that gives us the ability to require the investment firm (the counterparty to the Rights Offer) to repurchase the ARS at a price equal to their par value during a specific period beginning in June 2010. The Put Option has been recognized at fair value as a financial asset on our consolidated balance sheet at December 31, 2008. Subsequent changes in the fair value of the Put Option will be recognized within earnings. We expect the future price movements relating to the

ARS and the Put Option to largely offset one another—i.e., as the value of the ARS decreases, we would expect the rights associated with the Put Option to increase in value. Refer to Note 4 to the consolidated financial statements included in this Annual Report on Form 10-K for a complete discussion of the ARS and the Rights Offer.

At December 31, 2008, we have invested approximately \$207.6 million in debt securities issued by corporations and federally-sponsored agencies. The market value of these investments varies inversely with changes in current market interest rates. In general, as rates increase, the market value of a debt investment would be expected to decrease. Similarly, as rates decrease, the market value of a debt investment would be expected to increase. To minimize market risk, we hold related investments until maturity so that they can be redeemed at their stated or face value. At December 31, 2008, our investments in debt securities issued by corporations and federally-sponsored agencies had a weighted average stated interest rate of approximately 2.8%. These investments mature at various times through December 2010 and are callable annually.

There has been significant deterioration and instability in the financial markets during 2008. This period of extraordinary disruption and readjustment in the financial markets exposes us to additional investment risk. The value and liquidity of the securities in which we invest could deteriorate rapidly and the issuers of such securities could be subject to credit rating downgrades. In light of the current market conditions and these additional risks, we actively monitor market conditions and developments specific to the securities and security classes in which we invest. We believe that we take a conservative approach to investing our funds in that we invest only in highly-rated securities with relatively short maturities and do not invest in securities that we believe involve a higher degree of risk. While we believe we take prudent measures to mitigate investment related risks, such risks cannot be fully eliminated, as there are circumstances outside of our control, as noted above in the discussion of our ARS.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

**UNITED THERAPEUTICS CORPORATION
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Report of Independent Registered Public Accounting Firm

The Board of Directors and Shareholders
United Therapeutics Corporation

We have audited the accompanying consolidated balance sheets of United Therapeutics Corporation as of December 31, 2008 and 2007, and the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2008. Our audits also included the financial statement schedule listed in the Index at Item 15 (a)(2). These financial statements and schedule are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements and schedule based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of United Therapeutics Corporation at December 31, 2008 and 2007, and the consolidated results of its operations and its cash flows for each of the three years in the period ended December 31, 2008, in conformity with U.S. generally accepted accounting principles. Also, in our opinion, the related financial statement schedule, when considered in relation to the basic financial statements taken as a whole, presents fairly in all material respects the information set forth therein.

As discussed in Note 13 to the consolidated financial statements, United Therapeutics Corporation adopted FASB Interpretation No. 48, *Accounting for Uncertainty in Income Taxes—an Interpretation of FASB Statement No. 109* effective January 1, 2007.

We also have audited, in accordance with the Standards of the Public Company Accounting Oversight Board (United States), United Therapeutics Corporation's internal control over financial reporting as of December 31, 2008, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission and our report dated February 26, 2009 expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

McLean, Virginia
February 26, 2009

**Report of Independent Registered Public Accounting Firm on
Internal Control over Financial Reporting**

The Board of Directors and Shareholders
United Therapeutics Corporation

We have audited United Therapeutics Corporation's internal control over financial reporting as of December 31, 2008, based on criteria established in Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (the COSO criteria). United Therapeutics Corporation's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting included in the accompanying *Management's Report on Internal Control Over Financial Reporting*. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that an internal weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that: (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion United Therapeutics Corporation maintained, in all material respects, effective internal control over financial reporting as of December 31, 2008, based on the COSO criteria.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the 2008 consolidated financial statements of United Therapeutics Corporation, and our report dated February 26, 2009, expressed an unqualified opinion thereon.

/s/ Ernst & Young LLP

McLean, Virginia
February 26, 2009

UNITED THERAPEUTICS CORPORATION

Consolidated Balance Sheets

(In thousands, except share and per share data)

	December 31,	
	2008	2007
Assets		
Current assets:		
Cash and cash equivalents	\$129,452	\$ 139,323
Marketable investments	106,596	150,729
Accounts receivable, net of allowance of none for 2008 and 2007	28,311	25,654
Other receivable	752	2,959
Interest receivable	1,537	1,049
Prepaid expenses	11,600	5,948
Inventories, net	14,372	13,211
Deferred tax assets	4,827	13,588
Total current assets	297,447	352,461
Marketable investments	100,270	9,740
Marketable investments and cash—restricted	45,755	44,195
Goodwill and other intangible assets	7,838	8,427
Property, plant, and equipment, net	221,066	69,354
Deferred tax assets	175,969	93,700
Other assets (\$7,685 measured under the fair value option)	22,974	9,141
Total assets	<u>\$871,319</u>	<u>\$ 587,018</u>
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 20,334	\$ 2,000
Accrued expenses	20,853	17,942
Notes payable	—	250,000
Other current liabilities	16,639	2,818
Total current liabilities	57,826	272,760
Notes payable	249,978	—
Lease obligation	29,261	—
Other liabilities	15,673	7,586
Total liabilities	352,738	280,346
Commitments and contingencies:		
Common stock subject to repurchase	10,882	10,882
Stockholders' equity:		
Preferred stock, par value \$.01, 10,000,000 shares authorized, no shares issued	—	—
Series A junior participating preferred stock, par value \$.01, 100,000 shares authorized, no shares issued	—	—
Common stock, par value \$.01, 100,000,000 shares authorized, 27,662,151 and 26,629,189 shares issued at December 31, 2008 and 2007, respectively, and 26,431,356 and 22,247,592 outstanding at December 31, 2008 and 2007, respectively	276	266
Additional paid-in capital	659,245	548,327
Accumulated other comprehensive (loss) income	(5,913)	317
Treasury stock at cost, 1,230,795 and 4,381,597 shares at December 31, 2008 and 2007, respectively	(67,395)	(231,619)
Accumulated deficit	(78,514)	(21,501)
Total stockholders' equity	507,699	295,790
Total liabilities and stockholders' equity	<u>\$871,319</u>	<u>\$ 587,018</u>

See accompanying notes to consolidated financial statements.

UNITED THERAPEUTICS CORPORATION

Consolidated Statements of Operations

(In thousands, except per share data)

	For Years Ended December 31,		
	2008	2007	2006
Revenues:			
Net product sales	\$270,005	\$201,348	\$153,448
Service sales	9,258	7,435	6,184
License fees	2,234	2,160	—
Total revenue	281,497	210,943	159,632
Operating expenses:			
Research and development	239,181	83,352	57,570
Selling, general and administrative.	94,306	99,027	56,052
Cost of product sales	26,957	19,919	14,973
Cost of service sales	3,109	2,342	2,055
Total operating expenses	363,553	204,640	130,650
(Loss) income from operations	(82,056)	6,303	28,982
Other income (expense):			
Interest income	11,025	13,602	10,700
Interest expense	(16)	(2,175)	(482)
Equity loss in affiliate	(226)	(321)	(491)
Other, net	(1,025)	(826)	1,199
Total other income (expense), net	9,758	10,280	10,926
Net (loss) income before income tax	(72,298)	16,583	39,908
Income tax benefit	29,509	3,276	34,057
Net (loss) income	<u>\$ (42,789)</u>	<u>\$ 19,859</u>	<u>\$ 73,965</u>
Net (loss) income per common share:			
Basic	<u>\$ (1.87)</u>	<u>\$ 0.94</u>	<u>\$ 3.21</u>
Diluted	<u>\$ (1.87)</u>	<u>\$ 0.88</u>	<u>\$ 3.06</u>
Weighted average number of common shares outstanding:			
Basic	<u>22,901</u>	<u>21,224</u>	<u>23,010</u>
Diluted	<u>22,901</u>	<u>22,451</u>	<u>24,138</u>

See accompanying notes to consolidated financial statements.

UNITED THERAPEUTICS CORPORATION
Consolidated Statements of Stockholders' Equity
(In thousands, except share data)

	Common Stock		Additional	Accumulated Other Comprehensive	Treasury	Accumulated	
	Shares	Amount	Paid-in Capital	Income	Stock	Deficit	Total
Balance, December 31, 2005	23,845,004	\$ 239	\$ 393,469	\$ 3,593	\$ (6,874)	\$ (115,325)	\$ 275,102
Net income	—	—	—	—	—	73,965	73,965
Foreign currency translation adjustments	—	—	—	336	—	—	336
Unrealized loss on available-for-sale securities	—	—	—	(2,453)	—	—	(2,453)
Total other comprehensive income	—	—	—	(2,117)	—	73,965	71,848
Exercise of stock options	787,149	7	14,437	—	—	—	14,444
Tax benefit from exercises of non-qualified stock options	—	—	12,236	—	—	—	12,236
Treasury stock repurchases	—	—	—	—	(157,686)	—	(157,686)
Cost of call spread options, net	—	—	(35,400)	—	—	—	(35,400)
Options issued in exchange for services	—	—	24,062	—	—	—	24,062
Balance, December 31, 2006	24,632,153	246	408,804	1,476	(164,560)	(41,360)	204,606
Net income	—	—	—	—	—	19,859	19,859
Foreign currency translation adjustments	—	—	—	285	—	—	285
Unrealized loss on available-for-sale securities	—	—	—	(892)	—	—	(892)
Unrealized loss on pension liability	—	—	—	(552)	—	—	(552)
Total other comprehensive income	—	—	—	(1,159)	—	19,859	18,700
Exercise of stock options	1,797,036	18	58,326	—	—	—	58,344
Tax benefit from exercises of non-qualified stock options	—	—	32,089	—	—	—	32,089
Treasury stock repurchases	—	—	—	—	(67,059)	—	(67,059)
Options issued in exchange for services	—	—	48,979	—	—	—	48,979
Stock issued for license right	200,000	2	129	—	—	—	131
Balance, December 31, 2007	26,629,189	266	548,327	317	(231,619)	(21,501)	295,790
Net loss	—	—	—	—	—	(42,789)	(42,789)
Foreign currency translation adjustments	—	—	—	(5,489)	—	—	(5,489)
Unrealized loss on available-for-sale securities	—	—	—	(191)	—	—	(191)
Unrealized loss on pension liability	—	—	—	(550)	—	—	(550)
Total other comprehensive loss	—	—	—	(6,230)	—	(42,789)	(49,019)
Issuance of treasury stock	—	—	—	—	164,224	(14,224)	150,000
Exercise of stock options	1,032,962	10	41,926	—	—	—	41,936
Tax benefit from exercises of non-qualified stock options	—	—	40,524	—	—	—	40,524
Options issued in exchange for services	—	—	28,468	—	—	—	28,468
Balance, December 31, 2008	27,662,151	\$ 276	\$ 659,245	\$ (5,913)	\$ (67,395)	\$ (78,514)	\$ 507,699

See accompanying notes to consolidated financial statements.

UNITED THERAPEUTICS CORPORATION

Consolidated Statements of Cash Flows

(In thousands)

	Years Ended December 31,		
	2008	2007	2006
Cash flows from operating activities:			
Net (loss) income	\$ (42,789)	\$ 19,859	\$ 73,965
Adjustments to reconcile net (loss) income to net cash provided by operating activities:			
Depreciation and amortization	4,536	3,427	2,713
Provisions for bad debt and inventory obsolescence	586	1,975	256
Share-based compensation	28,703	48,704	24,062
Unrealized losses on trading securities and impairments	1,595	3,582	2,024
Deferred tax benefit	(31,211)	(3,276)	(37,047)
Amortization of discount or premium on investments	(999)	(4,065)	(1,249)
Equity loss in affiliate and other	840	1,530	599
Excess tax benefit from share-based compensation	(21,090)	(29,604)	(10,761)
Issuance of stock for license	—	11,013	—
Changes in assets and liabilities:			
Restrictions on cash	(8,766)	(5,176)	(2,396)
Accounts receivable	(2,329)	(4,030)	(8,869)
Inventories	(2,630)	(2,339)	(1,006)
Prepaid expenses	(5,682)	3,642	(2,867)
Other assets	(14,528)	(868)	1,577
Accounts payable	18,509	(1,072)	(1,082)
Accrued expenses	3,641	2,667	4,892
Other liabilities	22,442	2,978	4,446
Net cash (used in) provided by operating activities	(49,172)	48,947	49,257
Cash flows from investing activities:			
Purchases of property, plant and equipment	(124,415)	(38,658)	(15,634)
Purchases of held-to-maturity investments	(321,363)	(221,986)	(120,405)
Purchases of available-for-sale investments	(24,600)	(80,000)	(84,350)
Maturities of held-to-maturity investments	266,051	260,888	32,360
Sales of available-for-sale investments	31,850	58,050	86,400
Net cash used in investing activities	(172,477)	(21,706)	(101,629)
Cash flows from financing activities:			
Proceeds from the sale of treasury stock	150,000	—	—
Proceeds from exercise of stock options	41,936	58,344	14,445
Proceeds from the issuance of convertible notes, net of issuance costs	—	—	242,024
Payments to repurchase common stock	—	(67,059)	(157,686)
Purchase of call spread options, net	—	—	(35,400)
Excess tax benefits associated with share-based compensation	21,090	29,604	10,761
Principal payments on debt	(23)	(10)	(16)
Net cash provided by financing activities	213,003	20,879	74,128
Effect of exchange rate changes on cash and cash equivalents	(1,225)	136	131
Net (decrease) increase in cash and cash equivalents	(9,871)	48,256	21,887
Cash and cash equivalents, beginning of year	139,323	91,067	69,180
Cash and cash equivalents, end of year	\$ 129,452	\$ 139,323	\$ 91,067
Supplemental cash flow information :			
Cash paid for interest	\$ 1,250	\$ 1,210	\$ 7
Cash paid for income taxes	\$ 1,628	\$ 1,555	\$ 304
Non-cash investing and financing activity: lease obligation incurred	\$ 29,000	\$ —	\$ —

See accompanying notes to consolidated financial statements.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements

1. Organization and Business Description

United Therapeutics Corporation (United Therapeutics) is a biotechnology company focused on the development and commercialization of unique products to address the unmet medical needs of patients with chronic and life-threatening cardiovascular and infectious diseases and cancer. We were incorporated on June 26, 1996, under the laws of the State of Delaware and have the following wholly-owned subsidiaries: Lung Rx, Inc., Unither Pharmaceuticals, Inc., Unither Telmed, Ltd., Unither.com, Inc., United Therapeutics Europe, Ltd., Unither Therapeutik GmbH, Unither Pharma, Inc., Medicomp, Inc., Unither Neurosciences, Inc., LungRx Limited, Unither Biotech Inc., and Unither Virology, LLC. As used in these notes to the consolidated financial statements, unless the context otherwise requires, the terms "we," "us," "our," and similar terms refer to United Therapeutics and its consolidated subsidiaries.

Our lead product is Remodulin® (treprostinil sodium) Injection (Remodulin), a stable synthetic form of prostacyclin. Prostacyclin is an important molecule produced by the body that has powerful effects on blood vessel health and function. Remodulin was first approved in 2002 by the United States Food and Drug Administration (FDA) for use as a continuous subcutaneous infusion for the treatment of pulmonary arterial hypertension (PAH). Since 2002, the FDA has expanded its approval of Remodulin for intravenous use and for the treatment of patients who require transition from Flolan®, another intravenously administered prostacyclin. Remodulin is also approved for use in countries outside of the United States, predominantly for subcutaneous administration.

We have generated pharmaceutical revenues from sales of Remodulin, distributor fees and arginine royalty payments in the United States, Canada, the European Union (EU), South America and Asia. In addition, we have generated non-pharmaceutical revenues from telemedicine products and services in the United States.

2. Summary of Significant Accounting Policies

Principles of Consolidation

The accompanying consolidated financial statements include the accounts of United Therapeutics and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of the consolidated financial statements in accordance with accounting principles generally accepted in the United States (GAAP) requires management to make estimates and assumptions that affect reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Fair Value of Financial Instruments

The carrying amounts of cash and cash equivalents, accounts receivables, accounts payable, and accrued expenses, approximate fair value because of their short maturities. The fair values of marketable investments and notes payable are reported in Notes 4 and 5, respectively.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

Fair Value Measurements

We include expanded disclosures about fair value measurements pursuant to Financial Accounting Standards Board (FASB) Statement of Financial Accounting Standard (SFAS) No. 157, *Fair Value Measurements* (SFAS 157) which we adopted as of January 1, 2008. SFAS 157 defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. Such transactions to sell an asset or transfer a liability are assumed to occur in the principal or most advantageous market for the asset or liability. Accordingly, fair value as described by SFAS 157 is determined based on a hypothetical transaction at the measurement date, considered from the perspective of a market participant rather than from a reporting entity's perspective. SFAS 157 applies to existing accounting pronouncements that require or permit fair value measurements and does not require any new fair value measurements.

SFAS 157 establishes a three-level fair value hierarchy with respect to the inputs (or assumptions) used in fair value measurements. Observable inputs such as unadjusted quoted market prices for identical assets or liabilities are given the highest priority within the hierarchy (Level 1). When observable inputs are unavailable, SFAS 157 permits the use of unobservable inputs—i.e., inputs that a reporting entity believes market participants would use in pricing that are developed based on the best information available. Unobservable inputs are given the lowest priority within the hierarchy (Level 3). The level within the hierarchy at which a fair value measurement lies is determined based on the lowest level input that is significant to the fair value measurement in its entirety. As required by SFAS 157, we have categorized financial assets and liabilities measured at fair value within the fair value hierarchy. Refer to related disclosures at Note 5 of these consolidated financial statements.

Cash Equivalents

Cash equivalents consist of highly liquid investments with maturities of three months or less from the date of acquisition and include money market funds, commercial paper, and certificates of deposit. Approximately \$1.0 million at December 31, 2008 and 2007, is subject to a compensating balance arrangement in order to reduce bank-related fees. The related balance, however, is not subject to any withdrawal restrictions.

Trade Receivables

Trade receivables are stated at the amount we expect to collect. We establish an allowance for doubtful accounts based on our assessment of the collectability of specific customer accounts.

Marketable Investments

We classify debt securities as held-to-maturity when we have the positive intent and ability to hold the securities to maturity. Held-to-maturity securities are recorded as either current or non-current on our consolidated balance sheet based on their contractual maturity dates and are stated at amortized cost, adjusted for the amortization of discounts or premiums. Related discounts and premiums are amortized over the term of held-to-maturity securities as an adjustment to yield using the effective interest method.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

Debt and equity securities that we may acquire with the intention to sell in the near term are classified as trading securities. Trading securities are recorded at fair value with unrealized gains and losses recognized in earnings.

We classify publicly traded equity investments that we do not intend to hold until maturity or sell in the near term as available-for-sale. Available-for-sale securities are carried at fair value with unrealized gains and losses reported net of tax as a component of comprehensive income within the equity section of the consolidated balance sheet.

We monitor our investment portfolio for impairment quarterly or more frequently if circumstances warrant. In the event that the carrying value of an investment exceeds its fair value and the decline in value is determined to be other-than-temporary, we record an impairment charge within earnings and establish a new cost basis for the investment at its then current fair value. In determining whether a decline in the value of an investment is other-than-temporary, we evaluate available quantitative and qualitative factors. These factors include general market conditions, the duration and extent to which fair value has been less than the carrying value, our intent and ability to hold an affected investment until anticipated recovery in fair value, and the investment issuer's financial condition and business outlook.

Inventories

Inventories are stated at the lower of cost (first-in, first-out method) or market (current replacement cost) and consist of the following, net of reserves (in thousands):

	December 31,	
	2008	2007
Remodulin:		
Raw materials	\$ 3,387	\$ 3,364
Work in progress	6,558	4,782
Finished goods	4,085	4,615
Remodulin delivery pumps and medical supplies	194	291
Cardiac monitoring equipment components and supplies	148	159
Total inventories	<u>\$14,372</u>	<u>\$13,211</u>

Inventories include Remodulin and cardiac monitoring equipment that are formulated and/or produced by third-party manufacturers.

Goodwill and Other Intangible Assets

Goodwill represents the excess of purchase price over the fair value of net identifiable assets associated with previous acquisitions. Other intangible assets consist of technology and patents, and are being amortized over their respective estimated useful lives of ten to eighteen years.

We review the carrying value of goodwill for impairment annually during the fourth quarter or more frequently if impairment indicators exist. In determining whether goodwill is impaired, we compare the estimated fair value of the reporting unit to which goodwill has been assigned to its carrying value. We estimate the fair value of a reporting unit by calculating its expected future

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

discounted cash flows based on historical operating results adjusted for anticipated future market and operating conditions. Estimating the fair value of a reporting unit involves judgment particularly as it relates to the determination of expected future cash flows and a discount rate that is reasonable and appropriate in relation to our business profile. If the carrying amount of a reporting unit exceeds its fair value, then the amount of an impairment loss is measured as the excess of the carrying amount of goodwill over its implied fair value.

Intangible assets subject to amortization are reviewed for impairment whenever events or changes in circumstances indicate that an intangible asset's carrying amount may not be recoverable. Impairment losses for other intangible assets are recognized when the undiscounted expected future cash flows associated with an intangible asset are less than the asset's carrying value.

Goodwill and other intangible assets comprised the following (in thousands):

	As of December 31, 2008			As of December 31, 2007		
	Accumulated			Accumulated		
	Gross	Amortization	Net	Gross	Amortization	Net
Goodwill	\$ 7,465	\$ —	\$7,465	\$ 7,465	\$ —	\$7,465
Other intangible assets:						
Technology and patents	4,532	(4,159)	373	4,532	(3,570)	962
Total	<u>\$11,997</u>	<u>\$ (4,159)</u>	<u>\$7,838</u>	<u>\$11,997</u>	<u>\$ (3,570)</u>	<u>\$8,427</u>

Total amortization expense for the years ended December 31, 2008, 2007 and 2006, was approximately \$588,000, \$545,000 and \$324,000, respectively. As of December 31, 2008, the aggregate amortization expense related to intangible assets for each of the five succeeding years is estimated as follows (in thousands):

Years ending December 31,	
2009	\$153
2010	111
2011	72
2012	30
2013	7
	<u>\$373</u>

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

Property, Plant and Equipment

Property, plant and equipment are recorded at cost and depreciated over their estimated useful lives using the straight-line method. The estimated useful lives of property, plant and equipment by major category are as follows:

Buildings	39 Years
Building improvements	15-39 Years
Furniture, equipment and vehicle	3-15 Years
Holter and event cardiac monitoring systems	3-7 Years
Leasehold improvements	Remaining lease term, or the estimated useful life of the improvement, whichever is shorter

Property, plant and equipment consisted of the following (in thousands):

	December 31,	
	2008	2007
Land	\$ 11,987	\$ 10,507
Buildings, building improvements and leasehold improvements	61,511	19,203
Buildings under construction	115,022	26,134
Holter and event cardiac monitoring systems	4,552	3,915
Furniture, equipment and vehicle	41,743	19,955
	234,815	79,714
Less—accumulated depreciation	(13,749)	(10,360)
Property, plant and equipment, net	<u>\$221,066</u>	<u>\$ 69,354</u>

Depreciation expense for the years ended December 31, 2008, 2007 and 2006, was approximately \$3.9 million, \$2.9 million and \$2.4 million, respectively.

Buildings under construction relate to the construction of our facilities in Silver Spring, Maryland, and Research Triangle Park, North Carolina, and are stated at cost, which includes the cost of construction and other direct costs attributable to construction. Depreciation is not recognized on buildings under construction until construction is completed and related assets are available for their intended use. As of December 31, 2008, the estimated costs to complete these facilities were anticipated to be \$93.8 million. We capitalize interest cost incurred on funds used to construct these facilities. During the years ended December 31, 2008 and 2007, we capitalized interest of approximately \$3.1 million and \$689,000, respectively.

Treasury Stock

Treasury stock is recorded at cost, including commissions and fees. The cost of treasury shares sold is determined using the first-in, first-out method. Related gains and losses on sales of treasury stock are recognized as adjustments to stockholders' equity.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

Revenue Recognition

General. Revenue is recognized when realizable and earned. We consider revenue realizable and earned when all of the following criteria have been met: persuasive evidence of an arrangement exists; delivery has occurred; the seller's price to the buyer is fixed or determinable; and collection is reasonably assured.

Remodulin Sales. We recognize revenue on sales of Remodulin and related pumps and supplies, upon delivery when title and risk of ownership pass to our distributors. Our distributors do not possess return rights; however, we provide exchange rights in the event that product is damaged during shipment, or has expired. Historically, the financial effects of this exchange right have been immaterial and we expect this trend to continue.

We record sales of Remodulin and related equipment and supplies net of product sales allowances. These sales allowances consist of prompt payment discounts, Medicaid rebates and fees paid to distributors. Calculating these allowances involves the use of significant estimates, judgments and information from external sources. Sales allowances are estimated and recognized as reductions to revenue in the period that associated revenues are recognized. Prompt pay discounts are calculated based on the gross amount of invoices and are recorded on a net basis as our distributors have routinely taken advantage of these discounts. Medicaid rebates are generally invoiced and paid in the subsequent quarter from the date of sale. Accruals and related revenue reductions for Medicaid rebates are based on historical rebate data adjusted for anticipated changes in product sales trends and government rebate programs with regard to eligibility requirements and/or rebate pricing. We pay two of our distributors service fees. Accruals for these fees are estimated based on contracted rates applied to the estimated units of service provided by distributors for a given period.

Distributor fees and non-refundable license revenues. Our revenue recognition policy for all non-refundable upfront license and distribution rights fees and milestone arrangements is determined in accordance with the Staff Accounting Bulletin (SAB) No. 101, *Revenue Recognition in Financial Statements*, as amended by SAB No. 104, *Revenue Recognition*, issued by the Securities and Exchange Commission (SEC). In addition, multiple-element revenue arrangements are accounted for pursuant to FASB's Emerging Issues Task Force (EITF) Issue No. 00-21, *Revenue Arrangements with Multiple Deliverables* (EITF 00-21). EITF 00-21 provides guidance on how to determine when an arrangement that involves multiple revenue-generating activities or deliverables should be divided into separate units of accounting for revenue recognition purposes, and if this division is required, how the arrangement consideration should be allocated among the separate units of accounting. If the deliverables in a revenue arrangement constitute separate units of accounting, revenue recognition must be determined for each unit.

Under arrangements where license or distribution rights fees and research and development activities can be accounted for as separate units of accounting, non-refundable upfront license and distribution fees are deferred and recognized as revenue on a straight-line basis over the expected term of our continued involvement in the research and development process. Revenues from the achievement of certain research and development milestones, if deemed substantive in their entirety, are recognized as revenue when the milestones are achieved and the milestone payments are due and collectible. Milestones are considered substantive if all the following criteria are met: (1) the milestone payment is non-refundable and relates solely to past performance; (2) achievement of the milestone

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

was not reasonably assured at the inception of the arrangement; (3) substantive effort is involved to achieve the milestone; and (4) the amount of the milestone payment appears reasonable in relation to the effort expended, other milestones in the arrangement and the related risk associated with achievement of the milestone. If any of these conditions is not met, we recognize a proportionate amount of the milestone payment upon receipt as revenue that correlates to work already performed and the remaining portion of the milestone payment is deferred and recognized as we complete our performance obligations.

Telemedicine service and equipment revenue. Revenues from cardiac monitoring analysis services are recognized when the services are performed. Product sales of cardiac monitoring systems are recognized upon delivery and installation.

Research and Development

Research and product development costs are expensed as incurred except for payments made in advance of services to be provided to us. Related expenses consist of internal labor and overhead, costs to acquire pharmaceutical products and product rights for development, materials used in clinical trials and amounts paid to third parties for services and materials relating to drug development and clinical trials.

We recognize the following as research and development expense in the period related costs are incurred:

- Costs associated with production activities in our manufacturing facilities prior to receiving FDA approval for such facilities;
- Costs incurred in licensing the rights to technologies in the research and development stage that have no alternative future uses; and
- Upfront payments made pursuant to license and distribution rights arrangements prior to regulatory approval of the underlying pharmaceutical product absent any alternative future uses.

Share-Based Compensation

We account for share-based awards in accordance with SFAS No. 123 (revised 2004), *Share-Based Payment* (SFAS 123R), as interpreted, by SAB 107 and SAB 110 issued by the SEC. For stock option awards, the amount of compensation expense to be recognized is based on the grant date fair value. Related compensation expense is recognized on a straight-line basis over the requisite service period, or vesting period of option awards that are expected to vest. We measure and recognize compensation expense associated with share-based awards issued to nonemployees pursuant to SFAS 123R and EITF Issue No. 96-18, *Accounting for Equity Instruments That Are Issued to Other Than Employees for Acquiring, or in Conjunction with Selling Goods or Services*. Share-based awards that require cash settlement upon exercise (share-tracking awards) are classified as a liability. Accordingly, the fair value of related awards is measured at each reporting date until awards are exercised or are otherwise no longer outstanding. Related changes in the fair value of outstanding awards at each reporting date are recognized as share-based compensation expense.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

Advertising Costs

Advertising costs are expensed as incurred. Advertising expense recognized during the years ended December 31, 2008, 2007 and 2006, was approximately \$1.2 million, \$1.2 million and \$630,000, respectively.

Income Taxes

Income taxes are accounted for in accordance with the asset and liability method set forth under SFAS No. 109, *Accounting for Income Taxes* (SFAS 109). Accordingly, deferred tax assets and liabilities are recognized for the future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their tax bases. Deferred tax assets and liabilities are measured using the enacted tax rates that are expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in the period that includes the enactment date. Deferred tax assets are reduced by a valuation allowance when, in our opinion, it is more likely than not that some or all of the deferred tax assets will not be realized.

We account for uncertain tax positions pursuant to FASB Interpretation No. 48, *Accounting for Uncertainty in Income Taxes—an Interpretation of FASB Statement No. 109*. Financial statement recognition of a tax position taken or expected to be taken in a tax return is determined based on a more likely than not threshold of that position being sustained. If the tax position meets this threshold, the benefit to be recognized is measured as the largest amount that is more than 50 percent likely to be realized upon ultimate settlement. It is our policy to record interest and penalties related to uncertain tax positions as a component of income tax expense.

(Loss) Earnings per Share

Basic (loss) earnings per share is computed by dividing net (loss) income by the weighted average number of shares of common stock outstanding during the period. Diluted earnings per common share is computed by dividing net income by the weighted average number of shares of common stock outstanding during the period, plus the potential dilutive effect of other securities if such securities were converted or exercised. During periods in which we incur net losses, weighted average shares outstanding exclude potentially dilutive securities, because their effect would be anti-dilutive.

Concentrations of Credit Risk, Suppliers, Products, Revenues and Customers

Concentration of credit risk. Financial instruments that are exposed to credit risk consist of cash, money market funds, commercial paper, marketable investments, and trade receivables. We maintain our cash and money market funds with financial institutions that are federally insured. While balances deposited in these institutions often exceed Federal Deposit Insurance Corporation limits, we have not experienced any losses on related accounts to date. Furthermore, we limit our risk exposure by maintaining funds in substantial financial institutions that we believe are creditworthy and financially sound. Our investments in commercial paper and marketable debt investments have been issued by corporate, state and local government agencies and federally-sponsored agencies. We mitigate the risks associated with holding these types of securities by investing in only highly-rated securities with relatively short maturities that we believe do not involve a significant degree of risk. At any given period, our trade receivables are concentrated among a small number of principal customers. If any of

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

2. Summary of Significant Accounting Policies (Continued)

these financial institutions, issuers or customers failed to perform their obligations under the terms of these financial instruments, our maximum exposure to potential losses would approximate amounts reported on our consolidated balance sheets.

Concentration of suppliers. We currently rely on a single supplier to perform stability studies on Remodulin, formulate treprostinil in both oral and inhaled forms, and analyze other products we are developing. In addition, Remodulin is formulated and packaged by a single producer and our cardiac monitoring devices are produced by one manufacturer. Although our current suppliers could be replaced, we believe that a change in suppliers could disrupt the distribution of Remodulin and other products and services, and impede the progress of clinical trials and commercial launch.

Concentration of products, revenues and customers. During the years ended December 31, 2008, 2007 and 2006, sales of Remodulin accounted for approximately 96%, 95% and 96%, respectively, of our total net revenues. Net sales of Remodulin in the United States to our three distributors comprised approximately 89%, 88% and 90%, respectively, of such revenues. At December 31, 2008 and 2007, approximately 79% and 84%, respectively, of accounts receivable were due from these distributors. While we rely on our distributors to market Remodulin, there are several other qualified distributors that could replace any one of our current distributors.

During the year ended December 31, 2008, we derived approximately 74% of our total net domestic revenues and approximately 69% of our total net Remodulin revenues from one customer in our pharmaceutical segment. Gross revenues from that customer are as follows (in thousands):

	Years Ended December 31,		
	2008	2007	2006
Accredo Therapeutics, Inc.	\$184,865	\$136,975	\$101,584

3. Recently Issued Accounting Standards

In May 2008, the FASB issued Staff Position APB 14-1, *Accounting for Convertible Debt Instruments That May Be Settled in Cash Upon Conversion (Including Partial Cash Settlement)* (FSP APB 14-1). FSP APB 14-1 applies to certain convertible debt instruments that may be settled in cash or other assets, or partially in cash, upon conversion. Issuers of such instruments are required under FSP APB 14-1 to account for the liability and equity components separately in a manner that reflects the issuer's nonconvertible debt borrowing rate when interest expense is subsequently recognized. Specifically, FSP APB 14-1 requires the difference between the convertible debt proceeds and the fair value of the liability, absent any conversion rights, to be assigned to the equity component and recognized as part of stockholders' equity and as a discount for determining the carrying value of the debt. The discounted carrying value of the debt is amortized as interest expense using the interest method over the expected life of the debt. FSP APB 14-1 is effective for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years and is to be applied retrospectively to all periods presented. Our 0.50% Convertible Senior Notes due October 2011 (Convertible Senior Notes) fall within the scope of FSP APB 14-1—see Note 9 to these consolidated financial statements. While adoption of FSP APB 14-1 will not change the cash flow requirements of our Convertible Senior Notes, non-cash interest expense associated with the amortization of the discount on the Convertible Senior Notes is expected to increase significantly. Upon the adoption of FSP APB 14-1, we will no longer recognize interest expense based on the Convertible Senior Notes' stated rate of interest.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

3. Recently Issued Accounting Standards (Continued)

The expected impact of the retrospective application of FSP APB 14-1 from the period of issuance (October 2006) through the end of the Senior Convertible Notes' expected life excluding any effects of capitalized interest and income taxes is shown below (in thousands):

<u>Year Ended December 31,</u>	<u>Interest Expense Based on the Stated Rate of Interest</u>	<u>Interest Expense Under FSP APB 14-1</u>	<u>Incremental Impact of Adoption of FSP APB 14-1</u>
2006	\$ 208	\$ 2,227	\$ 2,019
2007	1,250	13,533	12,283
2008	1,250	14,696	13,446
2009	1,250	15,723	14,473
2010	1,250	16,829	15,579
2011(1)	1,042	15,104	14,062
Total	<u>\$ 6,250</u>	<u>\$ 78,112</u>	<u>\$ 71,862</u>
Debt Discount and equity component to be recognized under FSP APB 14-1	<u>N/A</u>	<u>N/A</u>	<u>\$ 71,862</u>

(1) Through October 2011, the end of the expected life of the Convertible Senior Notes.

In June 2008, the FASB issued EITF Issue No. 07-5, *Determining Whether an Instrument (or Embedded Feature) Is Indexed to an Entity's Own Stock* (EITF 07-5). EITF 07-5 supersedes EITF Issue No. 01-6, *The Meaning of 'Indexed to a Company's Own Stock'*, and provides guidance in evaluating whether certain financial instruments or embedded features can be excluded from the scope of SFAS 133, *Accounting for Derivatives and Hedging Activities* (SFAS 133). EITF 07-5 sets forth a two-step approach that evaluates an instrument's contingent exercise and settlement provisions for the purpose of determining whether such instruments are indexed to an issuer's own stock (a requirement necessary to comply with the scope exception under SFAS 133). EITF 07-5 will be effective for financial statements issued for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years. We are currently assessing the impact related to the adoption of EITF 07-5 on our financial instruments that fall within its scope.

In May 2008, the FASB issued SFAS No. 162, *The Hierarchy of Generally Accepted Accounting Principles* (SFAS 162). SFAS 162 identifies sources of accounting principles and the framework for selecting the principles to be used in the preparation of financial statements of non-governmental entities that are presented in conformity with GAAP (GAAP Hierarchy). SFAS 162 became effective November 15, 2008. Adoption of SFAS 162 did not impact our consolidated financial statements.

In March 2008, the FASB issued SFAS No. 161, *Disclosures about Derivative Instruments and Hedging Activities—an Amendment of FASB Statement No. 133* (SFAS 161). SFAS 161 requires companies to provide enhanced disclosures regarding derivative instruments and hedging activities and requires companies to better convey the purpose of derivative use in terms of the risks they intend to manage. Disclosures required under SFAS 161 include: (a) how and why a company uses derivative instruments; (b) how derivative instruments and related hedged items are accounted for under SFAS 133 and its related interpretations; and (c) how derivative instruments and related hedged items affect a company's financial position, financial performance, and cash flows. SFAS 161 retains the same

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

3. Recently Issued Accounting Standards (Continued)

scope as SFAS 133 and is effective for fiscal years and interim periods beginning after November 15, 2008. We do not expect the adoption of SFAS 161 to have a material impact, if any, on our consolidated financial statements.

In December 2007, the FASB issued SFAS No. 160, *Noncontrolling Interests in Consolidated Financial Statements—an amendment of ARB No. 51* (SFAS 160). SFAS 160 establishes accounting and reporting standards for the noncontrolling interest in a subsidiary and for the deconsolidation of a subsidiary. This statement is effective, prospectively, for fiscal years beginning after December 15, 2008, except for certain retrospective disclosure requirements. We do not expect the adoption of SFAS 160 to have any impact on our consolidated financial statements upon initial adoption.

In December 2007, the FASB issued SFAS No. 141 (Revised 2007), *Business Combinations—a replacement of FASB Statement No. 141* (SFAS 141R). SFAS 141R significantly changes the principles and requirements for how the acquirer of a business recognizes and measures in its financial statements the identifiable assets acquired, the liabilities assumed, and any noncontrolling interest in the acquiree. SFAS 141R also provides guidance for recognizing and measuring goodwill acquired in a business combination and determines what information to disclose to enable users of the financial statements to evaluate the nature and financial effects of a business combination. SFAS 141R is effective, prospectively, for fiscal years beginning after December 15, 2008, except for certain retrospective adjustments to deferred tax balances. The potential impact of adopting SFAS 141R on our consolidated financial statements will depend on whether we enter into any future acquisitions and the magnitude of such acquisitions.

In June 2007, the FASB issued EITF Issue No. 07-1, *Accounting for Collaboration Arrangements Related to the Development and Commercialization of Intellectual Property* (EITF 07-1). EITF 07-1 provides guidance on how the parties to a collaborative agreement should account for costs incurred and revenue generated on sales to third parties and how sharing payments pursuant to a collaboration agreement should be presented in the income statement. EITF 07-1 will be effective for fiscal years beginning after December 15, 2008, and interim periods within those fiscal years and shall be applied retrospectively. We are assessing the potential impact, if any, the adoption of EITF 07-1 will have on our consolidated financial statements.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

4. Marketable Investments

Held-to-maturity Investments

Marketable investments classified as held-to-maturity consist of the following (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Government sponsored enterprises at December 31, 2008	\$154,115	\$ 1,718	\$ (18)	\$155,815
Corporate notes and bonds at December 31, 2008	53,509	140	(151)	53,498
Total	<u>\$207,624</u>	<u>\$ 1,858</u>	<u>\$ (169)</u>	<u>\$209,313</u>

As reported on the consolidated balance sheet at December 31, 2008:

Current marketable securities	\$106,596
Noncurrent marketable securities	101,028
	<u>\$207,624</u>

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Government sponsored enterprises at December 31, 2007	\$ 66,905	\$ 103	\$ (214)	\$ 66,794
Corporate notes and bonds at December 31, 2007	74,082	38	(15)	74,105
Total	<u>\$140,987</u>	<u>\$ 141</u>	<u>\$ (229)</u>	<u>\$140,899</u>

As reported on the consolidated balance sheet at December 31, 2007:

Current marketable securities	\$ 96,223
Noncurrent marketable securities	44,764
	<u>\$140,987</u>

Certain held-to-maturity investments have been pledged as collateral to Wachovia Development Corporation under the laboratory lease described in Note 10 to these consolidated financial statements, and are classified as restricted marketable investments and cash on our consolidated balance sheets as of December 31, 2008 and 2007.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

4. Marketable Investments (Continued)

The following table summarizes gross unrealized losses and the length of time marketable investments have been in a continuous unrealized loss position (in thousands):

	December 31,			
	2008		2007	
	Fair Value	Gross Unrealized Loss	Fair Value	Gross Unrealized Loss
Government sponsored:				
Less than one year	\$ 9,886	\$ (18)	\$ —	\$ —
Greater than one year	—	—	35,765	(214)
	9,886	(18)	35,765	(214)
Corporate notes:				
Less than one year	21,278	(151)	17,197	(15)
Greater than one year	—	—	—	—
	21,278	(151)	17,197	(15)
Total	<u>\$31,164</u>	<u>\$ (169)</u>	<u>\$52,962</u>	<u>\$ (229)</u>

We attribute the unrealized losses on held-to-maturity securities as of December 31, 2008 and 2007, to the variability in related market interest rates. We invest in debt securities that we believe possess low risk profiles and have the ability and intent to hold these investments until maturity. As such, we do not consider these investments to be other-than-temporarily impaired.

The following table summarizes the contractual maturities of held-to-maturity marketable investments at December 31, 2008 (in thousands):

	December 31, 2008	
	Amortized Cost	Fair Value
Due in less than one year	\$106,596	\$107,146
Due in one to two years	101,028	102,167
Due in three to five years	—	—
Due after five years	—	—
Total	<u>\$207,624</u>	<u>\$209,313</u>

Available-for-sale Investments

Through November 2008, marketable investments we classified as available-for-sale consisted of auction-rate securities issued by state and local government sponsored agencies (ARS). In November of 2008, we made a one-time transfer of available-for-sale securities to the trading classification as discussed below. The ARS maintain an AAA credit rating and are secured by pools of student loans that are approximately 91% insured by the federal government. Historically, these securities provided liquidity to investors through their interest rate reset feature—i.e., interest rates on these securities are reset through a bidding process (or auction) at frequent, pre-determined intervals. At each reset date, investors could either rollover and maintain their holdings or liquidate them at par value. Prior to

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

4. Marketable Investments (Continued)

February 2008, the fair value of the ARS was equal to their par value. Since February 2008, auctions related to the ARS have failed as a result of the deterioration of the credit markets, rendering these securities illiquid. Consequently, the fair value of the ARS has been estimated using both a discounted cash flow (DCF) analysis and a market comparables method. Both methods have been given equal weight in estimating the fair value of the ARS.

We consider market data pricing because we believe that it provides relevant information as to the extent similar securities are currently being discounted upon sale. While we do not believe that all of these transactions result from distressed or forced sales, the use of such market-related data to estimate the fair value of the ARS involves a significant degree of judgment. As such, we also rely equally on a DCF model to support our estimation of fair value.

The key assumptions to the DCF model are subjective and include the following: a reference, or benchmark rate of interest based on the London Interbank Offered Rate (LIBOR), the amounts and timing of cash flows, and the weighted average expected life of a security and its underlying collateral. In addition, the model considers the risks associated with the creditworthiness of the issuer, the quality of the collateral underlying the investment and illiquidity. The benchmark interest rate is then adjusted upward depending on the degree of risk associated with each security within our auction-rate portfolio. We have estimated the illiquidity premium based on an analysis of the average discounts relating to sales of comparable auction-rate securities within the secondary market.

On November 13, 2008, we entered into an Auction Rate Securities Rights Offer (Rights Offer) with the investment firm that maintains our ARS account. Pursuant to the Rights Offer, we can sell our holdings of ARS to the investment firm for a price equal to the par value of the securities (\$36.8 million) at any time between June 30, 2010 and July 2, 2012 (Put Option). In addition, at any time through July 2, 2012, the investment firm, acting as principal, can purchase the ARS from us or sell the securities on our behalf provided that the par value of the ARS is deposited in our account on the next business day following settlement of the transaction. To help meet any immediate liquidity needs, the Rights Offer provides that we can borrow up to the par value of the ARS. Interest on related borrowings will generally be equal to the then-applicable interest paid by the issuers of the ARS. We do not expect to borrow against the value of the ARS.

The Put Option represents a freestanding, non-transferable financial instrument that is initially measured and recorded at fair value and accounted for separately from the ARS. Because the Put Option does not meet the definition of a derivative under SFAS 133, it is not subsequently adjusted for changes in its fair value. In substance, however, the Put Option acts as a hedge to protect against the future decline in fair value of the ARS. To better account for the substance of the arrangement, we believe that the future changes in the fair value of the Put Option should be recognized in order to offset subsequent price movements of the ARS. Therefore, we elected the fair value option set forth in SFAS No. 159, *The Fair Value Option for Financial Assets and Financial Liabilities—Including an amendment of FASB Statement No. 115* (SFAS 159), to account for the Put Option. Under SFAS 159, all subsequent changes in fair value of the Put Option will be recognized in earnings. Approximately \$7.7 million representing the fair value of the Put Option at December 31, 2008, was recognized within other non-current assets on our consolidated balance sheet. We recognized a corresponding gain during the year ended December 31, 2008, associated with the fair value of the Put Option within other income on our consolidated statement of operations. Since there is not an observable market for the Put Option, its fair value has been estimated using significant unobservable inputs. Accordingly, the fair

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

4. Marketable Investments (Continued)

value of the Put Option has been included as a Level 3 asset within the SFAS 157 hierarchy (See Note 5 of these consolidated financial statements for related disclosures).

We employed a DCF model to estimate the fair value of the Put Option. We believe that the estimated value of the Put Option represents the incremental value associated with the ability to recover the full cost of the ARS significantly earlier than would be otherwise possible, if at all, and the ability to obtain an immediate loan under the Rights Offer, as this right possesses value regardless of whether we expect to borrow under the Rights Offer. Key assumptions used in the DCF model are judgmental and include the following:

- A discount factor equal to the rate of interest consistent with the expected term of the Put Option and risk profile of the investment firm subject to the Put Option;
- Amount and timing of expected cash flows;
- Expected life of the Put Option prior to its exercise; and
- Assumed loan amounts.

The DCF methodology considered two scenarios. The first scenario assumed that we would borrow up to 50% of the ARS and the second scenario assumed that we would borrow up to 75% of the ARS. Under the DCF analysis, increases in the assumed loan balance would result in an increase in the fair value of the Put Option because the risk of counterparty non-performance diminishes. The estimated fair values generated under both scenarios were given equal weight in determining the pricing of the Put Option.

Concurrent with the acceptance of the Rights Offer, we made a one-time transfer of the ARS from the available-for-sale classification to the trading classification. Given the unprecedented circumstances underlying the transfer—i.e., the collapse of the credit markets and the unique nature of the Rights Offer—we believe that such a transfer is in accordance with the guidance provided under SFAS No. 115, *Accounting for Certain Investments in Debt and Equity Securities*, regarding transfers into the trading category. We made this one-time transfer so that the changes in the fair value of both the ARS and the Put Option will be recognized in a consistent manner, since we elected the fair value option to account for the Put Option. Consequently, all changes in fair value of the ARS subsequent to the transfer will be recognized within earnings. Because we do not believe it is likely that the ARS will be liquidated or otherwise disposed of within the next 12 months, the securities have been classified within non-current marketable investments on our consolidated balance sheet at December 31, 2008.

Prior to November 2008, we characterized and accounted for the declines in the fair value of the ARS as temporary. We supported this determination in large part by our intent and ability to hold the ARS until the credit markets stabilized sufficiently to allow us to liquidate the securities without realizing significant losses. Accordingly, related unrealized losses had been recorded as a component of equity within other comprehensive income. By entering into the Rights Offer, however, we can no longer demonstrate the positive intent to hold these securities indefinitely. As such, we recognized within earnings an other-than-temporary impairment charge of approximately \$6.3 million during the fourth quarter of 2008 associated with all previously accumulated unrealized losses relating to the ARS.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

4. Marketable Investments (Continued)

Available-for-sale investments consist of the following (in thousands):

	Amortized Cost	Gross Unrealized	Gross Unrealized	Estimated Fair
	Or Par Value	Gains	Losses	Value
Municipal notes at December 31, 2008	\$ —	\$ —	\$ —	\$ —
Municipal notes at December 31, 2007	\$ 54,000	\$ —	\$ —	\$ 54,000

Proceeds, realized gains and losses from sales of available-for-sale investments are as follows (in thousands):

	Years Ended December 31,		
	2008	2007	2006
Gross proceeds	\$31,850(1)	\$58,050	\$86,400
Realized gains	\$ —	\$ —	\$ —
Realized losses	\$ —	\$ —	\$ —

(1) Gross proceeds on sales of ARS at par from January 1, 2008 through February 29, 2008

For purposes of determining gross realized gains and losses on sales of available-for-sale investments, the cost of securities sold is determined by specific identification.

During the year ended December 31, 2008, approximately \$6.3 million in gross losses (recognized as an other-than-temporary impairment) was reclassified from accumulated other comprehensive income to earnings upon acceptance of the Rights Offer in November 2008.

Trading Investments

During the fourth quarter of 2008, we made a one-time transfer of ARS we classified as available-for-sale into the trading category.

Trading securities consisted of the following (in thousands):

	Amortized Cost	Gross Trading	Gross Trading	Other Than	Estimated Fair
	Or Par Value	Gains	Losses	Temporary Impairment	Value
Municipal notes at December 31, 2008	\$ 36,750	\$ —	\$ (2,466)	\$ (6,308)	\$ 27,976
Municipal notes at December 31, 2007	\$ —	\$ —	\$ —	\$ —	\$ —

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

4. Marketable Investments (Continued)

Equity Investments

Equity holdings consist of our investment in ViRexx Medical Corp. (ViRexx) and Twin Butte Energy Ltd (Twin Butte). Both of these investments were acquired in connection with our license agreements for the rights to the ViRexx platform of antibodies to treat various forms of cancer. Based on the results of the clinical trials related to these antibodies, we discontinued development of this platform in November 2007. Equity investments are accounted for as available-for-sale securities and are reported at their fair values, based on quoted market prices.

Because of the continued decline in the price of ViRexx's common stock and ViRexx's filing for bankruptcy during 2008, we recognized an other-than-temporary impairment loss of \$505,000 during the year ended December 31, 2008 to write off the remaining basis of our investment. The fair value of our investment in Twin Butte was \$97,000 and \$398,000 as of December 31, 2008 and 2007, respectively. We own less than 1% of Twin Butte.

In August 2008, we invested \$5.0 million in Transoma Medical, Inc. (Transoma), a privately owned corporation, in exchange for approximately 1.5 million shares of Transoma's Series D preferred stock. Our investment represents an ownership interest of approximately 3.5% in Transoma. We account for our investment in Transoma at cost as the fair value of these equity securities is not readily determinable.

5. Fair Value Measurements

Effective January 1, 2008, we adopted the provisions of SFAS 157. SFAS 157 defines fair value, establishes a fair value hierarchy for assets and liabilities measured at fair value and requires expanded disclosures about fair value measurements. Adoption of SFAS 157 did not have any impact on our consolidated financial position or results of operations. The SFAS 157 hierarchy ranks the quality and reliability of inputs, or assumptions, used in the determination of fair value and requires assets and liabilities carried at fair value to be classified and disclosed in one of the following categories based on the lowest level input used that is significant to a particular fair value measurement:

Level 1—Fair value is determined by using unadjusted quoted prices that are available in active markets for identical assets and liabilities.

Level 2—Fair value is determined by using inputs other than Level 1 quoted prices that are directly or indirectly observable. Inputs can include quoted prices for similar assets and liabilities in active markets or quoted prices for identical assets and liabilities in inactive markets. Related inputs can also include those used in valuation or other pricing models such interest rates and yield curves that can be corroborated by observable market data.

Level 3—Fair value is determined by inputs that are unobservable and not corroborated by market data. Use of these inputs involves significant and subjective judgments to be made by a reporting entity--e.g., determining an appropriate adjustment to a discount factor for illiquidity associated with a given security.

We have deferred the application of the provisions of SFAS 157 to our non-financial assets and liabilities in accordance with FASB Staff Position No. FAS 157-2, *Effective Date of FASB Statement No. 157* (FSP FAS 157-2), issued in February 2008. FSP FAS 157-2 defers the effective date of SFAS 157 to fiscal years beginning after November 15, 2008, and interim periods within those fiscal years for non-financial assets and liabilities, except those that are recognized or disclosed at fair value

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

5. Fair Value Measurements (Continued)

in the financial statements on a recurring basis (at least annually). Fair value measurements within the scope of this deferral include those associated with goodwill impairment assessments, non financial assets acquired or liabilities assumed in business combinations and impairment evaluations of other long-lived assets. We expect the adoption of FSP FAS 157-2 will result in additional fair value disclosures, but will not impact our consolidated financial statements.

In October 2008, the FASB issued Staff Position No. 157-3, *Determining the Fair Value of a Financial Asset When the Market for That Asset is Not Active* (FSP 157-3). FSP 157-3 clarifies the application of SFAS 157 to financial assets for which an active market does not exist. Specifically, FSP 157-3 addresses the following issues: (1) how a reporting entity's own assumptions should be considered in measuring fair value when observable inputs do not exist; (2) how observable inputs in inactive markets should be considered when measuring fair value; and (3) how the use of market quotes should be considered when assessing the relevance of inputs available to measure fair value. FSP 157-3 applies to financial assets within the scope of accounting pronouncements that require or permit fair value measurements in accordance with SFAS 157 and was effective upon issuance. Adoption of FSP 157-3 did not materially affect our methodology for determining Level 3 pricing.

We evaluate financial assets and liabilities subject to fair value measurements on a recurring basis to determine the appropriate level at which to classify them each reporting period. This determination requires us to make subjective judgments as to the significance of inputs used in determining fair value and where such inputs lie within the SFAS 157 hierarchy.

Financial assets and liabilities subject to fair value measurements were as follows (in thousands):

	As of December 31, 2008			Balance
	Level 1	Level 2	Level 3	
Assets				
Auction-rate securities(1)	\$ —	\$ —	\$27,976	\$ 27,976
Equity securities	97	—	—	97
Put Option (See Note 4 to the consolidated financial statements)	—	—	7,685	7,685
Money market funds(2)	96,179	—	—	96,179
Federally-sponsored and corporate debt securities(3)	—	209,313	—	209,313
Total Assets	\$ 96,276	\$209,313	\$35,661	\$341,250
Liabilities				
Convertible Senior Notes	\$239,429	\$ —	\$ —	\$239,429

- (1) Included in non-current marketable investments on the accompanying consolidated balance sheet. To validate the reasonableness of Level 3 pricing, we perform a sensitivity analysis that contemplates various scenarios. Our method for estimating the fair value of these securities incorporates the assumptions that we believe market participants would consider in pricing these securities. Differing viewpoints regarding the assumptions market participants would use in pricing, or different valuation methodologies, could result in fair value measurements that differ materially.
- (2) Included in cash and cash equivalents and marketable investments and cash—restricted on the accompanying consolidated balance sheet.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

5. Fair Value Measurements (Continued)

- (3) Included in current and non-current marketable investments on the accompanying consolidated balance sheet. The fair value of these securities is derived from pricing models using observable market data, including interest rates, yield curves, recently reported trades of comparable securities, credit spreads and benchmark securities.

The tables below provide a reconciliation of the beginning and ending balances of assets measured at fair value using significant unobservable inputs (Level 3) for the year ended December 31, 2008 (in thousands):

	Auction-rate Securities	Auction-rate Securities Put Option	Total
Balance January 1, 2008	\$ —	\$ —	\$ —
Transfers to (from) Level 3	36,750	—	36,750
Total gains/(losses) realized/unrealized included in earnings(4)	(8,774)	—	(8,774)
Total gains/(losses) included in other comprehensive income	—	—	—
Purchases/issuances/settlements, net	—	7,685	7,685
Balance December 31, 2008	<u>\$ 27,976</u>	<u>\$ 7,685</u>	<u>\$35,661</u>

- (4) Includes total losses of \$2,466 for the year ended December 31, 2008 attributable to the change in unrealized losses relating to trading securities still held at December 31, 2008—(recognized within other income)

6. Investment in Northern Therapeutics, Inc.

We own approximately 68% of the outstanding common stock of Northern Therapeutics, Inc. (Northern). Northern was formed in 2000 to develop a particular form of gene therapy for the treatment of PAH and to distribute Remodulin and our other products in Canada. Although we own a majority of Northern's outstanding common stock, we may appoint only two of the Northern's seven board seats. Substantially all of Northern's key business decisions require unanimous consent from its board including decisions related to personnel selection and compensation and the establishment of operating and capital budgets. As such, the minority owners of Northern have substantive participating rights as described in EITF Issue No. 96-16, *Investors' Accounting for an Investee when the Investor has a Majority of the Voting Interest but the Minority Shareholder or Shareholders Have Certain Approval or Veto Rights*. As a result of these substantive participating rights, we do not control Northern; therefore, consolidation is prohibited. We account for our investment in Northern under the equity method and as such, the related investment balance is adjusted for our cumulative share in Northern's losses. At December 31, 2008, the investment balance is approximately \$1.0 million and has been included within other non-current assets on our consolidated balance sheet as of December 31, 2008.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

6. Investment in Northern Therapeutics, Inc. (Continued)

Summarized financial information for Northern is presented below (in thousands):

	As of, and for the Year ended December 31,		
	2008	2007	2006
Total assets	\$ 904	\$1,404	\$1,576
Total liabilities	\$ 83	\$ 31	\$ 111
Total revenues	\$ 284	\$ 485	\$1,434
Net loss	\$(331)	\$ (469)	\$ (718)

We are also party to a license agreement with Northern as described in Note 15 to these consolidated financial statements.

7. Accrued Expenses

Accrued expenses consisted of the following (in thousands):

	December 31,	
	2008	2007
Royalties and rebates	\$10,640	\$ 8,481
Payroll related	6,727	5,981
Research related	1,930	1,617
Other	1,556	1,863
Total	<u>\$20,853</u>	<u>\$17,942</u>

8. Share Tracking Awards Plan

On June 2, 2008, our Board of Directors (the Board) adopted the United Therapeutics Corporation Share Tracking Awards Plan (STAP). The maximum number of awards that can be granted under the STAP subject to adjustment for specified events is 3,000,000. Awards under the STAP convey the right to receive an amount in cash equal to the appreciation in our common stock (Awards), which is calculated as the positive difference between the closing price of our common stock on the date of grant and the date of exercise (the Appreciation). The Compensation Committee of the Board (the Administrator) has the sole authority to grant Awards to STAP participants and determine related terms. Unless otherwise determined by the Administrator, Awards generally vest in one-third increments on each of the first three anniversaries of the grant date and expire on the tenth anniversary of the grant date. Upon the exercise of a vested Award, participants are entitled to receive the Appreciation in cash. The STAP does not permit Awards to be settled through the issuance of our common stock. Any expired, canceled, or forfeited Awards may be subsequently used for future grants. Our Board has the authority to amend, alter, or terminate the STAP at any time.

On November 24, 2008, the Administrator amended the exercise price of outstanding Awards to \$50.63, the closing price of our common stock on that date. This amendment was subsequently ratified by the Board on December 3, 2008. A total of 1,811,482 outstanding Awards with a weighted average exercise price of \$102.57 were repriced. All other terms and conditions of the Awards remained unchanged after their repricing. The modification to the Awards did not affect the manner in which we are recognizing our obligation and related share-based compensation expense as described below.

UNITED THERAPEUTICS CORPORATION**Notes to Consolidated Financial Statements (Continued)****8. Share Tracking Awards Plan (Continued)**

In accordance with SFAS 123R, we account for and classify Awards as a liability, as we are required to pay cash to participants upon exercise. Accordingly, we estimate the fair value of the Awards using the Black-Scholes-Merton valuation model and re-measure the fair value of outstanding Awards at each quarterly reporting date until settlement occurs or Awards are otherwise no longer outstanding. The fair value of outstanding Awards is recognized as a current liability on our consolidated balance sheet adjusted for the percentage of the requisite service period that has been rendered prior to the fulfillment of the vesting requirement. As of December 31, 2008, the STAP liability balance was approximately \$8.5 million. The change in the fair value of outstanding Awards at each reporting date is recognized as compensation expense on our consolidated statement of operations.

In estimating the fair value of our Awards, we are required to use subjective assumptions that can materially impact the estimation of fair value and related compensation. These assumptions include the expected volatility of our common stock, risk-free interest rate, expected term of Awards, expected forfeiture rate and the expected dividend yield. We also consider the impact of our credit risk when estimating the fair value of Awards due to the STAP's cash settlement provision.

A description of the key inputs used in estimating the fair value of the Awards is provided below:

Expected volatility —Volatility is a measure of the amount the price of our common stock has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. We use historical volatility based on weekly price observations of our common stock during the period immediately preceding an Award that is equal to the expected term of an Award (up to a maximum of five years). We believe the volatility in the price of our common stock over the preceding five years provides the best representation of future long term volatility.

Risk-free interest rate —The risk-free interest rate is the average interest rate consistent with the yield available on a U.S. Treasury note with a term equal to the expected term of an Award.

Expected term of Awards —An Award's expected term reflects the estimated time period we expect an Award to remain outstanding. We apply the provisions of SAB No. 107, as amended by SAB No. 110, regarding the use of the simplified method in developing an estimate of the expected term. We employ this methodology for estimating the expected term of Awards until such time that more refined estimates based on historical exercise behavior of the Awards can be established

Expected forfeiture rate —The expected forfeiture rate is an estimated percentage of Awards granted that are expected to be forfeited or canceled on an annual basis prior to becoming fully vested. We derive our estimate based on historical forfeiture experience of our stock options for similar classes of employees. We expect forfeiture experience with respect to Awards to be materially comparable to that of our stock options, which contain similar terms and conditions.

Expected dividend yield —We do not pay dividends on our common stock and do not expect to do so in the future. Therefore, the dividend yield is assumed to be zero.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

8. Share Tracking Awards Plan (Continued)

The table below presents the assumptions used to re-measure the fair value of Awards at December 31, 2008:

Expected volatility	48.0%
Risk-free interest rate	1.6%
Expected term of options (in years)	5.6
Forfeiture rate	6.3%
Expected dividend	0.0%

A summary of the status and activity of the STAP is presented below:

	Number of Awards	Weighted- Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in 000s)
Outstanding at June 2, 2008 (effective date of the STAP)	—	\$ —		
Granted	1,831,265	50.64		
Exercised	—	—		
Forfeited	(19,767)	50.63		
Canceled	—	—		
Outstanding at end of period	1,811,498	\$ 50.64	9.6	\$21,583
Awards exercisable at December 31, 2008	—	\$ —	—	\$ —
Awards expected to vest at December 31, 2008	1,697,220	\$ 50.64	9.6	\$20,214

The weighted average fair value of Awards granted from the period beginning June 2, 2008, and ending December 31, 2008, was \$32.25. As of December 31, 2008, we had approximately \$46.2 million of unrecognized compensation expense related to unvested Awards, which we expect to recognize over a period of 2.6 years. Unrecognized compensation cost has been estimated using the fair value of Awards, which is based in large part on the price of our common stock, as of December 31, 2008. As we subsequently re-measure the fair value of outstanding Awards at future quarterly reporting dates, the amount of compensation expense may vary significantly.

Share-based compensation expense relating to the STAP was as follows (in thousands):

	Period from June 2, 2008 to December 31, 2008
Cost of service sales	\$ 17
Research and development	3,463
Selling, general and administrative	4,965
Share-based compensation expense before taxes	8,445
Related income tax benefits	(3,378)
Share-based compensation expense, net of taxes	\$ 5,067
Total share-based compensation expense capitalized in inventory	\$ 72

UNITED THERAPEUTICS CORPORATION**Notes to Consolidated Financial Statements (Continued)****9. Debt*****Convertible Senior Notes***

On October 30, 2006, we issued at par value \$250.0 million of Convertible Senior Notes. In connection with the issuance of the Convertible Senior Notes, we also entered into a call spread option (see Note 11 to these consolidated financial statements). We pay interest on the Convertible Senior Notes in arrears semi-annually on April 15 and October 15 of each year. The Convertible Senior Notes are unsecured, unsubordinated obligations that rank equally with all of our other unsecured and unsubordinated indebtedness. The initial conversion price is \$75.2257 per share. Conversion can occur: (i) anytime after July 15, 2011; (ii) during any calendar quarter that follows a calendar quarter in which the price of our common stock exceeded 120% of the initial conversion price for at least 20 days during the 30 consecutive trading day period ending on the last trading day of the quarter (the Conversion Determination); and (iii) during the ten consecutive trading-day period following any five consecutive trading-day period in which the trading price of the Convertible Senior Notes was less than 95% of the closing price of our common stock multiplied by the then current conversion rate; or (iv) upon specified distributions to our shareholders, corporate transactions, or in the event that our common stock ceases to be listed on the NASDAQ Global Select Market (NASDAQ) and is not listed for trading on another U.S. national or regional securities exchange.

Upon conversion, a Convertible Senior Note holder (Note Holder) will receive: (i) cash equal to the lesser of the principal amount of the note or the conversion value (equal to the number of shares underlying the Convertible Senior Notes multiplied by the then current conversion price per share); and (ii) to the extent the conversion value exceeds the principal amount of the note, shares of our common stock. In the event of a change in control, as defined in the indenture under which the Convertible Senior Notes have been issued, Note Holders may require us to purchase all or a portion of their Convertible Senior Notes for 100% of the principal plus accrued and unpaid interest, if any, plus shares of our common stock.

For the quarter ended December 31, 2007, our stock price exceeded the requirements of the Conversion Determination; therefore, our Convertible Senior Notes were eligible for conversion by Note Holders in the subsequent quarter. Consequently, our Convertible Senior Notes have been presented as a current liability on our consolidated balance sheet as of December 31, 2007. For the quarter ending December 31, 2008, our stock price did not meet Conversion Determination requirements; therefore, our Convertible Senior Notes were not eligible for conversion by Note Holders in the subsequent quarter. Accordingly, the Convertible Senior Notes have been presented as a non-current liability on our consolidated balance sheet as of December 31, 2008.

The Convertible Senior Notes fall within the scope of FSP APB 14-1 which will be effective for us beginning January 1, 2009. FSP APB 14-1 must be retrospectively applied and we expect the impact of adopting FSP APB 14-1 will be material as discussed in Note 3 to these consolidated financial statements.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

9. Debt (Continued)

Interest Expense

Details of interest expense have been presented below (in thousands):

	Year Ended December 31,	
	2008	2007
Interest expense	\$ 3,122	\$2,864
Capitalized interest(1)	(3,106)	(689)
Total	<u>\$ 16</u>	<u>\$2,175</u>

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- (1) Interest associated with the construction of our facilities in Maryland and North Carolina.

10. Commitments and Contingencies

Lease Obligation

We currently lease a laboratory facility in Silver Spring, Maryland (Phase I Laboratory), pursuant to a synthetic lease arrangement (Lease) entered into in June 2004 with Wachovia Development Corporation and its affiliates (Wachovia). Under the Lease, Wachovia funded \$32.0 million toward the construction of the Phase I Laboratory on land we own. Subsequent to the completion of construction in May 2006, Wachovia leased the Phase I Laboratory to us. Monthly rent is equal to the 30-day LIBOR plus 55 basis points (1.0% as of December 31, 2008) applied to the amount Wachovia funded toward construction. The base term of the Lease ends in May 2011 (Base Term). Upon the end of the Base Term, we will have the right to exercise one of the following options under the Lease: (1) renew the lease for an additional five-year term (subject to the approval of both parties); (2) purchase the Phase I Laboratory from Wachovia for approximately \$32.0 million; or (3) sell the Phase I Laboratory and repay Wachovia's construction costs with the proceeds from the sale. If sales proceeds are insufficient to repay Wachovia's construction costs, we must fund the shortfall up to the maximum residual value guarantee of approximately \$27.5 million. From the inception of the Lease through the quarter ended June 30, 2008, we accounted for the Lease as an off-balance sheet arrangement--i.e., an operating lease.

Since December 2007, we have been constructing a combination office and laboratory facility that will attach to the Phase I Laboratory (Phase II Facility) with funds generated from our operations. As of September 30, 2008, substantial structural progress had been made in the construction of the Phase II Facility. In addition, we received Wachovia's acknowledgement of our plan to make structural modifications to the Phase I Laboratory in order to connect it to the Phase II Facility. As a result, we could no longer consider the Phase I Laboratory a standalone structure, which was required to maintain off-balance sheet accounting for the Lease. Consequently, as of September 30, 2008, we were considered the owners of the Phase I Laboratory for accounting purposes. Because the Lease failed to meet criteria set forth in EITF Issue No. 97-10, *The Effect of Lessee Involvement in Asset Construction*, and FASB Statement No. 98, *Accounting for Leases*, we are accounting for the Lease as a financing obligation. Accordingly, as of September 30, 2008, we capitalized the estimated fair value of the Phase I Laboratory, totaling \$29.0 million, and recognized a corresponding lease obligation on our consolidated balance sheet. We are accreting the lease obligation to \$32.0 million, the purchase price of the Phase I

UNITED THERAPEUTICS CORPORATION**Notes to Consolidated Financial Statements (Continued)****10. Commitments and Contingencies (Continued)**

Laboratory, through the recognition of periodic interest charges using the effective interest method. The accretion period began on September 30, 2008 and will run through the end of the Base Term. Related interest charges for the year ended December 31, 2008 were \$261,000. In addition, we are depreciating the Phase I Laboratory over its estimated economic useful life. The change in accounting recognition of the Lease did not affect our cash flow requirements under the arrangement.

The Lease and other lease agreements to which we are a party require that we comply with certain covenants throughout the term of these leases. If we are unable to comply with these covenants and cannot reach a satisfactory resolution in the event of a noncompliance, these agreements could terminate. Termination could result in the loss of our liquid collateral, among other consequences. As of December 31, 2008, we pledged approximately \$40.7 million of our marketable securities as collateral for the Lease. Related amounts have been included in restricted marketable investments and cash on our consolidated balance sheet.

Operating Leases

We lease primarily facilities space and office equipment under operating lease arrangements that have terms expiring at various dates through 2014. Certain lease arrangements include renewal options and escalation clauses.

Minimum rent commitments under non-cancelable operating leases are as follows (in thousands):

<u>Years ending December 31,</u>	
2009	\$2,088
2010	1,814
2011	948
2012	764
2013	587
	<u>\$6,201</u>

Total rent expense was approximately \$2.5 million, \$3.3 million and \$2.7 million for the years ended December 31, 2008, 2007 and 2006, respectively.

Construction Commitment

In November 2008, we agreed to the terms of a construction management agreement with the Whiting-Turner Contracting Company (Whiting-Turner) relating to the construction of the Phase II Facility (GMP Contract). Under the terms of the GMP Contract, costs to complete the construction of the Phase II Facility generally cannot exceed \$61.3 million (the Guaranteed Maximum Price). Whiting-Turner will be responsible for any cost overruns above the Guaranteed Maximum Price and will share a portion of the savings in the event costs of constructing the Phase II Facility are less than the Guaranteed Maximum Price. The contractor is subject to penalties under the GMP Contract in the event that construction of the Phase II Facility is not completed by November 16, 2009, unless an agreed-upon change order alters the scope of work set forth under the GMP Contract. As of December 31, 2008, the remaining obligation under the GMP Contract was approximately \$44.1 million.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

10. Commitments and Contingencies (Continued)

Milestone and Royalty Payments

We are party to certain license agreements as described in Note 15 to these consolidated financial statements. Generally, these agreements include milestone payments in cash upon the achievement of certain product development and commercialization goals.

Future milestone payments under these arrangements have been estimated as follows (in thousands):

<u>Years ending December 31,</u>	<u>(1)</u>
2009	\$ 2,530
2010	7,480
2011	9,195
2012	5,195
2013 and thereafter	8,315
	<u>\$32,715</u>

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- (1) The amounts and timing of future milestone payments may vary depending on when related milestones will be attained, if at all.

Additionally, certain agreements described in Note 15 to these consolidated financial statements require us to pay royalties. Related royalties are generally based on a percentage of net sales of related products or other products and range from 1.0% to 12.0% of net product revenues.

Research agreement

We maintain a research agreement with the University of Oxford (Oxford) to develop antiviral compounds licensed from Synergy Pharmaceuticals and from Oxford. Under the terms of the agreement, we are required to fund related research and make milestone payments for the successful completion of clinical trials. We are also obligated to pay royalties to Oxford equal to a percentage of our net sales from discoveries and products developed by Oxford. Milestone payments and royalties are subject to reduction depending upon third-party contributions to discoveries and/or third-party licenses necessary to develop products. In October 2006, the term of the research agreement was extended through September 30, 2011. In connection with the agreement's extension, we are obligated to make 60 equal monthly payments totaling approximately \$3.7 million. As of December 31, 2008, approximately \$1.6 million in monthly payments remained outstanding. During the twelve months ended December 31, 2008, 2007 and 2006, we incurred approximately \$734,000, \$652,000 and \$562,000, respectively, in expenses under the terms of the agreement.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

11. Stockholders' Equity

Equity Incentive Plan

Our Board of Directors adopted an equity incentive plan in November 1997 (EIP). Subsequently, in April 1999, our Board and shareholders approved an amendment and restatement of the EIP to increase the number of shares available for issuance under the EIP. The EIP, as amended and restated, provides for the issuance of up to 14,939,517 shares of our common stock, of which 7,939,517 have been reserved for issuance to our CEO in accordance with her employment agreement. As of December 31, 2008, there were 6,149,663 shares available for issuance under the EIP. Pursuant to the EIP, we may only grant, beginning in November 2007, nonqualified stock options and other share-based awards to participants. Options granted under the EIP are nontransferable, contain a maximum contractual term of ten years, and typically have vested in one-third increments on each of the first three anniversaries of the grant date. The exercise price of related awards can be no less than the fair market value of our common stock on the date of grant. Historically, we have issued new shares of our common stock upon the exercise of options.

Stock Option Exchange

Pursuant to an Offer to Exchange (the Offer), on December 26, 2008 (Exchange Date), certain outstanding options with exercise prices above \$65.00 (Original Options) were cancelled and replaced with options having an exercise price of \$61.50 (Replacement Options), the closing price of our common stock on the Exchange Date. Original Options submitted for exchange were replaced on a one-for-one basis with Replacement Options. Additionally, the Replacement Options retain all terms and conditions of the Original Options except for the reduction to the exercise price as described above and the following:

- Original Options submitted for exchange that were vested and exercisable as of the Exchange Date, are subject to a one-year vesting term--i.e., related Replacement Options will be exercisable beginning on the one-year anniversary of the Exchange Date; and
- Replacement Options are nonqualified stock options regardless of whether Original Options submitted for exchange were incentive options.

Under SFAS 123R, the Offer is considered a modification of existing option award terms. As such, total compensation associated with the Replacement Options will consist of the grant date fair value of the Original Options for which the requisite service period is expected to be rendered (or has already been rendered) at the Exchange Date, plus the incremental cost associated with the modification of terms. The incremental compensation expense is measured as the excess of the fair value of the Replacement Options over the fair value of the Original Options re-measured as of the Exchange Date. A total of 1,572,616 Original Options with a weighted average exercise price of \$81.06 were exchanged for Replacement Options. Incremental compensation expense associated with the Offer was approximately \$9.1 million, of which \$9.0 million will be recognized over a weighted average period of 1.4 years.

Employee Options

We estimate the fair value of stock options using the Black-Scholes-Merton valuation model. Option valuation models, including Black-Scholes-Merton, require the input of highly subjective assumptions that can materially impact the estimation of fair value and related compensation expense.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

11. Stockholders' Equity (Continued)

These assumptions include the expected volatility of our common stock, risk-free interest rate, expected term of Awards, expected forfeiture rate and the expected dividend yield.

A description of the key inputs used in estimating the fair value of the stock options is provided below:

Expected volatility —Volatility is a measure of the amount the price of our common stock has fluctuated (historical volatility) or is expected to fluctuate (expected volatility) during a period. We use historical volatility based on weekly price observations of our common stock during the period immediately preceding a stock option grant that is equal to the expected term of the grant (up to a maximum of five years). We believe the volatility in the price of our common stock over the preceding five years provides the best representation of future long-term volatility.

Risk-free interest rate —The risk-free interest rate is the average interest rate consistent with the yield available on a U.S. Treasury note with a term equal to the expected term of a stock option grant.

Expected term —The expected term reflects an estimation of the time period we expect an option grant to remain outstanding. We adopted SAB No. 107, as amended by SAB No. 110 regarding the use of the simplified method in developing an estimate of the expected term.

Expected forfeiture rate —The expected forfeiture rate is the estimated percentage of options granted that are expected to be forfeited or cancelled on an annual basis prior to becoming fully vested. We derive our estimate based on historical forfeiture experience for similar classes of employees.

Expected dividend yield —We do not pay dividends on our common stock and do not expect to do so in the future. Therefore, the dividend yield is assumed to be zero.

The following weighted-average assumptions were used in estimating the fair value of stock options granted to employees:

	Year ended December 31,		
	2008	2007	2006
Expected volatility	47.6%	39.8%	42.6%
Risk-free interest rate	1.6%	4.1%	4.8%
Expected term of options (in years)	4.8	5.7	6.0
Forfeiture rate	3.0%	4.7%	8.2%
Expected dividend	0.0%	0.0%	0.0%

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

11. Stockholders' Equity (Continued)

A summary of the status and activity of employee stock options is presented below:

	Shares	Weighted-Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in 000s)
Outstanding at January 1, 2008	5,613,749	\$ 57.28		
Granted(1)	1,691,616	63.42		
Exercised	(992,365)	41.29		
Forfeited	(1,028)	62.88		
Canceled(1)	(1,725,281)	79.42		
Outstanding at end of period	4,586,691	\$ 54.75	7.0	\$251,624
Options exercisable at end of period	2,344,564	\$ 49.55	5.7	\$116,142
Expected to vest at December 31, 2008	2,147,763	\$ 60.18	8.3	\$129,252

(1) Includes the impact of the Offer described above.

The weighted average fair value of options granted during the year ended December 31, 2008, 2007 and 2006, was \$26.80, \$31.44 and \$27.27, respectively. The total fair value of shares vested during the years ended December 31, 2008, 2007 and 2006 was approximately \$68.8 million, \$42.2 million and \$20.5 million, respectively.

Total employee stock option expense recognized for the years ended December 31, 2008, 2007 and 2006, is as follows (in thousands):

	Year ended December 31,		
	2008	2007	2006
Cost of service sales	\$ 52	\$ 42	\$ 117
Research and development	10,344	10,969	6,679
Selling, general and administrative	15,158	36,353	14,156
Stock option expense before taxes	25,554	47,364	20,952
Related income tax benefits	(10,222)	(17,927)	(8,278)
Total stock option expense, net of taxes	\$ 15,332	\$ 29,437	\$12,674
Total stock option expense capitalized in inventory	\$ 520	\$ 213	\$ 505

As of December 31, 2008, there was approximately \$29.9 million of total unrecognized compensation cost related to unvested employee stock options which is expected to be recognized over a weighted-average period of 1.4 years.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

11. Stockholders' Equity (Continued)

Information regarding both employee and non-employee option exercises is summarized below (dollars in thousands):

	Year Ended December 31,		
	2008	2007	2006
Number of options exercised	1,022,972	1,797,036	787,149
Cash received from options exercised	\$ 41,936	\$ 58,344	\$ 14,445
Total intrinsic value of options exercised	\$ 58,657	\$ 91,119	\$ 31,367
Tax benefits realized from options exercised	\$ 21,090	\$ 29,604	\$ 10,761

Options Issued to Non-employees for Services

We issued options under the EIP to consultants for services performed during 2008, 2007 and 2006. We measure related option grants at fair value and recognize related expense over the period of performance which is typically the vesting term of the options, or one year. A summary of consultant stock option grants is summarized below:

	Number of Options	Weighted Average
	Granted	Grant Price
For the years ended December 31,		
2008	41,000	\$ 99.09
2007	41,000	\$ 53.22
2006	49,437	\$ 66.70

We incurred approximately \$2.4 million, \$1.4 million and \$2.6 million during the years ending December 31, 2008, 2007 and 2006, respectively, in consultant stock-option expense. Pursuant to the terms of the Offer, 24,167 options held by members of our Scientific Advisory Board were submitted for exchange with a weighted average exercise price of \$82.84.

Treasury Stock Transactions

On December 18, 2008, we issued 3,150,837 shares of our common stock from the treasury to Eli Lilly & Company (Lilly) in exchange for \$150.0 million. The issuance of treasury shares was made pursuant to a November 2008 stock purchase agreement between Lilly and us (see Note 15 to these consolidated financial statements). The total cost of the treasury stock issued in excess of the aggregate sales price of the transaction was approximately \$14.2 million and has been included in the accumulated deficit on our consolidated balance sheet at December 31, 2008.

In July 2006, we repurchased 766,666 shares of our common stock from Toray Industries, Inc. (Toray), for approximately \$42.2 million pursuant to a stock purchase agreement between us and Toray. The purchase price was the average of the closing price of our common stock for the 30 consecutive trading days ending on July 26, 2006.

The Board approved a stock repurchase program that authorized us to acquire up to 4.0 million shares of our outstanding common stock over a two year period beginning October 17, 2006. Approximately 3.1 million shares were acquired for an aggregate cost of \$182.6 million under the stock repurchase program, which concluded in October 2008. We did not repurchase any shares of our outstanding common stock during 2008.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

11. Stockholders' Equity (Continued)

(Loss) Earnings per Share

The components of basic and diluted (loss) earnings per share were as follows (in thousands, except per share amounts):

	Years ended December 31,		
	2008	2007	2006
Net (loss) income (numerator)	\$(42,789)	\$19,859	\$73,965
Shares (denominator):			
Basic weighted-average shares outstanding	22,901	21,224	23,010
Effect of dilutive securities:			
Convertible Senior Notes	—	—	—
Stock options(1)	—	1,227	1,128
Diluted weighted-average shares	<u>22,901</u>	<u>22,451</u>	<u>24,138</u>
 (Loss) earnings per share			
Basic	<u>\$ (1.87)</u>	<u>\$ 0.94</u>	<u>\$ 3.21</u>
Diluted	<u>\$ (1.87)</u>	<u>\$ 0.88</u>	<u>\$ 3.06</u>
Stock options and warrants excluded from calculation(2)	<u>8,120</u>	<u>4,776</u>	<u>1,588</u>

(1) Calculated using the treasury stock method

(2) Certain stock options and warrants were excluded from the computation of diluted earnings per share because their impact would be antidilutive.

Shareholder Rights Plan

On June 30, 2008, we entered into an Amended and Restated Rights Agreement with The Bank of New York, as Rights Agent (the Plan), which amends and restates our original Rights Agreement, dated December 17, 2000. The Plan, as amended and restated, extends the expiration date of the Preferred Share Purchase Rights (Rights) from December 29, 2010, to June 26, 2018, and increases the purchase price of each Right from \$129.50 to \$800.00. Each Right entitles holders to purchase one one-thousandth of a share of our Series A Junior Participating Preferred Stock. Rights are exercisable only upon our acquisition by another company, or commencement of a tender offer that would result in ownership of 15 percent or more of the outstanding shares of our voting stock by a person or group (as defined under the Plan) without our prior express written consent. We have not issued any shares of our Series A Preferred Stock.

Call Spread Option

Concurrent with the issuance of the Convertible Senior Notes (see Note 9 in these consolidated financial statements), we purchased call options on our common stock in a private transaction with Deutsche Bank AG London (the Call Option). The Call Option allows us to purchase up to approximately 3.3 million shares of our common stock at \$75.2257 per share from Deutsche Bank AG London, equal to the amount of our common stock related to the excess conversion value that we

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

11. Stockholders' Equity (Continued)

would deliver to Note Holders upon conversion. We must issue shares of our common stock upon conversion of the Convertible Senior Notes once our stock price exceeds \$75.2257 per share. The Call Option will terminate upon the earlier of the maturity date of the Convertible Senior Notes or the first day all of the related Convertible Senior Notes are no longer outstanding due to conversion or otherwise. We paid \$80.8 million for the Call Option which was recorded as a reduction to additional paid-in-capital.

In a separate transaction that took place concurrently with the issuance of the Convertible Senior Notes, we sold warrants to Deutsche Bank AG London under which Deutsche Bank AG London has the right to purchase approximately 3.3 million shares of our common stock at an exercise price of \$105.689 per share (the Warrant). Proceeds received from the issuance of the warrants totaled approximately \$45.4 million and were recorded as additional paid-in-capital.

The combination of the Call Option and Warrant effectively reduces the potential dilutive impact of the Convertible Senior Notes. The Call Option has a strike price equal to the initial conversion price of the Convertible Senior Notes and the Warrant has a higher strike price of \$105.689 per share that caps the amount of dilution protection provided. The Call Option and Warrant are settled on a net share basis. The Warrant may be settled in registered or, subject to certain potential adjustments in the delivery amount, unregistered shares. Furthermore, if additional shares are required to be delivered with respect to a settlement in unregistered shares or any anti-dilution adjustments with respect to the Convertible Senior Notes, the Warrant provides that in no event shall we be required to deliver in excess of approximately 6.6 million shares in connection with the Warrant. We have reserved approximately 6.6 million shares for the settlement of the Warrant and have sufficient shares available as of December 31, 2008, to effect such settlement.

Deutsche Bank AG London is responsible for providing 100% of the shares of our common stock upon an exercise of the Call Option triggered by a Note Holder's conversion. The shares of our common stock that Deutsche Bank AG London will deliver must be obtained from existing shareholders. If the market price per share of our common stock is above \$105.689 per share, we will be required to deliver to Deutsche Bank AG London shares of our common stock representing the value in excess of the Warrant strike price. In accordance with the provisions of EITF Issue No. 00-19, *Accounting for Derivative Financial Instruments Indexed to, and Potentially Settled in, a Company's Own Stock* (EITF 00-19) and SFAS 133, these instruments are both (1) indexed to our common stock and (2) classified as equity; therefore, the Call Option and Warrant qualify for the scope exception under SFAS 133 and are not accounted for as derivative instruments.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

12. Comprehensive Income (Loss)

Comprehensive (loss) income comprised the following (in thousands):

	Year ended December 31,		
	2008	2007	2006
Net (loss) income	\$(42,789)	\$19,859	\$73,965
Other comprehensive income:			
Foreign currency translation (loss) gain	(5,489)	285	336
Marketable investments—available-for-sale			
Unrealized holding losses, net of tax	(4,702)	(892)	(2,453)
Reclassification adjustment for other-than-temporary impairment realized in income, net of tax (Note 4)	4,511	—	—
Unrealized (loss) on available-for-sale securities, net	(191)	(892)	(2,453)
Unrecognized prior period service cost, net of tax	(414)	(587)	—
Unrecognized actuarial pension (loss) gain, net of tax	(136)	35	—
Comprehensive (loss) income	<u>\$(49,019)</u>	<u>\$18,700</u>	<u>\$71,848</u>

13. Income Taxes

Components of income tax benefit consist of the following (in thousands):

	Year Ended December 31,		
	2008	2007	2006
Current:			
Federal	\$ —	\$ 634	\$ —
State	1,311	103	868
Foreign	391	78	—
Total current	1,702	815	868
Deferred			
Federal	(68,075)	(39,025)	(43,133)
State	(5,311)	(83)	(3,449)
Foreign	(206)	—	—
Total deferred	(73,592)	(39,108)	(46,582)
Other non-current(1)			
Federal	40,406	32,526	10,326
State	1,975	2,491	1,331
Total other	42,381	35,017	11,657
Total income tax benefit	<u>\$(29,509)</u>	<u>\$ (3,276)</u>	<u>\$(34,057)</u>

(1) Relates primarily to share-based compensation.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

13. Income Taxes (Continued)

Presented below is a reconciliation of income taxes computed at the statutory federal tax rate to income tax benefit as reported (in thousands):

	Years Ended December 31,		
	2008	2007	2006
Federal tax provision computed at 35%	\$(24,683)	\$ 5,804	\$ 13,877
State tax provision, net of federal tax provision	(1,758)	473	1,908
Change in valuation allowance allocated to tax expense	—	795	(45,662)
General business credits	(7,101)	(12,849)	(4,358)
Incentive stock option expense	1,288	1,234	1,771
Change in tax rate	—	903	(1,402)
Nondeductible expenses	2,745	364	(191)
Total income tax (benefit) expense	<u>\$(29,509)</u>	<u>\$ (3,276)</u>	<u>\$(34,057)</u>

Components of the net deferred tax asset are as follows (in thousands):

	December 31,	
	2008	2007
Deferred tax assets:		
Net operating loss carryforwards	\$ —	\$ 2,296
General business credits	79,265	69,771
Impairment losses on investments	2,813	2,543
Realized losses on marketable investments	2,857	4,635
License fees capitalized for tax purposes	66,060	11,896
Nonqualified stock option	26,098	20,446
State net operating losses	5,777	—
Other	13,811	7,876
Total deferred tax assets	<u>196,681</u>	<u>119,463</u>
Deferred tax liabilities:		
Furniture and equipment principally due to differences in depreciation	(4,063)	(2,691)
Net deferred tax asset before valuation allowance	<u>192,618</u>	<u>116,772</u>
Valuation allowance	(11,822)	(7,548)
Net deferred tax assets	<u>\$180,796</u>	<u>\$109,224</u>

Deferred tax assets are reduced by a valuation allowance when, in the opinion of our management, it is more likely than not that some portion or all of the deferred tax assets will not be realized. In evaluating our ability to realize deferred tax assets, we consider all available positive and negative evidence. Accordingly, we consider past operating results, forecasts of earnings and taxable income, the reversal of temporary differences and any prudent and feasible tax planning strategies. Future increases in the valuation allowance would result in a corresponding charge to earnings in the period such a determination is made. Conversely, future reductions to the valuation allowance would result in either the recognition of a tax benefit or an increase to additional paid-in-capital in the period we conclude a reduction is warranted. The increase in the valuation allowance during the year ended December 31, 2008, related mainly to state net operating losses, that we do not consider realizable.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

13. Income Taxes (Continued)

At December 31, 2008, we had no net operating losses available for federal income tax purposes, and approximately \$8.9 million in state net operating loss carryforwards. In addition, as of December 31, 2008, we had business tax credit carryforwards of approximately \$79.3 million. These carryforwards expire on various dates through 2028. Certain business tax credit carryforwards that were generated at various dates prior to December 2007 may be subject to limitations on their use pursuant to Internal Revenue Code Section 382 (Section 382) as a result of ownership changes as defined by Section 382. However, we do not expect that these business tax credits will expire unused. We are currently reviewing our stock trading history for the year ended December 31, 2007 to ascertain whether any further ownership changes have occurred pursuant to Section 382.

As a result of specific realization requirements of SFAS 123R, certain deferred tax assets at December 31, 2008 and 2007, that relate to tax deductions for the excess of equity compensation over that which was recognized for financial reporting purposes have been excluded from net deferred tax assets as reported above. As a result of the utilization on the net operating losses related to equity compensation, additional paid-in capital increased by \$17.1 million.

We have been and may continue to be subject to federal alternative minimum tax and state income taxes, even though we have existing net operating loss and business credit carryforwards.

A reconciliation of the beginning and ending balances of the total amounts of unrecognized tax benefit for the years indicated is as follows (in thousands):

Unrecognized tax benefit at January 1, 2008	\$2,989
Gross increases—tax positions in current period	2,893
Gross decreases—tax positions in prior period	—
Gross increases—tax positions in the current period	—
Gross decreases—tax positions in current period	—
Settlements	—
Lapse of statute of limitations	—
Unrecognized tax benefit at December 31, 2008	<u>\$5,882</u>

Unrecognized tax benefit at January 1, 2007	\$ —
Gross increases—tax positions in prior period	2,989
Gross decreases—tax positions in prior period	—
Gross increases—tax positions in the current period	—
Gross increases—tax positions in the current period	—
Settlements	—
Lapse of statute of limitations	—
Unrecognized tax benefit at December 31, 2007	<u>\$2,989</u>

Included in unrecognized tax benefits at December 31, 2008 and 2007, is \$1.8 million of tax benefits that, if recognized, would impact the effective tax rate. For the years ended December 31, 2008 and 2007, we did not accrue for or recognize any interest and penalties related to uncertain tax positions.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

13. Income Taxes (Continued)

We are unaware of any positions for which it is reasonably possible that the total amounts of unrecognized tax benefits will significantly increase or decrease within the next 12 months.

We are subject to federal and state taxation in the United States and various foreign jurisdictions. Our tax years beginning with 2005 to 2007 are subject to examination by federal and state tax authorities. We believe that appropriate provisions for all outstanding items have been made for all jurisdictions and open years.

14. Employee Benefit Plans

Supplemental Executive Retirement Plan

In May 2006, the Compensation Committee approved the United Therapeutics Corporation Supplemental Executive Retirement Plan (SERP). The SERP is administered by the Compensation Committee of our Board of Directors and is open to members of a "select group of management or highly compensated employees" within the meaning of ERISA section 201(2). Participants who retire at age 60 are eligible to receive monthly payments based on an average of their total gross base salary over the last 36 months of active employment, subject to certain adjustments, as defined under the SERP. Related benefit payments will commence on the first day of the sixth month after retirement and will continue through the remainder of the participant's life. Alternatively, participants can elect to receive a lump sum distribution equal to the present value of the estimated monthly payments that would have been received upon retirement. Participants who terminate employment with us for any reason prior to age 60 will not be entitled to any benefits under the SERP.

In connection with the SERP, we established a rabbi trust in December 2007, the assets of which will be contributed by us to pay benefits under the SERP. Participants of the SERP will have no preferred claim on, nor any beneficial ownership interest in, any assets of the rabbi trust. The balance in the rabbi trust was approximately \$5.1 million and \$5.0 million as of December 31, 2008 and 2007, respectively. Investments held in the rabbi trust have been included in restricted marketable investments and cash on our consolidated balance sheets.

We account for the SERP in accordance with FASB Statement No. 158, *Employers' Accounting for Defined Benefit Pension and Other Postretirement Plans* (SFAS 158), and related standards. Accordingly, we recognize on our consolidated balance sheet a liability equal to the unfunded status of the SERP (equal to the projected benefit obligation as we do not fund the SERP) and measure our projected benefit obligation as of the end of our fiscal year. Expenses related to the SERP are reported in selling, general and administrative and research and development expenses in the accompanying consolidated statements of operations.

Effective for fiscal years ending after December 15, 2008, SFAS 158 requires financial statement issuers to measure pension plan assets and obligations as of their fiscal year-end. Application of the measurement provisions of SFAS 158 had no impact on the January 1, 2008 balances of retained earnings and the projected benefit obligation since we measure our projected benefit obligation for the twelve months ended December 31st of each year.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

14. Employee Benefit Plans (Continued)

The following table reconciles the beginning and ending balances of the projected benefit obligation (in thousands):

	<u>Year ended December 31,</u>	
	<u>2008</u>	<u>2007</u>
Projected benefit obligation at beginning of year	\$ 4,899	\$ 2,598
Service cost	2,664	2,449
Interest cost	386	149
Amendments	1,024	—
Actuarial loss (gain)	200	(297)
Projected benefit obligation at end of year	<u>\$ 9,173</u>	<u>\$ 4,899</u>
Fair value of plan assets at end of year	<u>—</u>	<u>—</u>
Unfunded at end of year(1)	<u>\$ 9,173</u>	<u>\$ 4,899</u>

(1) Included within other non-current liabilities on our consolidated balance sheets

The accumulated benefit obligation for the SERP, a measure that does not encompass future increases in participant salaries, was approximately \$5.4 million and \$3.0 million at December 31, 2008 and 2007.

Over the course of the next five years we do not expect to make benefit payments under the SERP as no participant will reach retirement age during the succeeding five-year period.

The following weighted-average assumptions were used to measure the SERP obligation:

<u>Years Ended December 31,</u>	<u>2008</u>	<u>2007</u>
Discount Rate	6.35%	6.15%
Salary Increases	<u>5.00%</u>	<u>5.00%</u>

The components of net periodic pension cost recognized on our consolidated statement of operations were composed of the following (in thousands):

<u>Years Ended December 31,</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>
Service cost	\$2,664	\$2,449	\$1,521
Interest cost	386	149	31
Prior period service cost amortization	145	59	20
Total	<u>\$3,195</u>	<u>\$2,657</u>	<u>\$1,572</u>

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

14. Employee Benefit Plans (Continued)

Amounts relating to the SERP that have been recognized in other comprehensive (loss)/income are as follows (thousands):

<u>Years Ended December 31,</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>
Net unrecognized actuarial loss (gain)	\$ 200	\$(296)	\$—
Net unrecognized prior service cost	879	(60)	—
Total	1,079	(356)	—
Tax	(529)	63	—
Total, net of tax	<u>\$ 550</u>	<u>\$(293)</u>	<u>\$—</u>

The table below presents amounts included in accumulated other comprehensive (loss)/income that have not yet been recognized as a component of net periodic pension cost on our consolidated statements of operations (thousands):

<u>December 31,</u>	<u>2008</u>	<u>2007</u>	<u>2006</u>
Net unrecognized actuarial loss (gain)	\$ 158	\$(42)	\$—
Net unrecognized prior service cost	1,591	712	—
Total	1,749	670	—
Tax	(647)	(118)	—
Total, net of tax	<u>\$1,102</u>	<u>\$ 552</u>	<u>\$—</u>

Of the amounts included in accumulated other comprehensive loss/income as of December 31, 2008 above, we expect to recognize \$146,000 in net periodic pension cost relating to net prior service cost during the year ended December 31, 2009. Net unrecognized actuarial gains/losses will not be recognized through amortization until they exceed 10% of the beginning projected benefit obligation balance as of a given year.

Employee Retirement Plan

We maintain a salary reduction 401(k) plan adopted in January 1999 (the 401(k) Plan) which is open to all eligible full-time employees. Under the 401(k) Plan, eligible employees can make pre-tax contributions up to statutory limits. We make discretionary matching contributions to the 401(k) Plan currently equal to 20% of a participant's salary deferral. Matching contributions vest over a three-year period. Expenses related to the Plan were \$407,000, \$375,000 and \$295,000 for the years ended December 31, 2008, 2007 and 2006, respectively.

15. License Agreements

Glaxo SmithKline PLC

In January 1997, GlaxoSmithKline PLC (Glaxo) assigned to us patents and patent applications for the use of the stable prostacyclin analogue UT-15 (now known as Remodulin) for the treatment of PAH and congestive heart failure. Under the agreement, Glaxo is entitled to receive royalties from us on sales exceeding a specified threshold for a period of ten years following the date of the first commercial sale of any product containing Remodulin. The terms of the agreement provide Glaxo

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

15. License Agreements (Continued)

rights to negotiate a license with us if we license any part of the marketing rights under the agreement to a third party. Additionally, if we grant any third-party license rights to Remodulin, Glaxo would be entitled to a percentage of all related fees that we would receive on such arrangements.

Pfizer Inc.

Pursuant to a December 1996 license agreement, Pfizer Inc. (Pfizer) exclusively licensed to us patents and a patent application for the composition and production of treprostinil. Under the license agreement, as amended in 2002, we pay royalties to Pfizer equal to 4% of annual net sales of Remodulin in excess of \$25.0 million. Related royalties are reduced by up to 50% in the event that we pay royalties to a third party in order to market or develop treprostinil. Pfizer is entitled to these royalties for a period of ten years from the date of the first commercial sale of any product containing treprostinil.

Eli Lilly and Company

In November 2008, we entered into the following agreements with Eli Lilly and Company (Lilly): a license agreement, a manufacturing and supply agreement and a stock purchase agreement. These agreements became effective in December 2008 and are described below.

License Agreement. Lilly granted us an exclusive right to develop, market, promote and commercialize tadalafil for the treatment of pulmonary hypertension in the United States and Puerto Rico. In connection with these license rights, we made a one-time, upfront payment to Lilly of \$25.0 million. Additionally, we agreed to pay Lilly royalties of 5% of our net sales of tadalafil as a pass through of Lilly's third-party royalty obligations for as long as Lilly is required to make such royalty payments. The term of the license agreement will continue generally until the later of (1) the expiration or lapse of the last to expire claim within a Lilly patent covering commercialization of tadalafil, or (2) expiration of any government conferred exclusivity rights to tadalafil. In addition, at Lilly's discretion the license agreement may be terminated in the event that a separate brand name for tadalafil is not approved by the FDA or we undergo a change in control. If this were to occur, Lilly would refund our \$25.0 million payment.

Manufacturing and Supply Agreement. Terms of the manufacturing and supply agreement provide that Lilly will manufacture tadalafil and distribute it via its wholesaler network in the same manner that it distributes its own pharmaceutical products. We agreed to purchase tadalafil from Lilly at a fixed cost, which is subject to adjustment by Lilly from time to time. Under the terms of the manufacturing and supply agreement we made a one-time, upfront payment to Lilly of \$125.0 million. This payment is nonrefundable unless the FDA rejects Lilly's application for registration of a separate Lilly brand name for tadalafil or we undergo a change in control. The manufacturing and supply agreement will continue in effect until expiration or termination of the license agreement.

Stock Purchase Agreement. On December 18, 2008, we issued 3,150,837 shares of our common stock from treasury to Lilly in exchange for \$150.0 million. The price per share was equal to 90% of the average closing price of our common stock quoted on the NASDAQ Global Select Market during the five trading day period commencing on (and including) November 17, 2008. Upon the completion of the sale of our common stock to Lilly, the license and manufacturing and distribution agreements discussed above became effective.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

15. License Agreements (Continued)

We expensed to research and development all one-time fees paid to Lilly totaling \$150.0 million during the fourth quarter of 2008, as tadalafil has not received regulatory approval; therefore, it has not yet demonstrated commercial feasibility.

Toray Industries, Inc.

In June 2000, we entered into an agreement with Toray for the exclusive right to develop and market beraprost, a chemically stable oral prostacyclin analogue, in a sustained release formulation (beraprost-SR) in the United States and Canada for the treatment of all cardiovascular indications. In March 2007, the June 2000 agreement was amended to expand our rights to commercialize modified release formulations of beraprost (beraprost-MR). In accordance with the terms of the amended agreement, we issued 200,000 shares of our common stock to Toray in March 2007. The terms of the amended agreement give Toray the right to request that we repurchase the shares we issued to them at the price of \$54.41 per share. The fair value of the stock issued, which amounted to approximately \$11.0 million, was expensed as research and development during the year ended December 31, 2007, as beraprost-MR had not yet received regulatory approval for marketing. In accordance with the provisions set forth under SFAS 133, EITF 00-19, and EITF Topic No. D-98, *Classification and Measurement of Redeemable Securities*, the value of the shares issued has been included within mezzanine equity as common stock subject to repurchase. If Toray requests that we repurchase these shares, we will reclassify the repurchase price of the shares as a liability until settlement occurs. The amended agreement also requires that we make certain milestone payments to Toray during the development period and upon receipt of United States or European Union regulatory approval. Milestone payments made prior to the receipt of regulatory approval will be expensed as incurred.

Supernus Pharmaceutical

In June 2006, we entered into an exclusive license agreement with Supernus Pharmaceuticals, Inc. (Supernus) for use of certain technologies developed by Supernus in our sustained release oral treprostiniil formulation. The agreement requires us to make milestone payments to Supernus in connection with the development of oral treprostiniil and its commercial launch. Additionally, we will pay a royalty to Supernus based on net worldwide sales of the initial product. Royalties will be paid for approximately twelve years commencing with the first product sale subject to adjustments. Additional milestone and royalty payments may be due for the development and commercialization of other products developed using the technology granted under this license.

Aradigm Corporation

In August 2007, we entered into an exclusive license, development and commercialization agreement with Aradigm Corporation (Aradigm) for the rights to manufacture, develop and commercialize the AERx Essence® pulmonary drug delivery system, for use as a next-generation metered-dose inhaler with our investigational inhaled treprostiniil product for patients with PAH and other conditions. The terms of the agreement include various payments to be made to Aradigm including those related to the completion of certain milestones and license fees over the course of the development period. In addition, we will fund the costs to develop, commercialize and manufacture inhaled treprostiniil for use with AERx Essence. During the years ended December 31, 2008 and 2007, payments to Aradigm under the agreement totaled approximately \$3.5 million and \$440,000, respectively.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

15. License Agreements (Continued)

Northern Therapeutics, Inc.

In October 2006, we entered into an exclusive license agreement with Northern to obtain the developmental and commercial rights to Northern's cell-based gene transfer technology for the treatment of PAH in the United States. Under the terms of the agreement, we would assume the development activities of this technology upon the successful completion of the current PHACeT Phase I trial being conducted by Northern in Canada. In addition, we will pay Northern certain milestone payments during the PHACeT trial, totaling approximately \$1.5 million, if the trial is successful. During the year ended December 31, 2008, we did not incur any expenses related to this agreement. We incurred expenses totaling \$150,000 and \$500,000 during the years ended December 31, 2007 and 2006, respectively. Upon successful commercial launch of a product using this technology, royalties would be due to Northern at various rates from 5% to 10% depending on the level of sales.

Other

We are party to various other license agreements relating to our key therapeutic platforms. These license agreements require us to make royalty payments based on a percentage of sales of related products (1.0% to 12.0%) and may require other payments upon the achievement of certain milestones.

16. Related Party Transaction

In May 2007, we entered into a technical services agreement with Kurzweil Technologies Inc. (KTI), a company controlled by Raymond Kurzweil, a non-independent, non-executive member of our Board of Directors. Pursuant to this agreement, we agreed to pay KTI consulting fees of up to \$12,000 monthly. We also agreed to reimburse KTI on a monthly basis for all necessary, reasonable and direct out of pocket expenses incurred in connection with his services. Under the agreement, we could pay KTI up to a 5% royalty on sales of certain products reasonably attributed to and dependent upon certain technology developed by KTI. We incurred approximately \$145,000 and \$84,000 in expenses during the years ended December 31, 2008 and 2007, respectively under this agreement. As of December 31, 2008 and 2007, no amounts were owed to KTI.

17. Distribution Agreement

In March 2007, we entered into an exclusive agreement with Mochida Pharmaceutical Co., Ltd. (Mochida) to distribute subcutaneous and intravenous Remodulin in Japan. Mochida is responsible, with our assistance, for obtaining Japanese marketing authorization for Remodulin, including conducting necessary studies. We will supply the drug used in these studies at no charge to Mochida. Commercial activities in Japan are not expected to begin until late 2011. Upon receipt of marketing authorization and pricing approval, Mochida will purchase Remodulin from us at an agreed-upon transfer price. To date, we have received \$8.0 million in related payments from Mochida pursuant to the distribution agreement. Future payments required to be made to us under the agreement include the following: \$2.0 million upon filing a New Drug Application (NDA) in Japan and \$2.0 million upon the receipt of marketing approval in Japan. We recognize revenue on fees received on this arrangement through the filing of the NDA ratably from the period related fees are payable through the expected date of regulatory approval.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

18. Acquisition of Assets

We maintain a Clinical and Commercial Supply Agreement, as amended (Supply Agreement), with NEBU-TEC International Med Products Eike Kern GmbH (NEBU-TEC). Under the Supply Agreement, NEBU-TEC produces for us the Optineb® nebulizer and related supplies used to administer inhaled treprostinil for our clinical and commercial purposes. The term of the Supply Agreement ends on the first anniversary of the receipt of either FDA or European Union approval of inhaled treprostinil, whichever occurs first. We also agreed to amend the supply agreement to provide for an advance order of Optineb devices and related supplies in support of our NDA filing, which is currently under FDA review. The Supply Agreement, as amended, also clarifies certain regulatory obligations of each party and provides NEBU-TEC with the first opportunity to sell the Optineb devices in Europe for so long as NEBU-TEC is able to meet market demand. NEBU-TEC is currently our sole producer of the Optineb device and we are NEBU-TEC's largest customer. The Agreement of Sale and Transfer discussed below provides that the Supply Agreement will continue to remain in full force and effect.

On December 15, 2008, we executed an Agreement of Sale and Transfer and related agreements (collectively the Agreement) with NEBU-TEC to acquire the Optineb business and all of the assets, properties and rights used in the Optineb business (Acquired Assets). We entered into the Agreement to reduce our dependency on NEBU-TEC and obtain control over the production of the Optineb nebulizer.

The purchase price consists of the following:

- €2.5 million at December 15, 2008;
- €2.5 million within 15 days following the date inhaled treprostinil is approved by the FDA for use with the Optineb nebulizer; and
- Future consideration of up to €10.0 million depending on the occurrence of specific events.

Pursuant to the Agreement, the Acquired Assets will not transfer to us until inhaled treprostinil has received FDA approval for use with the Optineb nebulizer. Accordingly, the acquisition date for accounting purposes will fall within the effective date of SFAS 141R. Furthermore, we believe the Acquired Assets constitute a business as defined under SFAS 141R, and as such, the transaction will be accounted for as a business combination. We are in the process of determining the fair value of the assets acquired and do not expect the impact of the acquisition to be significant to our consolidated financial statements.

In connection with the Agreement of Sale and Transfer, we will lease a portion of NEBU-TEC's facilities for use as office and warehouse space and production facilities. NEBU-TEC is obligated to build out the leased premises for us. The lease term begins January 1, 2009, and ends January 1, 2014. Rent will not be due until NEBU-TEC completes the build out and is subject to future contingent reductions.

19. Segment Information

We have two reportable business segments: pharmaceutical and telemedicine. The pharmaceutical segment includes all activities associated with the research, development, manufacturing and commercialization of our therapeutic products. The telemedicine segment includes all activities associated with the development and manufacturing of patient cardiac monitoring products and

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

19. Segment Information (Continued)

services. The telemedicine segment is managed separately because diagnostic services require different technology and marketing strategies than therapeutic products.

Segment information as of and for the year ended December 31, 2008, is presented below (in thousands):

			Consolidated
	Pharmaceutical	Telemedicine	Totals
Revenues from external customers	\$ 272,012	\$ 9,485	\$ 281,497
Net income (losses)	(43,459)	670	(42,789)
Interest income	11,025	—	11,025
Interest expense	(16)	—	(16)
Income tax benefit	29,509	—	29,509
Depreciation and amortization	(4,026)	(510)	(4,536)
Equity loss in affiliate	(226)	—	(226)
Investments in equity method investees	1,021	—	1,021
Expenditures for long-lived assets	(122,992)	(1,423)	(124,415)
Goodwill, net	1,287	6,178	7,465
Total assets	853,735	17,584	871,319

Segment information as of and for the year ended December 31, 2007, is presented below (in thousands):

			Consolidated
	Pharmaceutical	Telemedicine	Totals
Revenues from external customers	\$ 203,218	\$ 7,725	\$ 210,943
Net income (losses)	19,816	43	19,859
Interest income	13,595	7	13,602
Interest expense	(2,165)	(10)	(2,175)
Depreciation and amortization	(3,037)	(390)	(3,427)
Equity loss in affiliate	(321)	—	(321)
Investments in equity method investees	1,247	—	1,247
Expenditures for long-lived assets	(37,601)	(1,057)	(38,658)
Goodwill, net	1,287	6,178	7,465
Total assets	555,036	31,982	587,018

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

19. Segment Information (Continued)

Segment information as of and for the year ended December 31, 2006, is presented below (in thousands):

			Consolidated
	Pharmaceutical	Telemedicine	Totals
Revenues from external customers	\$ 153,035	\$ 6,597	\$ 159,632
Net income (losses)	74,438	(473)	73,965
Interest income	10,679	21	10,700
Interest expense	(482)	—	(482)
Income tax benefit	34,057	—	34,057
Depreciation and amortization	(2,273)	(440)	(2,713)
Equity loss in affiliate	(491)	—	(491)
Investments in equity method investees	1,568	—	1,568
Expenditures for long-lived assets	(15,170)	(464)	(15,634)
Goodwill, net	1,287	6,178	7,465
Total assets	466,493	12,057	478,550

The preceding segment disclosures agree to consolidated totals when combined. There were no inter-segment transactions during any of the years presented.

Geographic revenues are determined based on the country in which our customers (distributors) are located. Net revenues to external customers by geographic area are as follows (thousands):

Year Ended December 31,	2008	2007	2006
United States	\$249,209	\$183,523	\$143,368
Rest-of-World(1)	32,288	27,420	16,264
Total	<u>\$281,497</u>	<u>\$210,943</u>	<u>\$159,632</u>

(1) Sales primarily to countries located in Europe

For the years ended December 31, 2008, 2007 and 2006, sales to one customer within our pharmaceutical segment comprised 66%, 60% and 59%, respectively, of total consolidated net revenues.

Long-lived assets (principally property, plant and equipment) located by geographic area are as follows (thousands):

Year Ended December 31,	2008	2007	2006
United States	\$207,927	\$68,879	\$34,191
Rest-of-World(1)	13,139	475	490
Total	<u>\$221,066</u>	<u>\$69,354</u>	<u>\$34,681</u>

(1) Long-lived assets as of December 31, 2008, consisted of facilities acquired during 2008 and are primarily located in the United Kingdom.

UNITED THERAPEUTICS CORPORATION

Notes to Consolidated Financial Statements (Continued)

20. Quarterly Financial Information (Unaudited)

The following presents summarized quarterly financial information for each of the years ended December 31, 2008 and 2007 (in thousands, except per share amounts):

	Quarter Ended			
	December 31,	September 30,	June 30,	March 31,
	2008	2008	2008	2008
Net sales	\$ 75,862	\$ 75,032	\$68,556	\$62,047
Gross profit	67,414	66,732	60,558	54,494
Net (loss) income(1)	(81,146)	12,623	14,331	11,403
(Loss) income per share—basic	\$ (3.42)	\$ 0.55	\$ 0.63	\$ 0.51
(Loss) income per share—diluted	\$ (3.42)	\$ 0.50	\$ 0.59	\$ 0.47

- (1) During the three months ended December 31, 2008, research and development expenses included a charge of \$150.0 million relating to a one-time upfront fee paid to Lilly in connection with the acquisition of certain license rights to tadalafil (Note 15).

	Quarter Ended			
	December 31,	September 30,	June 30,	March 31,
	2007	2007	2007	2007
Net sales	\$ 59,898	\$ 59,045	\$51,831	\$40,169
Gross profit	52,714	52,213	45,822	35,773
Net income (loss)(2)	1,986	14,848	5,806	(2,781)
Income (loss) per share—basic	\$ 0.09	\$ 0.70	\$ 0.28	\$ (0.13)
Income (loss) per share—diluted	\$ 0.08	\$ 0.66	\$ 0.26	\$ (0.13)

- (2) During the three months ended December 31, 2007, we recognized approximately \$20.3 million in share-based compensation expense related to the year-end stock option grant to our Chief Executive Officer in accordance with her employment agreement.

United Therapeutics Corporation
Schedule II—Valuation and Qualifying Accounts
Years Ended December 31, 2008, 2007, and 2006
(In thousands)

	Valuation Allowance on Deferred Tax Assets			
	Balance at Beginning of Year	Additions Charged to Expense	Deductions	Balance at End of Year
Year ended December 31, 2008	\$ 7,548	\$ 6,414	\$ (2,140)	\$ 11,882
Year ended December 31, 2007	\$ 6,754	\$ 794	\$ —	\$ 7,548
Year ended December 31, 2006	\$ 46,926	\$ —	\$ (40,172)	\$ 6,754

	Reserve for Inventory Obsolescence			
	Balance at Beginning of Year	Additions Charged to Expense	Deductions	Balance at End of Year
Year ended December 31, 2008	\$ 508	\$ 183	\$ (280)	\$ 411
Year ended December 31, 2007	\$ 440	\$ 570	\$ (502)	\$ 508
Year ended December 31, 2006	\$ 570	\$ 472	\$ (602)	\$ 440

	Allowance for Doubtful Accounts Receivable			
	Balance at Beginning of Year	Additions Charged to Expense	Deductions	Balance at End of Year
Year ended December 31, 2008	\$ —	\$ —	\$ —	\$ —
Year ended December 31, 2007	\$ 1	\$ —	\$ (1)	\$ —
Year ended December 31, 2006	\$ 15	\$ 1	\$ (15)	\$ 1

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

Evaluation of Disclosure Controls and Procedures

Our management, with participation of our Chief Executive Officer and Chief Financial Officer, has evaluated the effectiveness of our disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) of the Securities Exchange Act of 1934, as of December 31, 2008. Based on that evaluation, our Chief Executive Officer and Chief Financial Officer concluded that our disclosure controls and procedures were effective as of December 31, 2008.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Securities Exchange Act of 1934, as amended). Our internal control over financial reporting was designed to provide reasonable assurance to our management and board of directors regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. All internal controls over financial reporting, no matter how well designed, have inherent limitations. As a result of these inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Therefore, even those internal controls determined to be effective can provide only reasonable assurance with respect to reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles.

Our management assessed the effectiveness of our internal control over financial reporting as of December 31, 2008, based on the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in *Internal Control—Integrated Framework*. Management's assessment included an evaluation of the design of our internal control over financial reporting and testing of the operational effectiveness of our internal control over financial reporting. Based on this assessment, our management concluded that, as of December 31, 2008, our internal control over financial reporting was effective.

Ernst & Young LLP, an independent registered public accounting firm, has issued an attestation report on our internal control over financial reporting. The report of Ernst & Young LLP is contained in Item 8 of this Annual Report on Form 10-K.

Attestation of Independent Registered Public Accounting Firm

The attestation report of our independent registered public accounting firm regarding internal control over financial reporting is set forth in Item 8 of this Annual Report on Form 10-K under the caption "Report of Independent Registered Public Accounting Firm" and incorporated herein by reference.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting during the quarter ended December 31, 2008 that have materially affected, or are reasonably likely to materially affect, our internal controls over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information required by Item 10 regarding nominees and directors appearing under *Election of Directors* in our definitive proxy statement for our 2009 annual meeting of shareholders scheduled for June 26, 2009 (the 2009 Proxy Statement) is hereby incorporated herein by this reference. Information regarding our executive officers appears in Part I, Item I of this Annual Report on Form 10-K under the heading *Executive Officers of the Registrant*. Information regarding the Audit Committee and the Audit Committee's financial expert appearing under the heading *Board Meetings and Committees—Audit Committee* in our 2009 Proxy Statement is hereby incorporated herein by this reference.

Information appearing under the heading *Section 16(a) Beneficial Ownership Reporting Compliance* in our 2009 Proxy Statement is hereby incorporated herein by this reference.

We have a written Code of Conduct and Ethics that applies to our principal executive officer, principal financial officer and our principal accounting officer and every other director, officer and employee of United Therapeutics. The Code of Conduct and Ethics is available on our Internet website at <http://www.unither.com>. A copy of the Code of Conduct and Ethics will be provided free of charge by making a written request and mailing it to our corporate headquarters offices to the attention of Senior Vice President, Investor Relations. If any amendment to, or a waiver from, a provision of the Code of Conduct and Ethics that applies to the principal executive officer, principal financial officer and principal accounting officer is made, such information will be posted on our Internet website at www.unither.com.

ITEM 11. EXECUTIVE COMPENSATION

Information concerning executive compensation required by Item 11 appears under the heading *Compensation Disclosure and Analysis* in our 2009 Proxy Statement and is hereby incorporated herein by this reference.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

The information regarding beneficial ownership of our common stock required by Item 12 appears under *Security Ownership of Certain Beneficial Owners and Management* in our 2009 Proxy Statement and is hereby incorporated herein by this reference.

Securities Authorized for Issuance Under Equity Compensation Plans

The following table presents information as of December 31, 2008, regarding our securities authorized for issuance under equity compensation plans:

<u>Plan category</u>	Number of securities to be	Weighted average exercise price of outstanding options	Number of securities remaining
	issued upon exercise of outstanding options		available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plan approved by security holders	4,378,058	\$ 62.50	6,149,663
Equity compensation plans not approved by security holders	247,170	21.96	N/A
Total	4,625,228	\$ 60.39	6,149,663

We have one equity incentive plan approved by security holders in 1997. In addition, prior to 2005, we granted options to employees and consultants outside of the plan approved by security holders (non-plan options). Information regarding the security holder approved plan and the non-plan options is contained in Note 11 to the consolidated financial statements included elsewhere in this Annual Report on Form 10-K. We do not have any warrants or rights that are outstanding or available for issuance as described in Regulation S-K Item 201(d). Securities issued pursuant to the non-plan awards were made under standard agreements generally consistent with the form contained in Exhibits 10.22 and 10.38.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE

Information concerning related party transactions and director independence required by Item 13 appears under the heading *Certain Relationships and Related Transactions Director Independence and Board Committees* in our 2009 Proxy Statement and is hereby incorporated herein by this reference.

ITEM 14. PRINCIPAL ACCOUNTING FEES AND SERVICES

Information required by this item, concerning the principal accounting fees paid by the Registrant and the Audit Committee's pre-approval policies and procedures, is incorporated by reference to the information under the heading *Independent Auditors* in our 2009 Proxy Statement and is hereby incorporated herein by this reference.

PART IV

ITEM 15. EXHIBITS, FINANCIAL STATEMENT SCHEDULES

In reviewing the agreements included or incorporated by reference as exhibits to this Annual Report on Form 10-K, it is important to note that they are included to provide investors with information regarding their terms, and are not intended to provide any other factual or disclosure information about United Therapeutics or the other parties to the agreements. The agreements contain representations and warranties made by each of the parties to the applicable agreement. These representations and warranties have been made solely for the benefit of the other parties to the applicable agreement, and: should not be treated as categorical statements of fact, but rather as a way of allocating risk between the parties; have in some cases been qualified by disclosures that were made to the other party in connection with the negotiation of the applicable agreement, which disclosures are not necessarily reflected in the agreement; may apply standards of materiality in a way that is different from what may be material to investors; and were made only as of the date of the applicable agreement or such other date or dates as may be specified in the agreement and are subject to more recent developments.

Accordingly, these representations and warranties may not describe the actual state of affairs as of the date they were made or at any other time. Additional information about United Therapeutics may be found elsewhere in this Annual Report on Form 10-K and our other public filings, which are available without charge through the SEC's website at <http://www.sec.gov>.

- (a)(1) Our financial statements filed as part of this report on Form 10-K are set forth in the Index to Consolidated Financial Statements under Part II, Item 8 of this Form 10-K.
- (a)(2) The Schedule II—Valuation and Qualifying Accounts is filed as part of this Form 10-K. All other schedules are omitted because they are not applicable or not required, or because the required information is included in the consolidated statements or notes thereto.
- (a)(3) Exhibits filed as a part of this Form 10-K:

Certain exhibits to this report have been included only with the copies of this report filed with the Securities and Exchange Commission. Copies of individual exhibits will be furnished to stockholders upon written request to United Therapeutics and payment of a reasonable fee (covering the expense of furnishing copies). Stockholders may request exhibit copies by contacting: United Therapeutics Corporation, Attn: Investor Relations, 1110 Spring Street, Silver Spring, Maryland 20910.

<u>Exhibit No.</u>	<u>Description</u>
3.1	Amended and Restated Certificate of Incorporation of the Registrant, incorporated by reference to Exhibit 3.1 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
3.2	Second Amended and Restated By-laws of the Registrant, incorporated by reference to Exhibit 3.2 of the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2008.
3.3	Form of Certificate of Designations, Preferences and Rights of Series A Junior Participating Preferred Stock, incorporated by reference to Exhibit A to Exhibit 4 to the Registrant's Current Report on Form 8-K, filed December 18, 2000.
4.1	Reference is made to Exhibits 3.1 and 3.2.
4.2	Form of Purchase Agreement dated as of December 22, 1999, incorporated by reference to Exhibit 4.7 of the Registrant's Registration Statement on form S-1 (Registration No. 333-93853).

Exhibit No.	Description
4.3	Registration Rights Agreement, dated as of June 27, 2000 by and between the Registrant and Toray Industries, Inc., incorporated by reference to Exhibit 4.7 of the Registrant's Registration Statement on Form S-3 (Registration No. 333-40598).
4.4	Form of Stock Purchase Agreement dated July 13, 2000 incorporated by reference to Exhibit 99.2 of the Registrant's Current Report on Form 8-K filed July 14, 2000.
4.5	First Amended and Restated Rights Agreement, incorporated by reference to Exhibit 4.1 to the Registrant's Current Report on Form 8-K filed on July 3, 2008.
4.6	Indenture, dated October 30, 2006, between Registrant and The Bank of New York, as trustee (including form of 0.50% Convertible Senior Note due October 15, 2011), incorporated by reference to Exhibit 4.1 of Registrant's Current Report on Form 8-K filed October 30, 2006.
4.7	Resale Registration Rights Agreement, dated October 30, 2006, between Registrant and Deutsche Bank Securities Inc., as the initial purchaser, incorporated by reference to Exhibit 4.2 of Registrant's Current Report on Form 8-K filed October 30, 2006.
10.1**	Amended and Restated Equity Incentive Plan, incorporated by reference to Exhibit 10.1 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
10.2**	Executive Employment Agreement (as amended) dated as of April 2, 1999, between the Registrant and Martine A. Rothblatt, incorporated by reference to Exhibit 10.3 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
10.3**	Amendment dated December 21, 2000 to the Employment Agreement between the Registrant and Martine A. Rothblatt, incorporated by reference to Exhibit 10.5 of the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2002.
10.4**	Employment Agreement dated June 16, 2001 between the Registrant and Paul A. Mahon, incorporated by reference to Exhibit 10.4 of the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2002.
10.5*	Exclusive License Agreement dated as of December 3, 1996, between the Registrant and an affiliate of Pharmacia & Upjohn Company, incorporated by reference to Exhibit 10.8 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
10.6*	Assignment Agreement dated as of January 31, 1997, between the Registrant and affiliates of Glaxo Wellcome Inc., incorporated by reference to Exhibit 10.9 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
10.7*	Exclusive License Agreement dated as of September 24, 1998, between the Registrant and Toray Industries, Inc., incorporated by reference to Exhibit 10.11 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
10.8*	Exclusive License Agreement dated as of March 15, 1999, between the Registrant and Toray Industries, Inc., incorporated by reference to Exhibit 10.14 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
10.9**	Employment Agreement dated November 29, 2000 between the Registrant and Roger Jeffs, incorporated by reference to Exhibit 10.9 of the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2002.
10.10	Form of Indemnification Agreement between the Registrant and each of its Directors, incorporated by reference to Exhibit 10.18 of the Registrant's Registration Statement on Form S-1 (Registration No. 333-76409).
10.11	Exclusive License Agreement dated as of June 23, 2000 between the Registrant and Toray Industries, Inc., incorporated by reference to Exhibit 10.1 of the Registrant's Registration Statement on Form S-3 (Registration No. 333-40598).
10.12	Asset Purchase Agreement dated as of December 15, 2000 among the Registrant, UP Subsidiary Corporation, and Cooke Pharma, Inc., incorporated by reference to Exhibit 2.1 of the Registrant's Form 8-K/A dated February 1, 2001.

Exhibit No.	Description
10.13	Amendment No. 1 to Exclusive License Agreement, effective as of December 3, 1996, made as of October 1, 2002 by and between Pharmacia & Upjohn Company and the Registrant, incorporated by reference to Exhibit 10.25 to Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2002.
10.14	Technical Services Agreement dated August 27, 2002 between the Registrant and Kurzweil Technologies, Inc., which appears as Exhibit 10.26 to Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2002, which exhibit is incorporated herein by reference.
10.15***	Exclusive License Agreement dated April 17, 2002 between AltaRex Corp. and Unither Pharmaceuticals, a subsidiary of the Registrant, incorporated by reference to Exhibit 10.12 of the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2002.
10.16**	Standard Non-plan Option Award Agreement used by Registrant, incorporated by reference to Exhibit 10.39 of the Registrant's Form 10-K for the year ended December 31, 2002.
10.17**	Amendment to Employment Agreement dated December 11, 2002 between the Registrant and Roger Jeffs, incorporated by reference to Exhibit 10.31 of the Registrant's Form 10-K for the year ended December 31, 2002.
10.18**	Amendment to Employment Agreement dated December 11, 2002 between the Registrant and Paul Mahon, incorporated by reference to Exhibit 10.33 to the Registrant's Form 10-K for the year ended December 31, 2002.
10.19	Real Estate Purchase Agreement dated October 31, 2003 by and between Unither Pharmaceuticals, Inc. and Montgomery County, incorporated by reference to Exhibit 10.34 to the Registrant's Form 10-K for the year ended December 31, 2003.
10.20**	United Therapeutics Corporation Amended and Restated Equity Incentive Plan, as amended effective as of September 24, 2004 incorporated by reference to Exhibit 10.1 to the Registrant's Form 10-Q for the quarter ended September 30, 2004.
10.21	Lease Agreement dated as of June 28, 2004, by and among United Therapeutics Corporation and Wachovia Development Corporation, incorporated by reference to Exhibit 99.1 of the Registrant's Form 8-K filed on July 6, 2004.
10.22	Assignment of Liquid Collateral Account dated June 28, 2004, by and among United Therapeutics Corporation and Wachovia Development Corporation, incorporated by reference to Exhibit 99.2 of the Registrant's Form 8-K filed on July 6, 2004.
10.23	Ground Lease dated June 28, 2004, by and among United Therapeutics Corporation and Wachovia Development Corporation, incorporated by reference to Exhibit 99.3 of the Registrant's Form 8-K filed on July 6, 2004.
10.24	Participation Agreement dated June 28, 2004, by and among United Therapeutics Corporation, Wachovia Development Corporation, Various Other Banks and Financial Institutions and Wachovia Bank, NA, incorporated by reference to Exhibit 99.4 of the Registrant's Form 8-K filed on July 6, 2004.
10.25	Agency Agreement dated June 28, 2004, by and among United Therapeutics Corporation and Wachovia Development Corporation, incorporated by reference to Exhibit 99.5 of the Registrant's Form 8-K filed on July 6, 2004.
10.26**	Amendment to Executive Employment Agreement between Martine A. Rothblatt and United Therapeutics Corporation, dated April 2, 1999, as previously amended, incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed on December 29, 2004.
10.27**	Amendment to Employment Agreement between Roger Jeffs, Ph.D. and United Therapeutics Corporation dated November 29, 2000, as previously amended, incorporated by reference to Exhibit 10.2 of the Registrant's Form 8-K filed on December 29, 2004.

Exhibit No.	Description
10.28**	Amendment to Employment Agreement between Paul A. Mahon and United Therapeutics Corporation dated June 16, 2001, as previously amended, incorporated by reference to Exhibit 10.4 of the Registrant's Form 8-K filed on December 29, 2004.
10.29**	Form of Employee Stock Option Award Agreement, incorporated by reference to Exhibit 10.1 of the Registrant's Form 8-K filed on December 17, 2004.
10.30**	Form of Non-Employee Stock Option Award Agreement, incorporated by reference to Exhibit 10.2 of the Registrant's Form 8-K filed on December 17, 2004.
10.31	Turner Construction Contract, incorporated by reference to Exhibits 99.1 and 99.2 of Registrant's Current Report on Form 8-K filed March 17, 2005.
10.32**	United Therapeutics Corporation Supplemental Executive Retirement Plan, incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed May 4, 2006.
10.33	Stock Purchase Agreement, dated as of July 27, 2006, between Registrant and Toray Industries, Inc., incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed July 27, 2006.
10.34**	Employment Agreement, dated August 2, 2006, between John Ferrari and Registrant, incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed August 4, 2006.
10.35**	Amendment, dated July 31, 2006, to amended Employment Agreement, dated November 29, 2000, between Roger Jeffs, Ph.D. and Registrant, incorporated by reference to Exhibit 10.2 of Registrant's Current Report on Form 8-K filed August 4, 2006.
10.36**	Amendment, dated July 31, 2006, to amended Employment Agreement, dated June 16, 2001, between Paul A. Mahon and Registrant, incorporated by reference to Exhibit 10.3 of Registrant's Current Report on Form 8-K filed August 4, 2006.
10.37	First Amendment to Certain Operative Agreements, dated May 16, 2006, between Wachovia Development Corporation and Registrant, incorporated by reference to Exhibit 10.1 of Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2006.
10.38	Confirmation, dated October 24, 2006, between Deutsche Bank AG London and Registrant, incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed October 30, 2006.
10.39	Confirmation, dated October 24, 2006, between Deutsche Bank AG London and Registrant, incorporated by reference to Exhibit 10.2 of Registrant's Current Report on Form 8-K filed October 30, 2006.
10.40**	Amendment, dated December 28, 2006, to Employment Agreement, dated August 2, 2006, between John Ferrari and Registrant, incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed on December 29, 2006.
10.41	United Therapeutics Corporation Supplemental Executive Retirement Plan Rabbi Trust Document entered into December 28, 2007, by and between the Registrant and Wilmington Trust Company, as trustee, incorporated by reference to Exhibit 10.1 of Registrant's Current Report on Form 8-K filed on December 28, 2007.
10.42	Standard form of agreement between the Registrant and DPR Construction, Inc., dated March 9, 2007, as amended by Amendment No. 1, dated April 19, 2007, incorporated by reference to Exhibit 10.1 of Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended March 31, 2007.
10.43****	Distribution Agreement dated March 20, 2000, between Registrant and Accredo Therapeutics, Inc., as amended and incorporated by reference to Exhibit 10.45 of Registrants Annual Report Form 10-K for the fiscal year ended December 31, 2007.
10.44****	Agreement between the Registrant and the Whiting-Turner Contracting Company, dated November 5, 2007, as amended by Amendment No. 1, dated November 21, 2008.

Exhibit No.	Description
10.45**	Form of United Therapeutics Corporation Share Tracking Awards Plan, incorporated by reference to Exhibit 10.1 to the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2008.
10.46**	Terms and conditions for Non-Employees issued by Registrant under the Share Tracking Awards Plan, incorporated by reference to Exhibit 10.2 to the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2008.
10.47**	Form of terms and conditions for Employees used by Registrant under the Share Tracking Awards Plan, incorporated by reference to Exhibit 10.3 to the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2008.
10.48**	Form of Grant Letter used by Registrant under the Share Tracking Awards Plan, incorporated by reference to Exhibit 10.4 to the Registrant's Quarterly Report on Form 10-Q for the fiscal quarter ended June 30, 2008.
10.49	Stock Purchase Agreement, dated as of November 14, 2008, between United Therapeutics Corporation and Eli Lilly and Company, incorporated by reference to Exhibit 10.1 to the Registrant's Current Report on Form 8-K filed on December 24, 2008.
10.50****	License Agreement, dated as of November 14, 2008, by and between Eli Lilly and Company and United Therapeutics Corporation, incorporated by reference to Exhibit 10.2 to the Registrant's Current Report on Form 8-K filed on December 24, 2008.
10.51****	Manufacturing and Supply Agreement, dated as of November 14, 2008, by and between Eli Lilly and Company, Lilly del Caribe, Inc. and United Therapeutics Corporation, incorporated by reference to Exhibit 10.3 to the Registrant's Current Report on Form 8-K filed on December 24, 2008.
12.1	Computation of Earnings to Fixed Charges.
21	Subsidiaries of the Registrant.
23.1	Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm
31.1	Certification of Chief Executive Officer pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934.
31.2	Certification of Chief Financial Officer pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934.
32.1	Certification of Chief Executive Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of Chief Financial Officer pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.

* Confidential treatment has been granted with respect to certain portions of this exhibit pursuant to Rule 406 of the Securities Act of 1933, as amended.

** Designates management contracts and compensation plans.

*** Confidential treatment has been granted with respect to certain portions of this exhibit pursuant to Rule 24b-2 of the Securities Act of 1934.

**** Confidential treatment has been requested for portions of this document. The omitted portions of this document have been filed with the Securities and Exchange Commission.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereto duly authorized.

UNITED THERAPEUTICS CORPORATION

February 26, 2009

By: /s/ MARTINE A. ROTHBLATT

Martine A. Rothblatt, Ph.D.
Chairman of the Board and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<u>Signatures</u>	<u>Title</u>	<u>Date</u>
<u>/s/ MARTINE A. ROTHBLATT</u> Martine A. Rothblatt	Chairman of the Board and Chief Executive Officer (Principal Executive Officer)	February 26, 2008
<u>/s/ JOHN M. FERRARI</u> John M. Ferrari	Chief Financial Officer and Treasurer (Principal Financial Officer and Principal Accounting Officer)	February 26, 2008
<u>/s/ ROGER A. JEFFS</u> Roger A. Jeffs	President, Chief Operating Officer and Director	February 26, 2008
<u>/s/ CHRISTOPHER CAUSEY</u> Christopher Causey	Director	February 26, 2008
<u>/s/ RAYMOND DWEK</u> Raymond Dwek	Director	February 26, 2008
<u>/s/ R. PAUL GRAY</u> R. Paul Gray	Director	February 26, 2008
<u>/s/ RAYMOND KURZWEIL</u> Raymond Kurzweil	Director	February 26, 2008
<u>/s/ CHRISTOPHER PATUSKY</u> Christopher Patusky	Director	February 26, 2008
<u>/s/ LOUIS W. SULLIVAN</u> Louis W. Sullivan	Director	February 26, 2008

Pursuant to 17 C.F.R. § 240.24b-2, confidential information (indicated by [**]) has been omitted and has been filed separately with the Securities and Exchange Commission pursuant to a Confidential Treatment Application filed with the Commission.



Document A121™CMc – 2003 and AGC

Document 565

Standard Form of Agreement Between Owner and Construction Manager *where the Construction Manager is Also the Constructor*

AGREEMENT

made as of the fifteenth day of February in the year of Two Thousand and Seven
(In words, indicate day, month and year)

BETWEEN the Owner:
(Name and address)

United Therapeutics Corporation
1110 Spring Street
Silver Spring, MD 20910

and the Construction Manager:
(Paragraphs deleted)
The Whiting-Turner Contracting Company
300 East Joppa Rd.
Baltimore, MD 21286

The Project is:

Construction of a new Class A headquarters building for use as office space and fill-finish facilities, containing approximately 90,000 square feet, and ancillary facilities located in Silver Spring, Maryland, as more fully described on Exhibit A attached hereto.

The Architect is:

Schick Goldstein Architects, P.C.
1506 19th Street, N.W.
Washington, DC 20036

The Fill/Finish A/E is:
(Paragraphs deleted)
IPS Integrated Project Services, Inc.
2001 Joshua Road
Lafayette Hill, PA 19444

The Owner and Construction Manager agree as set forth below:

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

The 1997 Edition of AIA Document A201, General Conditions of the Contract for Construction, is referred to herein. This Agreement requires modification if other general conditions are utilized.

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User Notes: unither - cm agreement - draft 5.aia — 7-27-04 (2698231605)

ARTICLE 1 GENERAL PROVISIONS

§ 1.1 RELATIONSHIP OF PARTIES

The Construction Manager accepts the relationship of trust and confidence established with the Owner by this Agreement, and covenants with the Owner to furnish the Construction Manager's reasonable skill and judgment and to cooperate with the Architect in furthering the interests of the

Owner. The Construction Manager shall furnish construction administration and management services and use the Construction Manager's best efforts to perform the Project in an expeditious and economical manner consistent with the interests of the Owner. The Owner shall endeavor to promote harmony and cooperation among the Owner, Architect, the Fill/Finish A/E (hereinafter defined), Construction Manager and other persons or entities employed by the Owner for the Project.

§ 1.3 Owner and Construction Manager hereby acknowledge that Owner has engaged Stranix Associates, Inc. to serve as "Project Manager" for the Project. All notices and other submissions the Construction Manager is required to send to the Owner shall also be sent concurrently to the Project Manager at the following address: Stranix Associates, LLC, c/o John Stranix, Verizon Center, 601 F Street, NW, Washington, DC 20004. The scope of authority of the Project Manager to act on behalf of the Owner is set forth on Exhibit D attached hereto.

§ 1.3 Owner and Construction Manager hereby acknowledge that Owner has engaged IPS Integrated Project Services, Inc. for the design services necessary for the fill/finish facilities portion of the Work (the "Fill/Finish A/E"). The Architect and the Fill/Finish A/E are required to cooperate with each other and coordinate their respective design documents. The Construction Manager agrees to fully cooperate with the Architect and the Fill/Finish A/E during the Preconstruction Phase and the Construction Phase of the Work. The Architect shall be the architect of record for the Project, and any submissions and/or requests for information shall be sent to the Architect, who will distribute to the Fill/Finish A/E as appropriate. If the Construction Manager becomes aware of a conflict between the design documents of the Architect and those of the Fill/Finish A/E, such conflict shall be brought to the attention of the Owner, the Project Manager and the Architect.

§ 1.2 GENERAL CONDITIONS

The General Conditions of the contract shall be the AIA® Document A201™–1997, General Conditions of the Contract for Construction, as amended for this Project, which is incorporated herein by reference as Exhibit B (the "General Conditions"). The term "Contractor" as used in the General Conditions shall mean the Construction Manager. The term "Contract Sum" as used in the General Conditions shall mean "Guaranteed Maximum Price".

ARTICLE 2 CONSTRUCTION MANAGER'S RESPONSIBILITIES

§ 2.1 The Construction Manager shall perform the services described in this Article. The services to be provided under Sections 2.1 and 2.2 constitute the Preconstruction Phase services. If the Owner and Construction Manager agree, the Construction Phase may commence before the Preconstruction Phase is completed, in which case both phases will proceed concurrently.

§ 2.2 The Construction Manager has provided the Owner with a list setting forth the names, resumes, relevant experience, type of services to be performed and term of assignment of all personnel who shall perform the Work, and who are at a level of superintendent or above, which is attached hereto as Exhibit F. None of such personnel shall be removed from the Project without the Owner's prior written consent (except in the case of the termination, resignation or other departure of such personnel from the employ of the Construction Manager), which consent shall not be unreasonably withheld, or unless the Owner so directs, and the Owner shall have the authority to approve any replacement. Exhibit F shall be updated to reflect approved changes.

§ 2.3 The Construction Manager shall comply with the requirements and restrictions of the documents listed in Exhibit J attached hereto.

§ 2.1 PRECONSTRUCTION PHASE

§ 2.1.1 PRELIMINARY EVALUATION

The Construction Manager shall provide a preliminary evaluation of the Owner's program and the Project budget requirements, each in terms of the other.

§ 2.1.2 CONSULTATION

The Construction Manager, the Architect, the Fill/Finish A/E and the Project Manager shall jointly schedule and attend weekly meetings with the Owner. The Construction Manager shall consult with the Owner, the Project

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Manager, the Fill/Finish A/E and Architect regarding site use and improvements and the selection of materials, building systems and equipment. The Construction Manager shall provide recommendations on construction feasibility; actions designed to minimize adverse effects of labor or material shortages; time requirements for procurement, installation and construction completion; and factors related to construction cost, including estimates of alternative designs or materials, preliminary budgets and possible economies.

§ 2.1.3 PRELIMINARY PROJECT SCHEDULE

The Construction Manager hereby acknowledges the preliminary Project Schedule prepared by the Owner and the Project Manager, a copy of which is attached hereto as Exhibit E, and agrees that all schedules prepared by the Construction Manager shall be consistent therewith, except as otherwise approved by the Owner in its sole discretion. When updates to the Project Schedule are approved by the Owner, such updates shall replace the then current Project Schedule set forth in Exhibit E. The Construction Manager, in connection with the Owner and the Project Manager, shall periodically update the Project Schedule for the Architect's and Fill/Finish A/E's review and the Owner's approval. The Construction Manager shall obtain the Owner's, the Fill/Finish A/E's and the Architect's approval to any change to the portion of the Project Schedule relating to the performance of the Architect's or Fill/Finish A/E's, as applicable, services. The Construction Manager shall coordinate and integrate the Project Schedule with the services and activities of the Owner, the Project Manager, Architect, Fill/Finish A/E and Construction Manager. As design proceeds, the Project Schedule shall be updated (not less than monthly) to indicate proposed activity sequences and durations, milestone dates for receipt and approval of pertinent information, submittal of a Control Budget and Guaranteed Maximum Price proposal (each as defined below), preparation and processing of shop drawings and samples, delivery of materials or equipment requiring long-lead-time procurement, Owner's occupancy requirements showing portions of the Project having occupancy priority, and proposed date of Substantial Completion. If Project Schedule updates indicate that the previously approved Project Schedules may not be met, the Construction Manager shall make appropriate recommendations in writing to the Owner, Project Manager, Architect and Fill/Finish A/E.

§ 2.1.4 PHASED CONSTRUCTION

The Construction Manager, in cooperation with the Project Manager, shall make recommendations to the Owner, Architect and Fill/Finish A/E regarding the phased issuance of Drawings and Specifications to facilitate phased construction of the Work, if such phased construction is appropriate for the Project, taking into consideration such factors as economies, time of performance, overall coordination of the Work, trade jurisdictions, availability of labor and materials, and provisions for temporary facilities.

§ 2.1.5 PRELIMINARY COST ESTIMATES

§ 2.1.5.1 Based on the Project requirements and the Owner's program ("Owner's Program"), the Construction Manager shall prepare, for the review of the Architect and Fill/Finish A/E and approval of the Owner, a preliminary cost estimate utilizing area, building type, volume and similar conceptual estimating techniques as appropriate.

§ 2.1.5.2 The Schematic Design Documents have been prepared by the Architect and approved by the Owner. Within thirty (30) days of execution of this Agreement, the Construction Manager shall prepare, for the review of the Architect and approval of the Owner, a more detailed estimate with supporting data. During the preparation of the Design Development Documents, the Construction Manager shall update and refine this estimate at appropriate intervals agreed to by the Owner, Architect and Construction Manager. Within thirty (30) days after the Schematic Design Documents relating to the fill/finish portion of the Work have been prepared by the Fill/Finish A/E and approved by the Owner, the Construction Manager shall prepare, for the review of the Fill/Finish A/E and approval of the Owner, a more detailed estimate with supporting data relating to the fill/finish portion of the Work. During the preparation of the Design Development Documents relating to the fill/finish portion of the Work, the Construction Manager shall update and refine this estimate at appropriate intervals agreed to by the Owner, Fill/Finish A/E and Construction Manager.

§ 2.1.5.3 Attached hereto as Exhibit G is a budget for the Work (the "Control Budget"). During the preparation of the Construction Documents, the Construction Manager shall update and refine this estimate at least monthly, or as otherwise reasonably requested by the Owner or the Project Manager. In addition, the Construction Manager shall make formal detailed presentations to Owner, Architect, Fill/Finish A/E and Project Manager and update the Control Budget for each of the base building work and fill/finish and fit-out work when (1) the Design Development Documents are complete, and (2) substantially all subcontractor bids have been received by the Construction Manager. Such presentations shall include a detailed explanation of the basis for the Control Budget, including, but

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not limited to, any allowances included therein, constructability review and value engineering alternatives. After the Design Development Phase, the Construction Manager shall review proposed design refinements for their impact on the Control Budget and shall recommend alternative construction materials, systems, or sequences if required to maintain the Control Budget and preliminary Project Schedule, or otherwise desirable. The Construction Manager shall regularly meet with the Architect, the Fill/Finish A/E, the Project Manager and the Owner throughout the Preconstruction Phase to evaluate and make recommendations on the following: (1) site use and improvements, (2) impact of Owner-requested modifications, if any, (3) building materials and mechanical and electrical systems selection and fill/finish equipment selection, (4) construction feasibility, (5) time factors for procurement, installation and construction completion, (6) factors influencing construction cost and possible economies, and (7) alternative designs and other “value engineering” suggestions. Throughout the Preconstruction Phase, the Construction Manager shall provide “value engineering” services consisting of a review of the cost, quality and schedule influences of proposed building materials, systems and construction methods as well as equipment needs relative to design objectives in order to identify options for obtaining optimal values for the Owner. Particular factors evaluated shall include, but not be limited to, overall construction cost, initial vs. life-cycle cost, alternative materials and equipment and methods of construction, impacts on related trades and building systems, major cost variables and risks, impact on local manpower and schedule, local availability of systems, materials, and equipment, ability of components to interact with other building components, no overlap in sub-pricing or specifications, regulatory considerations, and environmental impact. The Owner acknowledges that the Construction Manager is in no way providing professional services which constitute the practice of architecture or engineering, except to the extent the scope of Work includes design-build services.

§ 2.1.5.4 If any revised Control Budget for the Work exceeds the Cost of Work indicated in previous submissions of the Control Budget, the Construction Manager shall make appropriate recommendations regarding modifications necessary to maintain the Control Budget to the Owner, the Project Manager, the Fill/Finish A/E and the Architect, and a new scope and/or Control Budget shall be developed based on any accepted recommendations, except as otherwise approved in writing by Owner..

§ 2.1.6 SUBCONTRACTORS AND SUPPLIERS

The Construction Manager shall canvass the market to determine bidding interest, and shall carry out an active program to develop subcontractor interest in bidding on the Project and shall furnish to the Owner and Architect for their information prior to commencement of the Construction Documents Phase a list of possible subcontractors, including suppliers who are to furnish materials or equipment fabricated to a special design, from whom proposals will be requested for each principal portion of the Work. The Owner, the Project Manager, the Architect and the Fill/Finish A/E may suggest other names to be included in such list. If interest is lacking among potential subcontractors and it appears that competition will be inadequate, the Construction Manager shall, upon the Owner’s request, identify possible reasons and/or recommend possible strategies for expanding the competition. The Architect will promptly reply in writing to the Construction Manager if the Architect, Project Manager, Fill/Finish A/E or Owner know of any objection to such subcontractor or supplier. The receipt of such list shall not require the Owner, Project Manager, Fill/Finish A/E or Architect to investigate the qualifications of proposed subcontractors or suppliers, nor shall it waive the right of the Owner, Project Manager, Fill/Finish A/E or Architect later to object to or reject any proposed subcontractor or supplier. The Construction Manager shall timely conduct a market study to determine the local market area labor conditions that may affect the Project in sufficient time for the design team to incorporate the results of the survey into the working drawings.

§ 2.1.6.1 The Construction Manager shall prepare and submit to the Owner a procurement schedule.

§ 2.1.6.2 The Construction Manager shall draft all invitations or solicitations to bid for the Work, and shall assemble the solicitation packages with the Owner’s prior written approval. The Construction Manager shall ensure that the drawings and specifications included in the bid packages are complete and up to date, and shall include an appropriate subcontract form approved by the owner for inclusion in the solicitation. The Construction Manager shall ensure that the final solicitation package includes all accepted comments, changes, and corrections from the final design review. The Construction Manager will work with the Fill/Finish A/E to develop procurement document for the fill/finish component of the Work. The Construction Manager acknowledges and agrees that the Owner intends to procure certain of the fill/finish equipment based on design documentation prepared by the Fill/Finish A/E in consultation with the Construction Manager, as more fully described in Exhibit A. During the Construction Phase, the Construction Manager shall accept delivery of, and inspect, the fill/finish equipment procured by the Owner, and after such inspection, shall be fully responsible for the installation and warranty thereof.

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At the election of the Owner, the Construction Manager may be required to provide start-up services relating to the fill/finish equipment, which is not part of the Construction Manager's original scope, and therefore shall be paid for pursuant to Change Order in accordance with the provisions of the Contract Documents.

§ 2.1.6.3 The Owner and the Project Manager will review and the Owner will endeavor to approve in writing five (5) pre-qualified bidders (but not less than three [3]) for each package. In the event that the Construction Manager intends to perform any of the Work with its own forces, the Construction Manager shall notify the Owner and the Project Manager of such desire to self-perform such portion of the Work. Upon the Owner's approval, the Construction Manager shall be deemed a pre-qualified bidder for such portion of the Work. The Construction Manager shall only be entitled to self-perform Work if it can demonstrate to the Owner that such Work will be performed on terms and conditions at least equal to those which would apply in a fully competitive bid environment. Such self-performed Work, if approved, may, at the election of the Owner, be subject to either a guaranteed maximum price or lump sum price, within the Guaranteed Maximum Price for the entire Work.

§ 2.1.6.4 The Construction Manager shall review all accepted bids for completeness, responsiveness, scope overlaps and omissions, prepare a record of bidding and a detailed bid analysis, and recommend to the Owner, Project Manager, Fill/Finish A/E and Architect those Subcontractors, separate contractors, and materialmen necessary and sufficient to provide a completed and fully operational Project in accordance with the Contract Documents and the Control Budget. At least three (3) responsive bids must be received from qualified and responsible Subcontractors in each trade. The Owner and the Project Manager reserve the right to be present during the subcontractor bid and clarification process, and shall have the right to review all bids. The Construction Manager shall review all Subcontractors' proposed substitutions for suitability and cost effectiveness, and shall make corresponding recommendations to the Owner. The Construction Manager shall work closely with the Owner, the Architect, the Fill/Finish A/E and the Project Manager to identify potential areas of cost savings that can be achieved, and shall negotiate all final subcontracts in the Owner's best interests.

§ 2.1.7 LONG - LEAD - TIME ITEMS

The Construction Manager shall recommend to the Owner and Architect a schedule for procurement of long-lead-time items which will constitute part of the Work as required to meet the Project Schedule. The Construction Manager shall expedite the procurement and delivery of long-lead-time items. The Owner shall approve in writing the procurement of long lead time items by the Construction Manager prior to the issuance of a full Notice to Proceed. All contracts on account of long lead items shall provide that in the event the Owner does not accept the Construction Manager's Guaranteed Maximum Price proposal, as may be adjusted, at the Owner's election all such contracts shall be assigned to the Owner or its designee.

§ 2.1.8 EXTENT OF RESPONSIBILITY

The Construction Manager does not warrant or guarantee estimates and schedules except as may be included as part of the Project Schedule or Guaranteed Maximum Price. The recommendations and advice of the Construction Manager concerning design alternatives shall be subject to the review and approval in writing of the Owner, the Project Manager and the Owner's professional consultants. It is not the Construction Manager's responsibility to ascertain that the Drawings and Specifications are in accordance with applicable laws, statutes, ordinances, building codes, rules and regulations. However, if the Construction Manager recognizes that portions of the Drawings and Specifications are at variance therewith, the Construction Manager shall promptly notify the Project Manager and Owner in writing.

§ 2.1.9 EQUAL EMPLOYMENT OPPORTUNITY AND AFFIRMATIVE ACTION

The Construction Manager shall comply with applicable laws, regulations and special requirements of the Contract Documents regarding equal employment opportunity and affirmative action programs.

§ 2.1.10 DESIGN REVIEW

Without limiting the responsibilities of the Architect or the Fill/Finish A/E, the Construction Manager shall assist the Owner, Architect, Fill/Finish A/E and Project Manager during the design phase by continually assisting with the coordination of design development, performing design constructability reviews, assisting with problem resolution, performing schedule control, identifying conflicts and keeping the Owner apprised of the design status at all times. Constructability reviews shall include, without limitation, review of the Contract Documents to discover any non-constructable or impractical construction details, or conflicts between the trades.

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§ 2.1.11 REVIEW OF SUBMITTALS

The Construction Manager shall review all project team submittals for constructability and/or errors, omissions, and accuracy. In addition, the Construction Manager shall participate in Project reviews as reasonably requested by the Owner, and review as reasonably requested by the Owner, and review Construction Documents prepared by the Architect and the Fill/Finish A/E as they are developed, and when they are ready for printing. The Construction Manager shall provide written comments on all design submittals within ten (10) days after submittal.

§ 2.1.12 COST CONTROL AND REPORTING

During the pre-construction phase, the Construction Manager shall monitor regularly the Control Budget for the Project, including construction, general conditions and fees, and any other Project-associated costs. The Construction Manager shall advise the Project Manager and the Owner immediately whenever a cost category estimate is tending to exceed funds budgeted. All cost control and reporting is to be based on data developed independently by the Construction Manager, separate from that of the Architect or the Fill/Finish A/E.

§ 2.1.13 COORDINATION OF CONTRACT DOCUMENTS

In addition to the foregoing, the Construction Manager shall review the Architect's and Fill/Finish A/E's drawings and specifications at (a) completion of Design Development Documents, (b) completion of documents necessary to obtain a building permit ("Permit Documents"), and (c) completion of Construction Documents for constructability, and conformance with the assumptions of the budget and the Guaranteed Maximum Price, when established, and recommend alternate solutions when the design as developed affects schedule or construction feasibility.

§ 2.1.14 REPORTING REQUIREMENTS

The Construction Manager shall prepare and maintain a Change Estimate Log, Change Order Log, Cost-to-Complete Budget, and Cost Status Report, a Contract Documents Log and a Shop Drawing/Submittal Log (each to be reviewed on a monthly basis). In addition, the Construction Manager shall prepare a Request for Information (RFI) Log and Open Issues and Nonconforming Issues Log each to be reviewed at weekly meetings with the Project Manager and Owner.

§ 2.2 GUARANTEED MAXIMUM PRICE PROPOSAL AND CONTRACT TIME

§ 2.2.1 On the date set forth on the Project Schedule, Construction Manager shall present to the Owner, the Architect, the Fill/Finish A/E and the Project Manager for their review and the written approval of the Owner a Guaranteed Maximum Price, which shall be the sum of (a) the estimated Cost of the Work, which will include line items for "General Conditions Costs" and "Contingency" and other guaranteed line items no greater than the amounts set forth for such items on Exhibit G; and (b) the Construction Manager's Fee, as set forth on Exhibit G. In no event shall the Guaranteed Maximum Price be greater than the Control Budget, as such Control Budget may have been revised in accordance with the written approval of the Owner.

§ 2.2.2 The Guaranteed Maximum Price is not intended to include changes in scope not consistent with the scope of the Work described in or reasonably inferable from the Contract Documents on which the Guaranteed Maximum Price is based.

§ 2.2.3 BASIS OF GUARANTEED MAXIMUM PRICE

The Construction Manager shall include with the Guaranteed Maximum Price proposal a written statement of its basis, which shall include:

- .1 A list of the Drawings and Specifications, including all addenda thereto and the Conditions of the Contract, which were used in preparation of the Guaranteed Maximum Price proposal.
- .2 A list of allowances and a statement of their basis.
- .3 A list of the clarifications and assumptions made by the Construction Manager in the preparation of the Guaranteed Maximum Price proposal to supplement the information contained in the Drawings and Specifications.
- .4 The proposed Guaranteed Maximum Price, including a statement of the estimated cost organized by trade categories, allowances, contingency, and other items and the General Conditions Costs, other guaranteed line items and Construction Manager's Fee that comprise the Guaranteed Maximum Price.
- .5 The Date of Substantial Completion upon which the proposed Guaranteed Maximum Price is based, and a schedule of the Construction Documents issuance dates upon which the date of Substantial Completion is based, which shall be consistent with the Project Schedule attached hereto as Exhibit E, or as otherwise approved in writing by Owner.

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§ 2.2.4

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The Construction Manager shall meet with the Owner, the Project Manager, the Architect and the Fill/Finish A/E to review the Guaranteed Maximum Price proposal and the written statement of its basis. In the event that the Owner, the Project Manager, the Architect or the Fill/Finish A/E discover any inconsistencies or inaccuracies in the information presented, they shall promptly notify the Owner, who shall then notify the Construction Manager, who shall make appropriate adjustments to such Guaranteed Maximum Price proposal, its basis, or both. During such time period, at the election of the Owner and Project Manager, all allowance items shall be converted to line items within the Guaranteed Maximum Price.

§ 2.2.5 Unless the Owner accepts the Guaranteed Maximum Price proposal in writing on or before the date specified in the proposal for such acceptance (which in no event shall be less than sixty (60) days after submission) and so notifies the Construction Manager, such Guaranteed Maximum Price proposal shall not be effective without written consent of the Construction Manager.

§ 2.2.6 Prior to the Owner's acceptance of the Construction Manager's Guaranteed Maximum Price proposal and issuance of a full Notice to Proceed, the Construction Manager shall not incur any cost to be reimbursed as part of the Cost of the Work, except as the Owner may specifically authorize in advance in writing.

§ 2.2.7 The Guaranteed Maximum Price shall be subject to additions and deductions by a change in the Work as provided in the Contract Documents, and the Date of Substantial Completion shall be subject to adjustment as provided in the Contract Documents.

§ 2.2.8 The Owner shall authorize and cause the Architect to revise the Drawings and Specifications, and the Fill/Finish A/E to revise its Drawings and Specifications, to the extent it determines necessary or desirable to reflect the agreed-upon assumptions and clarifications contained in the Guaranteed Maximum Price proposal. Such revised Drawings and Specifications shall be furnished to the Construction Manager in accordance with schedule agreed to by the Owner, Architect, Fill/Finish A/E and Construction Manager. The Construction Manager shall promptly notify the Architect, Fill/Finish A/E, Project Manager and Owner if such revised Drawings and Specifications are inconsistent with the agreed-upon assumptions and clarifications.

§ 2.2.9 The Guaranteed Maximum Price shall include in the Cost of the Work only those taxes which are enacted at the time the Guaranteed Maximum Price is established. The Construction Manager acknowledges that certain tax exemptions are available to the Owner, and the Owner shall furnish information pertaining to such tax exemptions to the Construction Manager prior to submission of the Guaranteed Maximum Price proposal.

(Paragraphs deleted)

§ 2.3 CONSTRUCTION PHASE

§ 2.3.1 GENERAL

§ 2.3.1.1 The Construction Phase shall commence on the earlier of:

- (1) the Owner's acceptance of the Construction Manager's Guaranteed Maximum Price proposal and issuance of a full Notice to Proceed, or
- (2) the Owner's first authorization to the Construction Manager to:
 - (a) award a subcontract, or
 - (b) undertake construction Work with the Construction Manager's own forces, or
 - (c) issue a purchase order for materials or equipment required for the Work.

§2.3.1.2 SCHEDULE

Simultaneously with the submission of the Guaranteed Maximum Price proposal, Construction Manager shall submit to Owner, Architect, Fill/Finish A/E and Project Manager a proposed Project Schedule for written approval by the Owner. Such proposed Project Schedule shall be prepared in accordance with Paragraph 3.10 of the General Conditions. Such Project Schedule shall conform to the Project Schedule set forth as Exhibit E hereto. The Construction Manager shall achieve Substantial Completion and final completion of the Work within the time periods therefor set forth in the Project Schedule, and amendments thereto approved in writing by the Owner. Upon approval by the Owner, the most recent Project Schedule shall replace the then current Project Schedule contained in Exhibit E.

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§2.3.1.3 NOTICE TO PROCEED

Any Notice to Proceed issued by the Owner shall specify the scope of Work to be performed by the Construction Manager thereunder.

§2.3.1.4 LIQUIDATED DAMAGES

The parties acknowledge that it is extremely difficult to ascertain with accuracy at the time of execution of this Agreement the extent of the actual damages that the Owner would suffer as a result of any delay in achieving Substantial Completion of the Work by the date set forth in Exhibit E, as such date may be amended by the terms of the Contract Documents. Therefore, in the event the Construction Manager does not achieve Substantial Completion of the Work within the Contract Time (as defined in the General Conditions), as such Contract Time is adjusted pursuant to the provisions of the Contract Documents, the Construction Manager shall pay the Owner, as liquidated damages and not as a penalty, the following sums for each day the actual date of Substantial Completion of the Work exceeds the authorized Contract Time such:

First 30 days of delay:	\$7,500 per day
Thereafter:	\$10,000 per day

Liquidated damages shall be the Owner’s remedy for delay in lieu of actual damages.

§ 2.3.2 ADMINISTRATION

§ 2.3.2.1 After the Guaranteed Maximum Price has been established and a specific bidder among those whose bids are delivered by the Construction Manager to the Owner, Project Manager and Architect (1) is recommended to the Owner by the Construction Manager; (2) is qualified to perform that portion of the Work; and (3) has submitted a bid which conforms to the requirements of the Contract Documents without reservations or exceptions, but the Owner requires that another bid be accepted, then the Construction Manager may require that a change in the Work be issued to adjust the Contract Time and the Guaranteed Maximum Price by the difference between the bid of the person or entity recommended to the Owner by the Construction Manager and the amount of the subcontract or other agreement actually signed with the person or entity designated by the Owner.

§ 2.3.2.2 Subcontracts and agreements with suppliers furnishing materials or equipment fabricated to a special design shall conform to the payment provisions of Sections 7.1.8 and 7.1.9 and shall not be awarded on the basis of cost plus a fee without the prior written consent of the Owner.

§ 2.3.2.3 The Construction Manager shall schedule and conduct meetings (no less frequently than bi-weekly after the commencement of construction) at which the Owner, Project Manager, Architect, Fill/Finish A/E, Construction Manager and appropriate Subcontractors can discuss the status of the Work. The Construction Manager shall prepare and distribute meeting minutes within three (3) business days after each meeting.

§ 2.3.2.4 The Construction Manager shall provide monthly written reports to the Owner, Project Manager and Architect on the progress of the entire Work. The Construction Manager shall maintain a daily log containing a record of weather, Subcontractors working on the site, number of workers, Work accomplished, problems encountered and other similar relevant data as the Owner may reasonably require. The log shall be available to the Owner, Project Manager, Fill-Finish A/E and Architect.

§ 2.3.2.5 The Construction Manager shall develop a system of cost control for the Work, including regular monitoring of actual costs for activities in progress and estimates for uncompleted tasks and proposed changes. The Construction Manager shall identify variances between actual and estimated costs and report the variances to the Owner, Project Manager and Architect at regular intervals.

§ 2.3.2.6 Notwithstanding anything in the Subcontract form, Short Form Subcontract form or Purchase Order form to the contrary, Contractor is not entitled to offset amounts due to Subcontractors and/or Suppliers from Contractor on this Project against any liabilities of Subcontractors and/or Suppliers to Contractor on any other project.

(Paragraphs deleted)

§ 2.4 PROFESSIONAL SERVICES

Section 3.12.10 of the General Conditions shall apply to both the Preconstruction and Construction Phases.

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§ 2.5 HAZARDOUS MATERIALS

Section 10.3 of the General Conditions shall apply to both the Preconstruction and Construction Phases.

ARTICLE 3 OWNER'S RESPONSIBILITIES

§ 3.1 INFORMATION AND SERVICES

§ 3.1.1 The Owner shall provide full information in a timely manner regarding the requirements of the Project, including a program which sets forth the Owner's objectives, constraints and criteria, including space requirements and relationships, flexibility and expandability requirements, special equipment and systems, and site requirements.

§ 3.1.2 The Owner, upon written request from the Construction Manager, shall provide information regarding the fact that the Owner has the financial ability to complete the Work as more fully provided in Paragraph 2.2.1 of the General Conditions.

§ 3.1.3 The Owner and the Project Manager shall establish and update an overall budget for the Project, based on consultation with the Construction Manager, Fill/Finish A/E and Architect, which shall include contingencies for changes in the Work and other costs which are the responsibility of the Owner.

§ 3.1.4 STRUCTURAL AND ENVIRONMENTAL TESTS, SURVEYS AND REPORTS

In the Preconstruction Phase, the Owner shall furnish the following with reasonable promptness and at the Owner's expense. Except to the extent that the Construction Manager knows of any inaccuracy, the Construction Manager shall be entitled to rely upon the accuracy of any such information, reports, surveys, drawings and tests described in Sections 3.1.4.1 through 3.1.4.4 but shall exercise customary precautions relating to the performance of the Work.

§ 3.1.4.1 Reports, surveys, drawings and tests concerning the conditions of the site which are required by law.

§ 3.1.4.2 Surveys describing physical characteristics, legal limitations and utility locations for the site of the Project, and a written legal description of the site. The surveys and legal information shall include, as applicable, grades and lines of streets, alleys, pavements and adjoining property and structures; adjacent drainage; rights-of-way, restrictions, easements, encroachments, zoning, deed restrictions, boundaries and contours of the site; locations, dimensions and necessary data pertaining to existing buildings, other improvements and trees; and information concerning available utility services and lines, both public and private, above and below grade, including inverts and depths. All information on the survey shall be referenced to a project benchmark.

§ 3.1.4.3 The services of geotechnical engineers when such services are deemed reasonably necessary by the Construction Manager and the Owner. Such services may include but are not limited to test borings, test pits, determinations of soil bearing values, percolation tests, evaluations of hazardous materials, ground erosion and relativity tests, including necessary operations for anticipating subsoil conditions, with reports and appropriate professional recommendations.

§ 3.1.4.4 Structural, mechanical, chemical, air and water pollution tests, tests for hazardous materials, and other laboratory and environmental tests, inspections and reports which are required by law.

§ 3.1.4.5 The services of other consultants when such services are reasonably required by the scope of the Project and are requested by the Construction Manager.

§ 3.2 OWNER'S DESIGNATED REPRESENTATIVE

The Owner shall from time to time designate in writing a representative who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization. The initial Owner's representative is Avi Halpert. This representative shall have the authority to make decisions on behalf of the Owner concerning estimates and schedules, construction budgets, and changes in the Work, and shall render such decisions promptly and furnish information expeditiously, so as to avoid unreasonable delay in the services or Work of the Construction Manager. This representative is not the Project Manager. The Architect and the Fill Finish A/E shall not be authorized to make decisions on behalf of the Owner.

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§ 3.3 ARCHITECT/ FILL/FINISH A/E

The Owner has retained the Architect to provide architectural and engineering Services and coordination of other services provided by Owner's other consultants. The Owner has retained the Fill Finish A/E to provide architectural and engineering services relating to the fill/finish portion of the Work and coordination of other services provided by the Architect and Owner's other consultants. Such services shall be provided in accordance with time schedules agreed to in writing by the Owner, Architect, Fill/Finish A/E and Construction Manager. Upon request of the Construction Manager, the Owner shall furnish to the Construction Manager a copy of the Owner's agreement with the Architect, and the Owner's agreement with the Fill/Finish A/E from which compensation provisions may be deleted.

§ 3.4 LEGAL REQUIREMENTS

The Owner shall determine and advise the Architect, the Fill/Finish A/E and Construction Manager of any special legal requirements relating specifically to the Project which differ from those generally applicable to construction in the jurisdiction of the Project. The Owner shall furnish such legal services as are necessary to provide the information and services required under Section 3.1.

ARTICLE 4 COMPENSATION AND PAYMENTS FOR PRECONSTRUCTION PHASE SERVICES

The Owner shall compensate and make payments to the Construction Manager for Preconstruction Phase services as follows:

§ 4.1 COMPENSATION

§ 4.1.1 For the services described in Sections 2.1 and 2.2, the Construction Manager's compensation shall be calculated as follows:

See Exhibit G. In the event the Contract is terminated prior to issuance of the Notice to Proceed, the compensation set forth in Exhibit G for Preconstruction Services shall be the total amount payable by the Owner to the Construction Manager on account of Preconstruction Services (excepting payment for construction services authorized in writing prior to issuance of the Notice to Proceed). In the event the Notice to Proceed is issued, all amounts paid for Preconstruction Services shall be deemed to be part of the General Conditions Costs included in the Guaranteed Maximum Price.

(State basis of compensation, whether a stipulated sum, multiple of Direct Personnel Expense, actual cost, etc. Include a statement of reimbursable cost items as applicable.)

§ 4.1.2 Compensation for Preconstruction Phase Services shall be equitably adjusted if the originally contemplated scope of services is significantly modified.

(Paragraphs deleted)

§ 4.2 PAYMENTS

§ 4.2.1 Payment of amounts not in dispute on account of Preconstruction Services are due and payable as set forth in Section 7.1.3 following presentation of the Construction Manager's invoice, but each invoice shall not be greater than an amount which, when taken together with prior payments, bears the same ratio to the total amount payable on account of Preconstruction Services as the Preconstruction Services performed bears to the total anticipated required Preconstruction Services.

§ 4.2.2 Payments of amounts not in dispute are due and payable as set forth in Section 7.1.3. Amounts unpaid after the date on which payment is due (except disputed amounts) shall bear interest at the rate entered below, or in the absence thereof, at the legal rate prevailing from time to time at the place where the Project is located.

(Insert rate of interest agreed upon.)

Prime rate as announced from time to time by the Wall Street Journal plus one percent (1%).

(Usury laws and requirements under the Federal Truth in Lending Act, similar state and local consumer credit laws and other regulations at the Owner's and Construction Manager's principal places of business, the location of the Project and elsewhere may affect the validity of this provision. Legal advice should be obtained with respect to deletions or modifications, and also regarding requirements such as written disclosures or waivers.)

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ARTICLE 5 COMPENSATION FOR CONSTRUCTION PHASE SERVICES

The Owner shall compensate the Construction Manager for Construction Phase services as follows:

§ 5.1 COMPENSATION

§ 5.1.1 For the Construction Manager's performance of the Work as described in Section 2.3, the Owner shall pay the Construction Manager in current funds the Contract Sum consisting of the Cost of the Work as defined in Article 6 and the Construction Manager's Fee determined as follows:

See Exhibit G

(State a lump sum, percentage of actual Cost of the Work or other provision for determining the Construction Manager's Fee, and explain how the Construction Manager's Fee is to be adjusted for changes in the Work.)

§ 5.2 GUARANTEED MAXIMUM PRICE

§ 5.2.1 The sum of the Cost of the Work and the Construction Manager's Fee are guaranteed by the Construction Manager not to exceed the amount to be agreed to as the Guaranteed Maximum Price, subject to additions and deductions by changes in the Work as provided in the Contract Documents. Such maximum sum as adjusted by approved changes in the Work is referred to in the Contract Documents as the Guaranteed Maximum Price. Costs which would cause the Guaranteed Maximum Price to be exceeded shall be paid by the Construction Manager without reimbursement by the Owner.

§ 5.2.2 The cost of the Work portion of the Guaranteed Maximum Price will contain a line item entitled "Contingency". It is understood that the Contingency line item is to cover costs and expenses of the Construction Manager incurred as a result of unforeseen or unanticipated events or circumstances; provided, however, any such cost or expense must otherwise be reimbursable as a Cost of the Work (other than General Conditions costs or other guaranteed line items, for which Contingency may not be used). The Construction Manager may transfer amounts from the Contingency to other line items (other than Construction Manager's Fee, General Conditions costs or other guaranteed line items) as pricing becomes more certain and to cover cost overruns resulting from unanticipated conditions and events arising during construction, but only to the extent the Construction Manager has provided the Owner with evidence that any such adjustments and increased costs are reasonably necessary and Owner has reasonably approved the same.

§ 5.2.3 The Cost of the Work portion of the Guaranteed Maximum Price contains a line item entitled "General Conditions Costs" and Annex 1 to Exhibit G contains a list of the categories of costs to be reimbursed from this line item. The Construction Manager acknowledges and agrees that funds from other line items in the Cost of the Work portion of the Guaranteed Maximum Price (including but not limited to the line item for Contingency, described in Section 5.2.2) may not be transferred to the General Conditions Costs line item unless authorized by the Owner.

§ 5.2.4 In the event the actual Cost of the Work plus the Construction Manager's Fee is less than the Guaranteed Maximum Price, as adjusted, the difference ("Savings") shall be shared 75% to the Owner and 25% to the Construction Manager. Savings shall be calculated and paid as part of final payment hereunder.

§ 5.3 CHANGES IN THE WORK

§ 5.3.1 Adjustments to the Guaranteed Maximum Price on account of changes in the Work may be determined by the applicable methods listed in Section 7.3.3 of the General Conditions.

§ 5.3.2 In calculating adjustments to subcontracts (except those awarded with the Owner's prior consent on the basis of cost plus a fee), the terms "cost" and "fee" as used in Section 7.3.3.3 of the General Conditions and the terms "costs" as used in Section 7.3.6 of the General Conditions shall have the meanings assigned to them in that document and shall not be modified by this Article 5. Adjustments to subcontracts awarded with the Owner's prior written consent on the basis of cost plus a fee shall be calculated in accordance with the terms of those subcontracts. The Construction Manager hereby agrees that for changes in the Work performed by a subcontractor, (A) the payment to the subcontractor shall be equal to (i) the actual cost incurred in performing such changed work; (ii) a markup of 10% of such actual cost for overhead; and (iii) fee of 5% of actual cost. Notwithstanding the foregoing, the total amount payable to subcontractors of every tier on account of overhead and fee for a change to the Work shall not exceed 25%. In addition, the Construction Manager shall be entitled to Construction Manager's Fee equal

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to the percentage stated in Exhibit G, based on the total amount payable to the subcontractor; provided, however, that the Construction Manager shall not be entitled to Construction Manager's Fee on the first \$500,000 of Change Orders. There shall be no reduction in Construction Manager's Fee for deductive Change Orders. See Annex 2 to Exhibit G for examples of how markups and fees are calculated.

§ 5.3.3 In calculating adjustments to the Contract, the terms "cost" and "costs" as used in the above-referenced provisions of the General Conditions shall mean the Cost of the Work as defined in Article 6 of this Agreement.

(Paragraphs deleted)

ARTICLE 6 COST OF THE WORK FOR CONSTRUCTION PHASE

§ 6.1 COSTS TO BE REIMBURSED

§ 6.1.1 The term "Cost of the Work" shall mean costs necessarily incurred by the Construction Manager in the proper performance of the Work. Such costs shall be at rates not higher than those customarily paid at the place of the Project except with prior written consent of the Owner. The Cost of the Work shall include only the items set forth in this Article 6 and shall exclude those costs expressly excluded by this Article 6.

§ 6.1.2 LABOR COSTS

- .1** Wages of construction workers directly employed by the Construction Manager to perform the construction of the Work at the site or, with the Owner's agreement, at off-site workshops.
- .2** Wages or salaries of the Construction Manager's supervisory and administrative personnel

(Paragraphs deleted)

listed on Exhibit F, at the hourly rates set forth in Exhibit F. Such hourly rates may be adjusted on an annual basis provided that no annual adjustment exceeds 103% of the prior year's hourly rate. Such hourly rates are "fully burdened".

- .3** Wages and salaries of the Construction Manager's supervisory or administrative personnel engaged, at factories, workshops or on the road, in expediting the production or transportation of materials or equipment required for the Work, but only for that portion of their time required for the Work to the extent such personnel is listed in Exhibit F, at the hourly rates set forth in Exhibit F.
- .4** Costs paid or incurred by the Construction Manager for taxes, insurance, contributions, assessments and benefits required by law or collective bargaining agreements, and, for personnel not covered by such agreements, customary benefits such as sick leave, medical and health benefits, holidays, vacations and pensions, provided that such costs are based on wages and salaries included in the Cost of the Work under Sections 6.1.2.1.

§ 6.1.3 SUBCONTRACT COSTS

Payments made by the Construction Manager to Subcontractors in accordance with the requirements of the subcontracts. The items of Work reimbursable as General Conditions costs listed in Exhibit G shall not be included in any trade subcontracts unless authorized by the Owner.

§ 6.1.4 COSTS OF MATERIALS AND EQUIPMENT INCORPORATED IN THE COMPLETED CONSTRUCTION

- .1** Costs, including transportation, of materials and equipment incorporated or to be incorporated in the completed construction.
- .2** Costs of materials described in the preceding Section 6.1.4.1 in excess of those actually installed but required to provide reasonable allowance for waste and for spoilage. Unused excess materials, if any, shall be handed over to the Owner at the completion of the Work or, at the Owner's option, shall be sold by the Construction Manager; amounts realized, if any, from such sales shall be credited to the Owner as a deduction from the Cost of the Work.

§ 6.1.5 COSTS OF OTHER MATERIALS AND EQUIPMENT, TEMPORARY FACILITIES AND RELATED ITEMS

- .1** Costs, including transportation, installation, maintenance, dismantling and removal of materials, supplies, temporary facilities, machinery, equipment, and hand tools not customarily owned by the construction workers, which are provided by the Construction Manager at the site and fully consumed in the performance of the Work; and cost less salvage value on such items if not fully consumed, whether sold to others or retained by the Construction Manager. Cost for items previously used by the Construction Manager shall mean fair market value.
- .2** Rental charges for temporary facilities, machinery, equipment and hand tools not customarily owned by the construction workers, which are provided by the Construction Manager at the site, whether

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rented from the Construction Manager or others, and costs of transportation, installation, minor repairs and replacements, dismantling and removal thereof. Rates and quantities of equipment rented shall be subject to the Owner's prior written approval.

- .3 Costs of removal of debris from the site.
- .4 Reproduction costs, costs of telegrams, facsimile transmissions, cell phones and long-distance telephone calls, postage and express delivery charges, telephone at the site and reasonable petty cash expenses of the site office.
- .5 That portion of the reasonable travel and subsistence expenses of the Construction Manager's personnel incurred while traveling in discharge of duties connected with the Work to the extent set forth on Exhibit G.

§ 6.1.6 MISCELLANEOUS COSTS

- .1 That portion directly attributable to this Contract of premiums for
(Paragraphs deleted)

insurance, deductibles and bonds to the extent set forth on Exhibit G or in the accepted Guaranteed Maximum Price. If the Construction Manager wishes to self-insure any of the risks set forth herein, it shall first obtain the prior written approval of the Owner. Charges on account thereof shall be approved in writing in advance by the Owner and shall in no event be greater than the costs of a third-party insurance program.

- .2 Sales, use or similar taxes imposed by a governmental authority which are related to the Work and for which the Construction Manager is liable.
- .3 Fees and assessments for permits, licenses and inspections for which the Construction Manager is required by the Contract Documents to pay.
- .4 Fees of testing laboratories for tests required by the Contract Documents, except those related to nonconforming Work other than that for which payment is permitted by Section 6.1.8.2.
- .5 Royalties and license fees paid for the use of a particular design, process or product required by the Contract Documents; the cost of defending suits or claims for infringement of patent or other intellectual property rights arising from such requirement by the Contract Documents; payments made in accordance with legal judgments against the Construction Manager resulting from such suits or claims and payments of settlements made with the Owner's prior written consent; provided, however, that such costs of legal defenses, judgment and settlements shall not be included in the calculation of the Construction Manager's Fee or the Guaranteed Maximum Price and provided that such royalties, fees and costs are not excluded by the last sentence of Section 3.17.1 of A201™ - 1997 or other provisions of the Contract Documents.
- .6 Deposits lost (including the failure to obtain a refund of a deposit) for causes other than the Construction Manager's negligence or failure to fulfill a specific responsibility to the Owner set forth in this Agreement.
- .7 Legal, mediation and arbitration costs, other than those arising from disputes between the Owner and Construction Manager, reasonably incurred by the Construction Manager in the performance of the Work and with the Owner's written permission, which permission shall not be unreasonably withheld; provided, however, that reimbursement hereunder shall be limited to \$25,000 in the aggregate.

§ 6.1.7 OTHER COSTS

- .1 Other costs incurred in the performance of the Work if and to the extent approved in advance in writing by the Owner.

§ 6.1.8 EMERGENCIES AND REPAIRS TO DAMAGED OR NONCONFORMING WORK

The Cost of the Work shall also include costs described in Section 6.1.1 which are incurred by the Construction Manager:

- .1 In taking action to prevent threatened damage, injury or loss in case of an emergency affecting the safety of persons and property, as provided in Section 10.6 of A201™ - 1997.
- .2 In repairing or correcting damaged or nonconforming Work executed by the Construction Manager or the Construction Manager's Subcontractors or suppliers, provided that such damaged or nonconforming Work was not caused by the negligence or failure to fulfill a specific responsibility to the Owner set forth in this agreement of the Construction Manager or the Construction Manager's foremen, engineers or superintendents, or other supervisory, administrative or managerial personnel

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of the Construction Manager, or the failure of the Construction Manager's personnel to supervise adequately the Work of the Subcontractors or suppliers, and only to the extent that the cost of repair or correction is not recoverable by the Construction Manager from insurance, Subcontractors or suppliers.

§ 6.1.9 The costs described in Sections 6.1.1 through 6.1.8 shall be included in the Cost of the Work notwithstanding any provision of the General Conditions or other Conditions of the Contract which may require the Construction Manager to pay such costs, unless such costs are excluded by the provisions of Section 6.2.

§ 6.1.10 Notwithstanding any other provision of this Contract to the contrary, the aggregate payment to the Construction Manager for the General Conditions items listed in Annex 1 to Exhibit G shall not exceed the amount set forth in Exhibit G, except as otherwise provided herein with respect to Change Orders.

§ 6.2 COSTS NOT TO BE REIMBURSED

§ 6.2.1 The Cost of the Work shall not include:

- .1 Salaries and other compensation of the Construction Manager's personnel stationed at the Construction Manager's principal office or offices other than the site office, except as specifically provided in Sections 6.1.2.2 and 6.1.2.3.
- .2 Expenses of the Construction Manager's principal office and offices other than the site office, except as specifically provided in Section 6.1.
- .3 Overhead indirect, administrative and general expenses, except as may be expressly included in Section 6.1.
- .4 The Construction Manager's capital expenses, including interest on the Construction Manager's capital employed for the Work.
- .5 Rental costs of machinery and equipment, except as specifically provided in Section 6.1.5.2.
- .6 Except as provided in Section 6.1.8.2, costs due to the negligence of the Construction Manager or to the failure of the Construction Manager to fulfill a specific responsibility to the Owner set forth in this Agreement.
- .7 Costs incurred in the performance of Preconstruction Phase Services.
- .8 Except as provided in Section 6.1.7.1, any cost not specifically and expressly described in Section 6.1.
- .9 Costs which would cause the Guaranteed Maximum Price to be exceeded.
- .10 Costs due to the negligence or wrongful act of the Construction Manager, any subcontractor, anyone directly or indirectly employed by any of them, or for those acts that any of them may be liable.
- .11 Costs or expenses (including legal fees) relating to the bankruptcy of any subcontractor, unless approved in writing by the Owner, such approval not to be unreasonably withheld.
- .12 The cost of all fines and penalties, included interest thereon, assessed against the Construction Manager by any federal or local governmental or quasi-governmental authorities.
- .13 The cost of any liability, taxes, charges or contributions attributable to Construction Manager's failure to make timely disbursements to its subcontractors.
- .14 Costs incurred to discharge liens arising out of claims against the Project or the site, to the extent such liens are filled by the Construction Manager or its subcontractors; notwithstanding the foregoing, to the extent the reason for the lien is default by the Owner in making payments due and owing under the Contract Documents, the costs of discharging such liens shall be paid pursuant to Change Order; and
- .15 Overtime for supervisory and/or administrative personnel of the Construction Manager.

§ 6.3 DISCOUNTS, REBATES AND REFUNDS

§ 6.3.1 Cash discounts obtained on payments made by the Construction Manager shall accrue to the Owner if (1) before making the payment, the Construction Manager included them in an Application for Payment and received payment therefor from the Owner, or (2) the Owner has deposited funds with the Construction Manager with which to make payments; otherwise, cash discounts shall accrue to the Construction Manager. Trade discounts, rebates, refunds and amounts received from sales of surplus materials and equipment shall accrue to the Owner, and the Construction Manager shall make provisions so that they can be secured.

§ 6.3.2 Amounts which accrue to the Owner in accordance with the provisions of Section 6.3.1 shall be credited to the Owner as a deduction from the Cost of the Work.

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§ 6.4 ACCOUNTING RECORDS

§ 6.4.1 The Construction Manager shall keep full and detailed accounts and exercise such controls as may be necessary for proper financial management under this Contract; the accounting and control systems shall be satisfactory to the Owner. The Owner and the Owner's accountants shall be afforded full access to the Construction Manager's records, books, correspondence, instructions, drawings, receipts, subcontracts, purchase orders, vouchers, memoranda and other data relating to this Project on an "open book" basis, and the Construction Manager shall preserve these for a period of five (5) years after final payment, or for such longer period as may be required by law after final payment. Subcontractors shall have the same obligations to maintain books and records and to permit audits, except with respect to subcontracted work

performed on a lump sum basis, the subcontractor shall only be required to maintain the make available such books and records as are specifically required by applicable laws and/or the terms of the Contract Documents.

§ 6.4.2 If any inspection of the Construction Manager's or any subcontractor's books and records or other documents reveals an overcharge, the Construction Manager shall pay to the Owner or, at the Owner's election, the Owner may reimburse itself by taking a credit against future payments due to the Construction Manager, an amount equal to the overage. If one or more overcharges is equal to or greater than Fifty Thousand Dollars (\$50,000) in the aggregate, the Construction Manager shall also pay all administrative and auditing expenses incurred by the Owner in determining the existence and amount of the overcharge, not to exceed Twenty Five Thousand Dollars (\$25,000).

ARTICLE 7 CONSTRUCTION PHASE

§ 7.1 PROGRESS PAYMENTS

§ 7.1.1 Based upon Applications for Payment submitted to the Project Manager by the Construction Manager and approved by the Owner and the Project Manager, the Owner shall make progress payments on account of the Contract Sum to the Construction Manager as provided below and elsewhere in the Contract Documents.

§ 7.1.2 The period covered by each Application for Payment shall be one calendar month ending on the last day of the month, or as follows:

On or before the 25th calendar day of each month (or in the event such day is a holiday or weekend day, the preceding business day) the Owner, the Project Manager and the Construction Manager (and the Architect and/or Fill/Finish A/E, if requested by the Owner) shall meet to review a preliminary draft of such Application for Payment (a "Pencil Draw"), prepared by the Construction Manager. Within three (3) days after the meeting described in the previous sentence, the Construction Manager shall (a) revise the Pencil Draw in accordance with any objection or recommendations of either Owner, or Project Manager that is consistent with the requirements for the Contract Documents, and (b) re-submit the revised Pencil Draw to the Owner and the Project Manager as the final Application for Payment. Such Pencil Draw and subsequent Application for Payment shall include a projection of the Cost of the Work through the then-current month.

§ 7.1.3 Provided an Application for Payment is received by the Owner and Project Manager not later than the last business day of a month, the Owner shall make payment to the Construction Manager not later than the last day of the following month. If an Application for Payment is received by the Owner and Project Manager after the application date fixed above, payment shall be made by the Owner not later than the next scheduled progress payment, as described in the previous sentence. The Construction Manager shall make payment to its subcontractors within seven (7) business days after receipt of payment from the Owner. If the Owner becomes aware that any subcontractor is not being paid as required, the Owner may elect to issue joint checks, payable to the Construction Manager and such subcontractor for future payments due such subcontractor. In the event the Owner elects to issue joint checks as described above, the Owner shall not be required to pay Construction Manager's Fee on account of the amount set forth in such joint check(s), and the Guaranteed Maximum Price shall be reduced by amount equal to [***] percent ([***]%) of the aggregate amount of joint checks issued.

§ 7.1.4 With each Application for Payment, the Construction Manager shall submit payrolls, petty cash accounts, receipted invoices or invoices with check vouchers attached and any other evidence required by the Owner or Project Manager to demonstrate that cash disbursements already made by the Construction Manager on account of the Cost of the Work equal or exceed (1) progress payments already received by the Construction Manager; less (2) that portion of those payments attributable to the Construction Manager's Fee; plus (3) payrolls for the period covered by the present Application for Payment. With each Application for Payment, the Construction Manager

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shall submit (i) its Waiver and Release of Liens and Claims, in the forms set forth in Exhibit H hereto, covering all Work performed through the date of the current Application for Payment, and conditioned only on payment; and (ii) Waivers and Releases of Liens and Claims from each subcontractor and supplier in the forms set forth in Exhibit H, covering all Work performed through the date of the prior month's Application for Payment. See section 9.3.3.1 of the General Conditions with respect reimbursement for bonding off liens.

§ 7.1.5 Each Application for Payment shall be based upon the most recent schedule of values submitted by the Construction Manager in accordance with the Contract Documents and approved in writing by the Owner. The schedule of values shall allocate the entire Guaranteed Maximum Price among the various portions of the Work, except that the Construction Manager's Fee, the General Conditions costs, other guaranteed line items and the Contingency shall be shown as separate line items. The schedule of values shall be prepared in such form and supported by such data to substantiate its accuracy as the Owner and Project Manager may require. This schedule, unless objected to by the Owner, shall be used as a basis for reviewing the Construction Manager's Applications for Payment.

§ 7.1.6 Applications for Payment shall show the percentage completion of each portion of the Work as of the end of the period covered by the Application for Payment. The percentage completion shall be the lesser of (1) the percentage of that portion of the Work which has actually been completed or (2) the percentage obtained by dividing (a) the expense which has actually been incurred by the Construction Manager on account of that portion of the Work for which the Construction Manager has made or intends to make actual payment prior to the next Application for Payment by (b) the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values.

§ 7.1.7 Subject to other provisions of the Contract Documents, the amount of each progress payment shall be computed as follows:

- .1 Take that portion of the Guaranteed Maximum Price properly allocable to completed Work as determined by multiplying the percentage completion of each portion of the Work by the share of the Guaranteed Maximum Price allocated to that portion of the Work in the schedule of values. Pending final determination of cost to the Owner of changes in the Work, amounts not in dispute may be included as provided in Section 7.3.7 of the General Conditions, even though the Guaranteed Maximum Price has not yet been adjusted by Change Order.
- .2 Add that portion of the Guaranteed Maximum Price properly allocable to materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work or, if approved in advance by the Owner, suitably stored off the site at a location agreed upon in writing.
- .3 Add the Construction Manager's Fee, less ten percent (10%). The Construction Manager's Fee shall be computed upon the Cost of the Work described in the two preceding Sections at the rate stated in Section 5.1.1 or, if the Construction Manager's Fee is stated as a fixed sum in that Section, shall be an amount which bears the same ratio to that fixed-sum Fee as the Cost of the Work in the two preceding Sections bears to a reasonable estimate of the probable Cost of the Work upon its completion. Notwithstanding the foregoing, when the Work is 50% complete, no further retainage shall be withheld on the Construction Manager's Fee or the general conditions cost portion of the Cost of the Work.
- .4 Subtract the aggregate of previous payments made by the Owner.
- .5 Subtract the shortfall, if any, indicated by the Construction Manager in the documentation required by Section 7.1.4 to substantiate prior Applications for Payment, or resulting from errors subsequently discovered by the Owner's accountants in such documentation.
- .6 Subtract amounts, if any, for which the Owner or the Project Manager has determined should be withheld as provided in Section 9.5 of A201™-1997.

§ 7.1.8 Except with the Owner's prior written approval, payments to Subcontractors and payments on account of other items of Cost of the Work shall be subject to retention of ten percent (10%) until the Work is fifty percent (50%) complete, after which no further retainage shall be withheld. Notwithstanding the foregoing, if at any time the Owner reasonably believes that the Work is not progressing satisfactorily, the Owner retains the right to reinstate the above-mentioned retainage in whole or in part. Retainage withheld shall be paid as part of the Application for Payment immediately following Substantial Completion of the Work, less 200% of the value of punch list items and other items of incomplete work. The Owner and the Construction Manager shall agree upon a mutually acceptable procedure for review and approval of payments and retention for subcontracts in writing. If a subcontractor has

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completed its portion of the Work (including all punch list items and delivery of all items required under the Contract Documents to close-out its subcontract) pursuant to any given subcontract, the Construction Manager may request the Owner to disburse the retainage being held by the Owner in respect of such Subcontractor, after delivering to the Owner any necessary consent to such disbursement from any sureties in form reasonably satisfactory to the Owner. If the Owner is reasonably satisfied the Subcontractor's work has been completed in accordance with the Contract Documents and the Owner has received satisfactory final waivers of liens and claims with respect to the Subcontractor's work, the Owner shall disburse said retainage. Regardless of whether the Owner has disbursed said retainage to any Subcontractor, the warranty period referred to in the General Conditions or the other Contract Documents shall not begin with respect to the portion of the Work performed by such Subcontractor until the Date of Substantial Completion of the entire Work.

§ 7.1.9 Except with the Owner's prior written approval, the Construction Manager shall not make advance payments to suppliers for materials or equipment which have not been delivered and stored at the site, unless Owner is reasonably satisfied that the materials or equipment have been procured and are suitably and safely stored, insured and protected so as adequately to protect Owner's title thereto and/or interest therein.

(Paragraphs deleted)

§ 7.2 FINAL PAYMENT

§ 7.2.1 Final payment shall be made by the Owner to the Construction Manager when (1) the Contract has been fully performed by the Construction Manager except for the Construction Manager's responsibility to correct nonconforming Work, as provided in Section 12.2.2 of A201™-1997, and to satisfy other requirements, if any, which necessarily survive final payment; (2) a final Application for Payment and a final accounting for the Cost of the Work have been submitted by the Construction Manager and reviewed by the Owner's accountants; (3) the Owner and the Project Manager have approved the final Application for Payment; and (4) final waivers and releases of liens and claims from the Construction Manager and all subcontractors and suppliers (contingent only upon final payment) have been received by the Owner; such final payment shall be made by the Owner not more than 30 days after the issuance of the Architect's final Certificate for Payment, or as follows:

§ 7.2.2 The amount of the final payment shall be calculated as follows:

- .1 Take the sum of the Cost of the Work substantiated by the Construction Manager's final accounting and the Construction Manager's Fee, but not more than the Guaranteed Maximum Price.
- .2 Subtract amounts, if any, for which the Owner or Project Manager withholds, in whole or in part, funds from the Application for Payment pursuant to the provisions of the Contract Documents.
- .3 Subtract the aggregate of previous payments made by the Owner.

If the aggregate of previous payments made by the Owner exceeds the amount due the Construction Manager, the Construction Manager shall reimburse the difference to the Owner.

§ 7.2.3 The Owner's accountants will review and report in writing on the Construction Manager's final accounting within thirty (30) days after delivery of the final accounting to the Owner and the Project manager by the Construction Manager. Based upon such Cost of the Work as the Owner's accountants report to be substantiated by the Construction Manager's final accounting, and provided the other conditions of Section 7.2.1 and other conditions in the Contract Documents relating to final payment have been met, the Owner will, within seven (7) days after receipt of the written report of the Owner's accountants, notify the Construction Manager of the amount the Owner believes to be due as final payment.. The time periods stated in this Section 7.2 supersede those stated in Subparagraph 9.4.1 of the General Conditions.

§ 7.2.4 If the Owner's accountants report the Cost of the Work as substantiated by the Construction Manager's final accounting to be less than claimed by the Construction Manager, the Construction Manager shall be entitled to proceed in accordance with Article 9. Unless agreed to otherwise, a demand for arbitration of the disputed amount shall be made by the Construction Manager within 60 days after the Construction Manager's receipt of a copy of the Owner's notice described in Paragraph 7.2.3 above. Failure to make such demand within this 60-day period shall result in the substantiated amount reported by the Owner's accountants becoming binding on the Construction Manager. Pending a final resolution of the disputed amount, the Owner shall pay the Construction Manager the amount certified in the Architect's final Certificate for Payment.

(Paragraphs deleted)

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ARTICLE 8 INSURANCE AND BONDS

§ 8.1 INSURANCE REQUIRED OF THE CONSTRUCTION MANAGER

During both phases of the Project, the Construction Manager shall purchase and maintain insurance as set forth in Exhibit I attached hereto.

(Paragraphs deleted)

§ 8.3 PERFORMANCE BOND AND PAYMENT BOND

§ 8.3.1 At the written request of the Owner, made concurrently with acceptance of the Guaranteed Maximum Price proposal, the Construction Manager shall furnish bonds covering the faithful performance of the Contract and payment of obligations thereunder. Such bonds shall be furnished within the earlier to occur of (a) thirty (30) days after establishment of the Guaranteed Maximum Price or (b) three (3) days prior to commencement of construction work at the site. Each bond shall be in an amount equal to the Guaranteed Maximum Price, or at the election of the Owner, the Construction Manager's Fee and General Conditions portion of the Guaranteed Maximum Price. Such bonds shall be issued by sureties reasonably acceptable to the Owner, at the request of the Owner shall name the Owner and the Owner's lender as dual obligees and shall be on forms reasonably acceptable to the Owner. In addition, the Construction Manager shall require each subcontractor having a subcontract with a value in excess of \$[***] to furnish payment and performance bonds, each in the amount of such subcontractor's contract amount, and naming the Construction Manager and the Owner as dual obligees. With the approval of the Owner, the Construction Manager may enroll subcontractors in Subguard insurance in lieu of such subcontractors providing payment and performance bonds.

(Paragraphs deleted)

ARTICLE 9 MISCELLANEOUS PROVISIONS

§ 9.1 DISPUTE RESOLUTION FOR THE PRECONSTRUCTION PHASE

§ 9.1.1 Any claim, dispute, or other matter in question arising out of or related to this Agreement or breach thereof shall be determined in accordance with Article 4 of the General Conditions.

§ 9.2 DISPUTE RESOLUTION FOR THE CONSTRUCTION PHASE

§ 9.2.1 Any claim, dispute or other matter in question arising out of or related to this Agreement or breach thereof shall be settled in accordance with Article 4 of the General Conditions.

§ 9.3 OTHER PROVISIONS

§ 9.3.1 Unless otherwise noted, the terms used in this Agreement shall have the same meaning as set forth in the General Conditions.

§ 9.3.2 EXTENT OF CONTRACT

This Contract, which includes this Agreement and the other documents incorporated herein by reference, represents the entire and integrated agreement between the Owner and the Construction Manager and supersedes all prior negotiations, representations or agreements, either written or oral. This Agreement may be amended only by written instrument signed by both the Owner and Construction Manager. If anything in any document incorporated into this Agreement is inconsistent with this Agreement, this Agreement shall govern.

§ 9.3.3 OWNERSHIP AND USE OF DOCUMENTS

The Drawings, Specifications and other documents prepared by the Architect and the Fill/Finish A/E, and copies thereof furnished to the Construction Manager, are for use solely with respect to this Project. They are not to be used by the Construction Manager, Subcontractors, Sub-subcontractors or suppliers on other projects, or for additions to this Project outside the scope of the Work, without the specific written consent of the Owner and Architect or Fill/Finish A/E, as applicable, the Construction Manager, Subcontractors, Sub-subcontractors and suppliers are granted a limited license to use and reproduce applicable portions of the Drawings, Specifications and other documents prepared by the Architect and Fill/Finish A/E appropriate to and for use in the execution of their Work under the Contract Documents.

§ 9.3.4 GOVERNING LAW

The Contract shall be governed by the law of the State of Maryland, without giving effect to principles of conflicts of laws thereof. The Construction Manager hereby consents to jurisdiction over its person by any court sitting in the State of Maryland, and hereby waives any objection of *forum non conveniens* and any similar objection to venue in the State of Maryland.

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§ 9.3.5 ASSIGNMENT

The Owner and Construction Manager respectively bind themselves, their partners, successors, assigns and legal representatives to the other party hereto and to partners, successors, assigns and legal representatives of such other party in respect to covenants, agreements and obligations contained in the Contract Documents. Except as provided in Section 11.8 below, neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

Nothing contained in this Contract shall create a contractual relationship with or a cause of action in favor of a third party against either the Owner or the Construction Manager.

If the Owner requests the Construction Manager to execute certificates, the proposed language of such certificates shall be submitted to the Construction Manager for its review at least seven (7) days prior to the requested dates of execution. The Construction Manager shall promptly execute such certificates as to matters that are within the scope of its knowledge, with reasonable and appropriate qualifiers as necessary. The Construction Manager shall not be required to execute certificates that would require knowledge, services or responsibilities beyond the scope of this Contract.

ARTICLE 10 TERMINATION OR SUSPENSION

(Paragraphs deleted)

§ 10.1 § 10.1 TERMINATION SUBSEQUENT TO ESTABLISHING GUARANTEED MAXIMUM PRICE

This Contract may be terminated as provided in Article 14 of the General Conditions.

(Paragraphs deleted)

§ 10.2 SUSPENSION

The Work may be suspended by the Owner as provided in Article 14 of the General Conditions; in such case, the Guaranteed Maximum Price, if established, shall be increased as provided in Section 14.3 of the General Conditions except that the term “cost of performance of the Contract” in that Section shall be understood to mean the Cost of the Work and the term “profit” shall be understood to mean the Construction Manager’s Fee as described in Exhibit G.

ARTICLE 11 OTHER CONDITIONS AND SERVICES

§ 11.1 The following Exhibits are incorporated by reference to this Agreement:

Exhibit A	Scope of Work
Exhibit B	General Conditions
Exhibit C	Equipment Matrix
Exhibit D	Scope of Authority of Project Manager
Exhibit E	Project Schedule
Exhibit F	Key Personnel and Hourly Rates
Exhibit G	GMP, including General Conditions Items and Costs, Fee and Contingency [to be inserted at such time as the GMP is agreed upon]
Exhibit H	Forms of Partial and Final Waivers of Liens and Claims
Exhibit I	Insurance Requirements
Exhibit J	Other Requirements
Exhibit K	Forms of Construction Manager’s Subcontract and Purchase Order.

§ 11.2 Whenever possible, each provision of this Agreement shall be interpreted in such a manner as to be effective and valid under applicable laws. If, however, any provision of this Agreement, or portion thereof, is prohibited by law or found invalid under any law, such provision or portion thereof, only shall be ineffective without in any manner invalidating or affecting the remaining provisions of this Agreement or the valid portion of such provision, which provisions are deemed severable.

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§ 11.3 The waiver by one party of any breach of this Agreement or the failure of one party to enforce at any time, or for any period of time, any provision hereof, shall be limited to the particular waiver or non-enforcement, and shall not operate or be deemed to waive any future breach of this Agreement or be construed to be a waiver of any other provision of this Agreement.

§ 11.4 Each party hereto agrees to do all acts and things and to make, execute and deliver such written instruments as from time to time are reasonably required to carry out the terms and intent of this Agreement. The Construction Manager shall, and cause all of its subcontractors to, fully cooperate with the Owner and comply with all requests by the Owner for reports, certificates, statements and further services which are not inconsistent with the terms and conditions of this Agreement.

§ 11.5 The Contract hereby warrants and represents that the Construction Manager shall not knowingly or negligently communicate or disclose at any time to any person or entity any information in connection with the Project, except (i) with the Owner's prior written consent, (ii) as necessary to perform the Work, provided the Owner receives prior notice of such necessity, or (iii) as may be required by law. Any authorized communication or disclosure shall be limited strictly to the extent of such authorization. If any person or entity seeks from the Contract any information concerning the Project, the Construction Manager shall promptly notify the Owner. All information, records and documents furnished by the Owner in connection with the Project are hereby considered privileged and confidential. The Construction Manager shall cause any subcontractors or any other person or entity performing any portion of the Work to warrant and represent the items set forth in this Section 11.5. The representations and warranties contained herein shall survive the complete performance of the Work or earlier termination of the Agreement.

§ 11.6 The Owner and the Construction Manager, respectively, bind themselves, their partners, successors, assigns and legal representatives to the other party to this Agreement and to the partners, successors, assigns and legal representatives of such other party with respect to all covenants of this Agreement. The Construction Manager shall not assign this Agreement without the written consent of the Owner. The Construction Manager under this Agreement may not assign any monies due to the Construction Manager under this Agreement.

§ 11.7 The Construction Manager agrees that it will include the terms of the Agreement and the other Contract Documents in its subcontracts and other agreements with persons or entities performing work on behalf of the Construction Manager for the Project (other than financial and business terms unrelated to such parties' work).

§ 11.8 The Owner shall have the right to assign this Agreement to any affiliated entities or its Lender, effective as of the date of a written notice provided by the Owner. The Owner shall have the right to assign this Agreement to any other parties with the prior written consent of the Construction Manager, which shall not be withheld so long as such assignee agrees to remain responsible to fulfill the terms and conditions of this Agreement, including the financial obligations. In the event the Construction Manager reasonably believes, after receipt of reasonable evidence, that the proposed assignee is unable to fulfill the Owner's financial obligations hereunder, the Owner may still assign this Agreement, but the Owner shall agree to remain contingently liable for the Owner's financial obligations hereunder.

§ 11.9 The Construction Manager agrees that all services rendered in connection with the Project prior to the date of this Agreement and hereby deemed part of the Work under this Agreement and shall be governed hereby. The Construction Manager further represents and warrants to the Owner that the Construction Manager is not aware of any claims that the Construction Manager may have in connection with the Project as of the date of this Agreement including, without limitation, any claim for an adjustment in compensation and the Construction Manager hereby waives and forfeits all right to any such claim of which the Construction Manager should have knowledge.

§ 11.10 All notices given under this Agreement shall be in writing and shall be deemed properly served if delivered in person to the individual to whom it is addressed, or two (2) business days after deposit in the United States mail, if sent postage prepaid by United States registered or certified mail, return receipt requested. All notices shall be sent to the persons and addresses on the first page of the Agreement, or to such other address or addressee as any party entitled to receive notice hereunder shall designate to all other parties in the manner provided here for the service of notice.

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This Agreement entered into as of the day and year first written above.

OWNER

/s/ John M. Ferrari
(Signature)
UNITED THERAPEUTICS CORPORATION

John M. Ferrari, CFO
(Printed name and title)

11/5/07
Date

/s/ Avi Halpert
ATTEST

(Table deleted)(Paragraphs deleted)

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CONSTRUCTION MANAGER

/s/ Timothy J. Regan
(Signature)
THE WHITING-TURNER CONTRACTING COMPANY

Timothy J. Regan, Senior Vice President
(Printed name and title)

October 23, 2007
Date

/s/ John S. Hess
ATTEST

Exhibit A

Scope of Work

October 8, 2007

The Whiting-Turner Contracting Company ("Construction Manager" and "Constructor") is responsible for the Scope of Work defined and qualified as follows:

1. Construction Manager will provide Pre-construction and Estimating Services to reach a mutually agreeable Guaranteed Maximum Price for Unither ("The Project") and for United Therapeutics Corporation ("The Owner").
2. Construction Manager will provide a Guaranteed Maximum Price ("GMP") for The Project with Assumptions and Clarifications. The Assumptions and Clarifications form the basis of the GMP and take precedence over all other contract documents.

[Items 3, 4 & 5 have been superseded by Amendment No. 1]



Document A201™ – 1997

General Conditions of the Contract for Construction

for the following PROJECT:

(Name and location or address):

Construction of a new Class A headquarters building for use as office space and fill-finish facilities, containing approximately 90,000 square feet, and ancillary facilities located in Silver Spring, Maryland, as more fully described on Exhibit A attached to the Agreement.

THE OWNER:

(Paragraphs deleted) United Therapeutics Corporation
1110 Spring Street
Silver Spring, MD 20910

THE ARCHITECT:

(Paragraphs deleted) Schick Goldstein Architects, P.C.
1506 19th Street, N.W.
Washington, DC 20036

THE FILL/FINISH A/E

IPS Integrated Project Services, Inc.
2001 Joshua Road
Lafayette Hill, PA 19444

THE CONTRACTOR:

The Whiting-Turner Contracting Company
300 East Joppa Rd.
Baltimore, MD 21286

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ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

This document has been approved and endorsed by The Associated General Contractors of America

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ARTICLE 1 GENERAL PROVISIONS

§ 1.1 BASIC DEFINITIONS

§ 1.1.1 THE CONTRACT DOCUMENTS

The Contract Documents are defined in Article 1 of the Agreement between Owner and Contractor, including all Exhibits, of which these General Conditions are Exhibit B (hereinafter the “Agreement”). The Contractor acknowledges that it has had an opportunity to visit the site and to consult with the Architect, the Fill/Finish A/E, the Owner and the Project Manager to obtain any clarifications necessary to establish the Contract Sum. In that regard, Contractor warrants that it has reviewed the Contract Documents (which include, but are not limited to, the design documents prepared by the Fill/Finish A/E), they are sufficient, and Contractor has obtained any clarifications necessary to prosecute the Work.

§ 1.1.2 THE CONTRACT

The Contract Documents form the Contract for Construction. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations or agreements, either written or oral. The Contract may be amended or modified only by a Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind (1) between the Architect and Contractor, (2) between the Fill/Finish A/E and Contractor, (3) between the Owner and a Subcontractor or Sub-subcontractor or supplier, (4) between the Owner and Architect or (5) between any persons or entities other than the Owner and Contractor. The Architect and the Fill/Finish A/E shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect’s and Fill/Finish A/E’s duties.

§ 1.1.3 THE WORK

The term “Work” means the construction and services required by the Contract Documents, whether completed or partially completed, and includes all other labor, materials, equipment and services provided or to be provided by the Contractor to fulfill the Contractor’s obligations. The Work may constitute the whole or a part of the Project.

§ 1.1.4 THE PROJECT

The Project is the total construction of which the Work performed under the Contract Documents may be the whole or a part and which may include construction by the Owner or by separate contractors.

§ 1.1.5 THE DRAWINGS

The Drawings are the graphic and pictorial portions of the Contract Documents showing the design, location and dimensions of the Work, generally including plans, elevations, sections, details, schedules and diagrams, and include drawings prepared by the Fill/Finish A/E.

§ 1.1.6 THE SPECIFICATIONS

The Specifications are that portion of the Contract Documents consisting of the written requirements for materials, equipment, systems, standards and workmanship for the Work, and performance of related services and include specifications prepared by the Fill/Finish A/E.

§ 1.1.7 THE PROJECT MANUAL

The Project Manual is a volume assembled for the Work which may include the bidding requirements, sample forms, Conditions of the Contract and Specifications.

§ 1.1.8 REASONABLY INFERABLE

The standard of determination of what is “reasonably inferable” shall be that which would be reasonably inferred as part of the work by national, large and experienced contractors engaged during the preconstruction services phase of projects similar to the Project

§ 1.1.9 CONTRACTOR’S COST AND EXPENSE

Whenever in these General Conditions the Contractor is required to bear a cost “at its expense”, “at its cost” or similar phrases, such costs and expenses shall be reimbursable as Cost of the Work to the extent permitted by the provisions of Article 7 of the Agreement and not excluded by the provisions of Article 8 of the Agreement.

§ 1.2 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

§ 1.2.1 The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the Work by the Contractor. The Contract Documents are complementary, and what is required by

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one shall be as binding as if required by all; performance by the Contractor shall be required only to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the intended results.

§ 1.2.2 Organization of the Specifications into divisions, sections and articles, and arrangement of Drawings shall not control the Contractor in dividing the Work among Subcontractors or in establishing the extent of Work to be performed by any trade. In general, the Drawings shall be considered as establishing location, quantity and relationship of materials and the Specifications shall be considered as defining type and quality of materials and workmanship requirements. The requirements for the greatest quantity and the highest quality to be interpreted from those documents shall govern unless otherwise directed or clarified by the Owner.

§ 1.2.3 Unless otherwise stated in the Contract Documents, words which have well-known technical or construction industry meanings are used in the Contract Documents in accordance with such recognized meanings.

§ 1.2.4 The Contractor shall not commence the Work, or thereafter perform any Change Order Work, without prior written instructions from the Owner or its authorized representative. Drawings are, in general, drawn to scale, and are of necessity diagrammatic; symbols are used to indicate materials and structural, mechanical and electrical control requirements. The Contractor acknowledges that it is not possible to indicate all connections, fittings, fastenings, etc. which are required to be furnished for the proper execution of the Work and which are reasonably inferred from the Drawings. Any connections, fittings, fastenings, etc. required to be furnished for the proper execution of the Work and which are reasonably inferable from the Contract Documents as necessary to provide the intended results shall be provided by the Contractor at no additional cost using industry standards and good construction practice as a basis for making such inference. Connections, fittings, fastenings, etc. included in the Contract Documents shall be furnished by Contractor as part of the Contract Sum. In addition, all Work and services performed by the Contractor shall conform to CGMP standards mandated by the Food and Drug Administration and European and Japanese equivalents bearing on the performance of the Work and all other federal, state and local laws, ordinances, orders, rules, codes and regulations bearing on the performance of the Work (collectively, "Applicable Laws").

§ 1.2.5 It is Contractor's responsibility to request from the Architect and/or the Fill/Finish A/E (with a copy to the Architect) any and all required clarifications of all questions which may have arisen or may arise as to intent of the Contract Documents. The Architect shall issue clarifications to the Contractor (on its own behalf and as a pass-through for the Fill/Finish A/E) only after written approval thereof by the Owner. Should the Contractor have failed to request such clarification, in accordance with the standards described in Section 3.2.1 below, then the Owner or Architect (after consultation with the Owner and Fill/Finish A/E if appropriate) shall direct that the Work proceed by any method indicated, specified or required by the Contract Documents in the interest of maintaining good construction practices, and such direction by the Owner or Architect shall not constitute the basis for a claim for extra costs or time by the Contractor. Notwithstanding the foregoing, even if the Contractor fails to request a clarification in a timely manner, and the issue involves an omission of an item in the Contract Documents, the Contractor shall not be responsible for the costs associated with providing such item (unless such item is reasonably inferable from the Contract Documents as necessary to provide the intended results), but will be responsible for the incremental costs incurred as a result of the delay in reporting such omission.

§ 1.2.6 The Contractor shall verify all dimensions prior to execution of any particular phase of the Work. Whenever inaccuracies or discrepancies are found, the Contractor shall consult the Architect prior to any construction or demolition. Should any dimensions be missing, the Architect will, after consultation with the Owner and Fill/Finish A/E, if appropriate, supply such dimensions prior to execution of the Work. Dimensions for items to be fitted into constructed conditions at the site will be taken at the site. Whenever a stock size manufactured item or piece of equipment is specified by its nominal size, the actual space requirements for setting or entrance to the setting space shall be determined by the Contractor and communicated in writing to the Architect and Fill/Finish A/E, if appropriate, prior to construction thereof. No extra costs will be allowed by reason of Work requiring adjustments in order to accommodate the particular item of equipment unless the Contractor has notified the Architect and the Owner sufficiently in advance of construction so that the Architect can make the necessary adjustments to the Drawings and Specifications without causing a delay to the Work.

§ 1.2.7 The Contractor shall follow the reference standards and reference specifications indicated in the Contract Documents. The applicable reference standard or reference specification shall be the most recent issue thereof as of

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the date of the Specification or Drawing in which such reference standard or reference specification is indicated, prior to the date of the Agreement unless another issue is specifically indicated in such Specification or Drawing. Upon request, the Contractor shall make available at the Contractor's main office or at the Project site copies of all applicable reference standards and reference specifications for the use of the Architect and the Owner.

§ 1.2.8 The Contractor represents and warrants that all of the design elements in the Project which are not functionally required and which were designed by, under or through the Contractor pursuant to the requirements of the Contract Documents, if any, are either (i) in the public domain and not subject to a copyright or other intellectual property claim by another person or entity, or (ii) are the Contractor's independent creation, or (iii) fully within the scope of an applicable license procured by the Contractor, which shall remain in full force and effect while any portion of the Project is standing. This representation and warranty shall, notwithstanding the applicable statute of limitations, survive until the expiration date of the applicable statute of repose. If the Contractor's representation and warranty proves false or inaccurate in any material manner, the Contractor shall defend, indemnify and hold harmless the Owner, any successor-in-interest to the Owner and any successor in title from any loss or expense (including attorneys' fees and other court costs) resulting therefrom. This indemnification shall be in addition to all other remedies afforded the Owner under this Agreement, by law or in equity and shall survive termination or expiration of the Contract.

§ 1.3 CAPITALIZATION

§ 1.3.1 Terms capitalized in these General Conditions include those which are specifically defined herein or elsewhere in the Contract Documents.

§ 1.4 INTERPRETATION

§ 1.4.1 In the interest of brevity the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

§ 1.5 EXECUTION OF CONTRACT DOCUMENTS

§ 1.5.1 The Contract Documents shall be signed by the Owner and Contractor. If either the Owner or Contractor or both do not sign all the Contract Documents, the Architect shall identify such unsigned Contract Documents upon request.

§ 1.5.2 Execution of the Contract by the Contractor is a representation that the Contractor has carefully reviewed all of the Contract Documents, visited the site, become generally familiar with local conditions under which the Work is to be performed (including, without limitation, the location, condition, layout and nature of the site and surrounding areas, generally prevailing climatic conditions, anticipated labor supply and costs, availability and costs of materials, tools and equipment) and correlated personal observations with requirements of the Contract Documents. The Contractor represents that it has had the opportunity to obtain any and all clarifications necessary to understanding the Work to be performed and to establish the Contract Sum and Project Schedule.

§ 1.6 OWNERSHIP AND USE OF INSTRUMENTS OF SERVICE

§ 1.6.1 The Instruments of Service, including those in electronic form, prepared by the Architect and the Architect's consultants, and by the Fill/Finish A/E are licensed to the Owner. All documents, reports and other information prepared by the Contractor and those within its control, are and shall remain the property of the Owner. None of the foregoing may be used on any other project without the prior written consent of the Owner. The Contractor may retain one record set; all other copies shall be returned to the Owner at final completion of the Work or, at the Owner's election, destroyed with evidence of destruction being furnished to the Owner.

ARTICLE 2 OWNER

§ 2.1 GENERAL

§ 2.1.1 The Owner is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The Owner has designated Avi Halpert as its representative, who shall have express authority to bind the Owner with respect to all matters requiring the Owner's approval or authorization, except as otherwise provided in a written notice to the Contractor. Except as otherwise provided in Section 4.2.1, the Architect and the Fill/Finish A/E do not have such authority. The term "Owner" means the Owner or the Owner's authorized representative. The Architect and the Fill/Finish A/E do not have the authority to authorize changes in the Work without the consent of the Owner.

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§ 2.1.2 The Owner shall furnish to the Contractor within fifteen (15) days after receipt of a written request, information necessary and relevant for the Contractor to evaluate, give notice of or enforce mechanic's lien rights. Such information shall include a correct statement of the record legal title to the property on which the Project is located, usually referred to as the "Site", and the Owner's interest therein.

§ 2.2 INFORMATION AND SERVICES REQUIRED OF THE OWNER

§ 2.2.1 The Owner shall secure and pay for the Building Permit. The Contractor shall provide and pay for all other necessary permits and fees, including all temporary and final certificates of occupancy.

§ 2.2.2 The Owner shall furnish surveys or other information describing physical characteristics, legal limitations and utility locations for the Site, and shall furnish or cause to be furnished to the Contractor a legal description of the Site.

§ 2.2.3 Information or services under the Owner's control shall be furnished by the Owner with reasonable promptness to avoid delay in the orderly progress of the Work.

§ 2.2.4 The Contractor will be furnished, free of charge, four (4) full size and one (1) half size sets of Drawings and one copy of the Project Manual, which contains the Specifications. It shall be the Contractor's responsibility to provide as many additional copies of Drawings and Project Manuals as are reasonably necessary for execution of the Work.

(Paragraphs deleted)

§ 2.3 OWNER'S RIGHT TO STOP THE WORK

§ 2.3.1 If the Contractor fails to correct Work which is not in accordance with the requirements of the Contract Documents as required by Section 12.2 or fails to carry out Work in accordance with the Contract Documents in any material respect, the Owner may give seven (7) days written notice to the Contractor to commence correction of the problem and thereafter diligently pursue correction to completion. If the Contractor does not commence correction of the problem within such seven (7) day period, and thereafter diligently pursue such correction to completion, the Owner may issue a written order to the Contractor to stop the Work, or any portion thereof, until the cause for such order has been eliminated; however, the right of the Owner to stop the Work shall not give rise to a duty on the part of the Owner to exercise this right for the benefit of the Contractor or any other person or entity. This right shall be in addition to, and not in restriction of, the Owner's rights under the other provisions of the Contract Documents.

§ 2.3.2 If, in the Owner's judgment, suspension of the Work is warranted by reason of unforeseen conditions, which may adversely affect the Work if such Work were continued, the Owner may suspend the Work by written notice to the Contractor. In such event, the Contract Sum and/or Contract Time shall be equitably adjusted in accordance with the provisions of the Contract Documents. If the Contractor, in its reasonable judgment, believes that a suspension is warranted by reason of unforeseen circumstances, which may adversely affect the quality of the Work if the Work were continued, the Contractor shall immediately provide written notice to the Owner and Architect of such belief.

§ 2.4 OWNER'S RIGHT TO CARRY OUT THE WORK

§ 2.4.1 If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents and fails within a the seven (7) day period after receipt of written notice from the Owner to commence correction of such default or neglect within such seven (7) day period and thereafter continue such cure with diligence and promptness, the Owner may, without prejudice to other remedies the Owner may have, correct such deficiencies. In such case an appropriate Change Order shall be issued deducting from payments then or thereafter due the Contractor the reasonable cost of correcting such deficiencies, including Owner's expenses and reasonable compensation for the Architect's additional services made necessary by such default, neglect or failure. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the Owner.

ARTICLE 3 CONTRACTOR

§ 3.1 GENERAL

§ 3.1.1 The Contractor is the person or entity identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term "Contractor" means the Contractor or the Contractor's authorized representative, and where used in connection with obligations of the Contractor under the Contract

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Documents, includes the Contractor's Subcontractors, suppliers and any other person or entity under the control of the Contractor.

§ 3.1.2 The Contractor shall perform the Work in accordance with the Contract Documents and Applicable Laws, as well as the documents listed in Exhibit J to the Agreement, including, but not limited to, Montgomery County Critical Structures.

§ 3.1.3 The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents and Applicable Laws either by activities or duties of the Architect in the Architect's administration of the Contract, or by tests, inspections or approvals required or performed by persons other than the Contractor.

§ 3.2 REVIEW OF CONTRACT DOCUMENTS AND FIELD CONDITIONS BY CONTRACTOR

§ 3.2.1 The Contractor hereby specifically acknowledges and declares that the Drawings, the Specifications, and all other Contract Documents, are sufficient to enable the Contractor to construct the Work outlined therein and in accordance with Applicable Laws and otherwise fulfill its obligations under the Contract Documents. The Contractor represents that it has carefully examined all Contract Documents and acknowledges that the Contractor shall not be entitled to an extension of the Contract Time or an adjustment in the Contract Sum to the extent the Contract Documents contain inconsistencies, discrepancies or omissions of which the Contractor had knowledge, or which are reasonably inferable from the Contract Documents as necessary to provide the intended results. The Contractor represents and warrants that the Contractor has examined the Site and is familiar with the conditions under which the Work is to be performed, including without limitation, the location, condition, layout and nature of the Site and surrounding areas, generally prevailing climactic conditions, anticipated labor supply and costs, availability and cost of materials, tools and equipment, restrictions set forth in the Contract Documents, reports regarding underground conditions furnished by the Owner and other similar matters.

§ 3.2.2 Any design errors, omissions or inconsistencies noted by the Contractor shall be reported promptly to the Architect and the Owner, but it is recognized that the Contractor's review is made in the Contractor's capacity as a contractor and not as a licensed design professional unless otherwise specifically provided in the Contract Documents. The Contractor is not required to ascertain that the Contract Documents are in accordance with applicable laws, statutes, ordinances, building codes, and rules and regulations relating to design, but any nonconformity discovered by or made known to the Contractor shall be reported promptly to the Architect and the Owner in writing, and necessary changes shall be accomplished by appropriate Modification. The Contractor shall advise the Owner and the Architect of any changes in Applicable Laws of which it becomes aware.

§ 3.2.3 If the Contractor believes that it is entitled under the terms of the Contract Documents to an adjustment in the Contract Sum or Contract Time because of clarifications or instructions issued by the Architect in response to the Contractor's notices or requests for information pursuant to Sections 3.2.1 and 3.2.2, the Contractor shall notify the Owner and the Project Manager in writing prior to acting on such clarifications or instructions, and shall obtain the Owner's consent to such action. In the event the Owner approves in writing such action, the Contractor shall be entitled to make Claims as provided in Sections 4.3.6 and 4.3.7. If the Contractor fails to perform the obligations of Sections 3.2.1 and 3.2.2, the Contractor shall pay such costs and damages to the Owner as would have been avoided if the Contractor had performed such obligations. The Contractor shall not be liable to the Owner or Architect for damages resulting from errors, inconsistencies or omissions in the Contract Documents or for differences between field measurements or conditions and the Contract Documents unless (a) the Contractor recognized such error, inconsistency, omission or difference and failed to report it to the Architect or (b) they were reasonably inferable from the Contract Documents as necessary to produce the intended results.

§ 3.3 SUPERVISION AND CONSTRUCTION PROCEDURES

§ 3.3.1 The Contractor shall supervise and direct the Work, using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences and procedures and for coordinating all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. If the Contract Documents give specific instructions concerning construction means, methods, techniques, sequences or procedures, the Contractor shall evaluate the jobsite safety thereof and, except as stated below, shall be fully and solely responsible for the jobsite safety of such means, methods, techniques, sequences or procedures. If the Contractor determines that such means, methods, techniques, sequences or procedures may not be safe, the Contractor shall give timely written notice to the Owner and Architect and shall not proceed with that portion of the Work without further written instructions from the

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Architect. If the Contractor is then instructed to proceed with the required means, methods, techniques, sequences or procedures without acceptance of changes proposed by the Contractor, the Owner shall be solely responsible for any resulting loss or damage. The Contractor shall be responsible for and shall supervise, coordinate and direct the Work of all Subcontractors and Sub-subcontractors. The Contractor shall be solely responsible for laying out the Work.

§ 3.3.2 The Contractor shall be responsible to the Owner for acts and omissions of the Contractor's employees, Subcontractors and their agents and employees, and other persons or entities performing portions of the Work for or on behalf of the Contractor or any of its Subcontractors. For purposes of these General Conditions, "Subcontractors" shall mean all entities, including but not limited to materialmen, suppliers and vendors, having a contract with the Contractor or a person or entity who has a contract with the Contractor. The Contractor shall not be responsible for the work of separate contractors, except to the extent provided in Article 6 below.

§ 3.3.3 The Contractor shall be responsible for inspection of portions of Work already performed to determine that such portions are in proper condition to receive subsequent Work.

§ 3.4 LABOR AND MATERIALS

§ 3.4.1 Unless otherwise provided in the Contract Documents, the Contractor shall provide and pay for labor, materials, equipment, tools, construction equipment and machinery, water, heat, utilities, transportation, and other facilities and services necessary for proper execution and completion of the Work, whether temporary or permanent and whether or not incorporated or to be incorporated in the Work. Should the progress or conditions of the Work require work to be performed after regular hours, or should the Contractor elect to perform Work after regular working hours, in the absence of an acceleration of Contractor's schedule specifically directed by Owner or its authorized representatives due to reasons other than the fault or neglect of the Contractor, the additional cost of performing such Work shall be borne by the Contractor.

§ 3.4.2 The Contractor may make substitutions only with the consent of the Owner, after evaluation by the Architect and in accordance with a Change Order.

§ 3.4.3 The Contractor shall enforce strict discipline and good order among the Contractor's employees and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them.

§ 3.4.4 The Owner will consider a formal request directed to the Architect and the Owner for the substitution of products in place of those specified. Such request will only be considered pursuant to the conditions set forth herein and in the Specifications. The Architect and the Fill/Finish A/E, as appropriate, shall consult with the Owner regarding approval of such substitution.

§ 3.4.4.1 No request for substitution for materials or equipment that has been specified or described in the Drawings or Specifications by using the name of a proprietary item or the name of a particular manufacturer, fabricator, supplier or distributor may be made by the Contractor, unless the proposed substitute for the named item is of like or better type, function, quality and design as the named item. The procedure for review of substitutions by the Architect and the Owner will be as set forth below.

§ 3.4.4.2 Materials and equipment specified by name or names of one or more manufacturers shall be used to establish the Contract Sum.

§ 3.4.4.3 The Contractor may offer as substitutions, materials and items of equipment of manufacturers other than those specified by submitting an itemized cost breakdown of the impact of such substitutions on the project cost and schedule. Proposed substitutions must be accompanied by full descriptive and technical data.

§ 3.4.4.4. Requests for review of substitute items of materials and equipment will not be accepted by the Owner from anyone other than the Contractor. If the Contractor wishes to furnish or use a substitute item of material or equipment, the Contractor shall make written application to the Architect and the Owner for acceptance thereof, certifying that the proposed substitute will perform adequately the functions called for by the specified design, be similar and of equal substance to that specified and be suited to the same use capable of performing the same function as that specified. The application will state whether or not acceptance of the substitute for use in the Work will require a change in the Contract Documents to adapt the design to the substitute and whether or not

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incorporation or use of the substitute in connection with the Work is subject to payment of any license fee or royalty. All variations of the proposed substitute from that specified shall be identified in the application and available maintenance, repair and replacement service will be included. The application will also contain an itemized statement of the cost and schedule impact that will result directly or indirectly from acceptance of such substitute, including costs of redesign and claims of the other Contractors and Subcontractors affected by the resulting change, all of which shall be considered by the Architect and the Owner in evaluating the proposed substitute. The Architect and the Owner may require the Contractor to furnish, at the Contractor's expense, additional data about the proposed substitute. The Owner and the Architect will be the sole judges of acceptability, and no substitute will be ordered or installed without the Owner's prior written acceptance. The Owner may require the Contractor to furnish, at the Contractor's expense, a special performance guarantee or other surety with respect to any substitute. By making requests for substitutions based on Subparagraph 3.4.4 above, the Contractor:

- a) represents that it or its Subcontractor(s) has personally investigated the proposed substitute product and determined that it is equal or superior in all respects to that specified;
- b) represents that it will provide the same warranty for the substitution as the original product specified;
- c) certifies that the cost and schedule data presented is complete and includes all related costs and schedule adjustments under the Contract Documents, but excludes costs under separate contracts, and excludes the Architect's or Fill/Finish A/E's (if applicable) redesign costs, and waives all claims for additional costs and schedule adjustments related to the substitution which subsequently become apparent; and
- d) agrees to coordinate the installation of the accepted substitute making such changes as may be required for the Work to be complete in all respects.

§ 3.4.4.5. All of the Architect's and Fill/Finish A/E's (if applicable) redesign costs incurred by reason of an approved substitution shall be deducted from the Contract Sum and paid by the Owner to the Architect or Fill/Finish A/E, as applicable. Value engineering credits against the Contract Sum shall be net of additional reasonable Architect's or Fill/Finish A/E's fees and costs in connection therewith.

§ 3.4.4.6 Copies of Material Safety Data Sheets (MSDS) for all applicable products shall be kept on site and current in accordance with OSHA regulations and will be provided to the Owner as part of the operation and maintenance manuals

§ 3.4.5 Not later than fifteen (15) days from the date of execution of the Agreement, and prior to commencement of the Work on the Site, Contractor shall provide the Owner and Architect or Fill/Finish A/E, as the Owner may direct, with a list of the names of the proprietary or selected manufacturers providing products under each section of the Specifications, and the names of the installing Subcontractors where applicable. The Owner will reply in writing within ten (10) business days to the Contractor stating whether the Owner or the Architect or Fill/Finish A/E, as applicable, after due investigation, has reasonable objection to any such proposal. If adequate data on any proposed manufacturer or installer is not available, the Owner may state that action will be deferred until the Contractor provides further data. Failure to object to a manufacturer shall not constitute a waiver of any of the requirements of the Contract Documents, and all products furnished by the listed manufacturer must conform to such requirements.

§ 3.5 WARRANTY

§ 3.5.1 The Contractor warrants to the Owner, the Architect and the Fill/Finish A/E that materials and equipment furnished under the Contract will be of good quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform to the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. The Contractor's warranty excludes remedy for damage or defect caused by abuse, modifications not executed by the Contractor, improper or insufficient maintenance, improper operation, or normal wear and tear and normal usage. If required by the Architect, Fill/Finish A/E or Owner, the Contractor shall furnish satisfactory evidence as to the kind and quality of materials and equipment.

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§ 3.5.2 The Contractor agrees to assign to the Owner at the time of Substantial Completion of the Work any and all manufacturer's warranties relating to materials and labor used in the Work. In connection therewith, the Contractor further agrees to perform the Work in such manner consistent with and so as to preserve any and all manufacturer's warranties. Assignment of such warranties shall not relieve the Contractor of its obligations under the Contract Documents. To the extent commercially available, manufacturer's warranties shall be endorsed to provide that the warranty shall recommence and be reinstated in full in connection with, and on completion of, any corrective work required in connection with any item covered by such warranty; provided, however, that the total warranty period shall not extend beyond the original warranty period plus six (6) months. Such corrective work shall be completed in accordance with the requirements of any and all applicable manufacturers' warranties. Notwithstanding the assignment of warranties as stated above, the Contractor shall remain liable for performance of, and all costs in connection with, corrective work as provided in Article 12.

§ 3.6 TAXES

§ 3.6.1 The Contractor shall pay sales, consumer, use and similar taxes for the Work provided by the Contractor. To the extent the Contractor is required to pay sales, consumer, use and similar taxes (other than taxes on the income of the Contractor or its Subcontractors) that were not legally enacted as of the date of the Agreement (whether or not yet effective or merely scheduled to go into effect), the Contractor shall be entitled to an increase in the Contract Sum equal to the amount of such additional taxes (without markup for overhead or profit). The Contractor acknowledges that certain tax exemptions are available to the Owner. The Contractor shall take such steps as are necessary for such tax exemptions to be available. If the Contractor fails to take such actions and taxes are due, such taxes shall not be paid as Cost of the Work or pursuant to Change Order, but shall be borne by the Contractor.

§ 3.7 NOTICES

§ 3.7.1 The Contractor shall give notices required by Applicable Laws.

(Paragraphs deleted)

§ 3.8 ALLOWANCES

§ 3.8.1 The Contractor and the Owner may agree to include in the Contract Sum certain allowances..

§ 3.8.2 Unless otherwise provided in the Contract Documents:

- .1 allowances shall cover the cost to the Contractor of materials and equipment delivered at the Site and all required taxes, less applicable trade discounts;
- .2 Contractor's costs for unloading and handling at the Site, labor, installation costs, overhead, profit and other expenses contemplated for stated allowance amounts shall be included in the Contract Sum but not in the allowances;
- .3 whenever costs are more than or less than allowances, the Contract Sum shall be adjusted accordingly by Change Order. The amount of the Change Order shall reflect (1) the difference between actual costs and the allowances under Section 3.8.2.1 and (2) the Contractor shall not receive an adjustment to profit or overhead on account of increases or decreases in the amount of allowances.

§ 3.8.3 Materials and equipment under an allowance shall be selected by the Owner in sufficient time to avoid delay in the Work. The Contractor shall not commence any Work involving allowances (i) until the Owner is furnished with all pricing data requested, and (ii) when authorized by the Owner in writing.

§ 3.9 SUPERINTENDENT; PROJECT EXECUTIVE; PROJECT MANAGER

§ 3.9.1 The Contractor shall employ a competent superintendent and necessary assistants who shall be in attendance at the Project Site during performance of the Work. The Project Executive and Project Manager listed on Exhibit F to the Agreement shall represent the Contractor, and communications given to the Project Executive or Project Manager shall be as binding as if given to the Contractor. Important communications shall be confirmed in writing. Other communications shall be similarly confirmed on written request in each case.

§ 3.10 CONTRACTOR'S CONSTRUCTION SCHEDULES

§ 3.10.1 The Project Schedule is attached to the Agreement as Exhibit E. The Project Schedule shall be revised at appropriate intervals as required by the conditions of the Work and Project, shall be related to the entire Project to the extent required by the Contract Documents, and shall provide for expeditious and practicable execution of the Work. No revision of the Project Schedule shall be effective unless agreed to in writing by the Owner and the Contractor. The Project Schedule shall be updated monthly and included with the Contractor's Application for

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Payment for review and approval by the Owner. If the Project Schedule is not updated monthly, the Owner is entitled to delay payment of Contractor's Application for Payment until a revised Project Schedule is provided. The Project Schedule shall contain the dates that are critical in ensuring the timely and orderly completion of the Work in accordance with the requirements of the Contract Documents. Although the Contractor is not guaranteeing interim milestone dates, the date of Substantial Completion of the entire Work shown on the Project Schedule shall not be exceeded, except to the extent said date may be extended pursuant to the provisions of the Contract Documents. In addition to the Project Schedule updates described herein, the Owner may also require the Contractor to provide throughout the course of the Project two-week "look ahead" schedules in detail which is reasonably acceptable to the Owner.

§ 3.10.2 The Contractor shall prepare and keep current, for the Architect's, Fill/Finish A/E's (as applicable) and Owner's approval, a schedule of submittals which is coordinated with the Project Schedule. Such schedule shall be prepared by the Contractor, submitted to the Architect and the Owner, and agreed to by the Owner, the Architect, the Fill/Finish A/E (as applicable) and the Contractor within thirty (30) days of the date of execution of the Agreement. Where a particular submittal is not set forth on the submittal schedule, the Architect and the Fill/Finish A/E shall have fourteen (14) days after receipt to review such submittal.

§ 3.10.3 The Contractor shall perform the Work in accordance with the most recent Project Schedule submitted by the Contractor and approved in writing by the Owner. Approval by the Owner of the Project Schedule is for the purpose of confirming that the entire Work can be substantially completed by the Substantial Completion Date set forth therein, and shall not relieve the Contractor of its responsibility for means and methods of performing the Work.

§ 3.10.4 If the Owner determines through reasonable evidence that the critical path of the Work is behind schedule, the Owner shall have the right, but not the obligation, to order the Contractor to take corrective measures necessary to expedite the progress of construction, including, without limitation, (i) working additional shifts or overtime, (ii) supplying additional manpower, equipment and/or facilities, or (iii) other similar measures (collectively "Extraordinary Measures"). The determination of whether the progress of the Work is behind schedule shall take into account any extensions of time to which the Contractor is entitled under Section 8.3.1 below. In no event shall the Owner have control over, charge of, or any responsibility for construction means, methods, techniques, sequences or procedures or for safety precautions and programs in connection with the Work. The Contractor shall not be entitled to an adjustment in the Contract Sum in connection with Extraordinary Measures, except to the extent they are required due to no fault of the Contractor, in which case Extraordinary Measures shall be reimbursed pursuant to Change Order.

§ 3.10.5 The Contractor shall prepare a monthly summary report in a form and of sufficient detail and character as approved by the Owner. The report shall specify whether the Project is on schedule and, if not, the reason therefor and the steps to be undertaken to bring the Project back to the original schedule.

.1 The Contractor shall also prepare a report not later than thirty (30) calendar days after agreement on the Guaranteed Maximum Price which shall include a complete list of suppliers, items to be purchased from the suppliers or fabricators to be permanently incorporated into the Work, time required for fabrication and the scheduled delivery dates for each item. As soon as available, copies of purchase orders shall be furnished to the Owner.

.2 If requested by the Owner, the Contractor shall prepare a monthly report in a form and of sufficient detail and character as reasonably approved by the Owner. Accompanying the report shall be an updated current project schedule, the updated report herein above described, a listing and status of all change requests, bulletins, modifications, etc.

.3 The Contractor shall prepare such additional reports as any lender for the Project may reasonably request. The Contractor shall hold weekly progress meetings at the job site, or at such other time and frequency as are acceptable to the Owner. Progress of the Work shall be reported in detail with reference to construction schedules. Each interested Subcontractor shall have present a competent representative to report on the status and condition of its work and to receive information.

.4 The Contractor shall prepare and submit a CPM Network Diagram schedule to the Owner within

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thirty (30) calendar days of the agreement on the Guaranteed Maximum Price. The CPM schedule shall contain starting and completion dates for all phases of the Work, shall be consistent with the Project Schedule attached as Exhibit E to the Agreement, and shall include, without limitation, major work items by floor level, shop drawing submittal and approval dates, roughing-in dates, and equipment and material delivery dates. The CPM schedule shall be reviewed at the weekly construction meetings to be held at the job site. Notwithstanding the foregoing, Owner reserves the right to require Contractor to update the CPM schedule as often as the Owner deems reasonably necessary to reflect changed conditions. A copy of the CPM schedule shall be maintained at all times on the Site, and revised and updated copies shall be provided to the Owner, if required. The CPM schedule and revisions thereof prepared by the Contractor shall be furnished to the Owner and the Architect for informational purposes only, and only shall modify the Project Schedule to the extent approved in writing by the Owner. Any revisions to the CPM schedule shall be accompanied by a written explanation of the reasons for such revisions. Failure of the Contractor to deliver an initial CPM schedule within the time specified above or to deliver timely updates of such CPM schedule upon request by Owner, as provided for above, may be grounds for the Owner to withhold progress payments for the Work completed until such time as the CPM schedule or updates are delivered to the Owner.

§ 3.10.6 The following conditions and interpretations shall apply to the creation and updating of the CPM schedule:

.1 The schedule shall contain a level of detail and identification of individual trades reasonably acceptable to Owner and shall include milestones agreed to by Owner and Contractor (individually, a “Milestone” and collectively “Milestones”). The Owner and the Contractor agree that the Milestones are for purposes of scheduling the Work and determining whether the Contractor is required to accelerate the Work, and the liquidated damages set forth in the Agreement shall only apply to the date of Substantial Completion.

.2 If, subsequent to the approval of the initial CPM schedule, Contractor desires to change its plan of construction, it shall submit the requested revisions to the Owner for approval (but such approval shall not relieve the Contractor from responsibility for performance of the Work in accordance with the Contract Documents).

.3 When the Owner orders changes to the Contract which have the potential to impact the date of Substantial Completion of the Work, a revised CPM schedule will be prepared by the Contractor and provided to the Owner for approval. Change order logic will affect only those activities and performance dates directly concerned with such changes. Adjustments in the scheduled Substantial Completion date proposed by Contractor due to changes in the Work will be considered only to the extent that such changes impact the critical path of the Work. “Float” or “slack time” is defined as the amount of time between the earliest start date and the latest start date or between the earliest finish date and the latest finish date of a chain of activities in the CPM schedule. Float or slack time is not for the exclusive use or benefit of either the Contractor or the Owner. The Contractor acknowledges and agrees that actual delays affecting paths of activities will not entitle the Contractor to an extension of time to the extent the actual delay does not affect the date of Substantial Completion of the Work as defined by the critical path.

.4 Any change to previously approved CPM schedules or the Project Schedule must be approved in writing by the Owner; the Owner shall not withhold its consent to modifications to the detailed construction schedule so long as such modifications do not adversely affect the date of Substantial Completion of the Work. All requests for adjustment to the date of Substantial Completion of the Work shall be subject to the Owner’s written approval, and must accompany any change proposal or claim in which a time extension is requested.

§ 3.10.7 The Owner may engage a consultant to prepare and update, on a monthly basis, a schedule and cost monitoring procedure for its own purposes. The Contractor shall cooperate with the Owner’s consultants by providing additional data and information necessary for updating the Owner’s schedule and cost monitoring system on a monthly basis or as may be required by the condition of the Work.

§ 3.10.8 In the event that the Contractor or any of its Subcontractors on their own initiative accelerates or otherwise changes the sequence or duration of any of the construction activities from such sequences or durations as indicated on the CPM schedule established at the commencement of the Work and approved in writing by the Owner, the Owner will not be liable for any claims for any direct costs, delay costs or extension of time or any other costs which may result from such actions by the Contractor or its Subcontractors.

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§ 3.11 DOCUMENTS AND SAMPLES AT THE SITE

§ 3.11.1 The Contractor shall maintain at the Site for the Owner one complete record copy of the Drawings, Specifications, Addenda, Change Orders and other Modifications, in good order and marked currently to record field changes, revisions and additions thereto approved by the Owner and Project Manager and selections made during construction (“Redline Record Drawings”), and one record copy of approved Shop Drawings, Product Data, Samples and similar required submittals. Redline Record Drawings shall include all architectural and structural changes; plumbing, heating, ventilating, air conditioning, and electrical work changes; process changes; and changes to grades, utilities and other work as well as work required by Change Orders or Construction Change Directives. If any Work is performed otherwise than as shown in the final set of Drawings provided to the Contractor, the Contractor shall clearly define on such Drawings the Work as so installed. These shall be available to the Owner and the Architect and shall be delivered to the Owner as a condition to final payment. If such Redline Record Drawings are not legible, the Construction Manager shall be required to modify them prior to final payment.

§ 3.12 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

§ 3.12.1 Shop Drawings are drawings, diagrams, schedules and other data specially prepared for the Work by the Contractor or a Subcontractor, Sub-subcontractor, manufacturer, supplier or distributor to illustrate some portion of the Work.

§ 3.12.2 Product Data are illustrations, standard schedules, performance charts, instructions, brochures, diagrams and other information furnished by the Contractor to illustrate materials or equipment for some portion of the Work.

§ 3.12.3 Samples are physical examples which illustrate materials, equipment or workmanship and establish standards by which the Work will be judged.

§ 3.12.4 Shop Drawings, Product Data, Samples and similar submittals are not Contract Documents. The purpose of their submittal is to demonstrate for those portions of the Work for which submittals are required by the Contract Documents the way by which the Contractor proposes to conform to the information given and the design concept expressed in the Contract Documents. Review by the Architect and/or the Fill/Finish A/E is subject to the limitations of Section 4.2.7. Informational submittals upon which the Architect or Fill/Finish A/E are not expected to take responsive action may be so identified in the Contract Documents. Submittals which are not required by the Contract Documents may be returned by the Architect without action. All shop drawings shall (i) comply with performance specifications and other criteria established by the Architect; (ii) comply with all Applicable Laws; and (iii) permit the Work, when completed, to perform as intended by the Contract Documents. Shop drawings shall be modified at no cost to the Owner as necessary to obtain any permits or approvals and as required to comply with any requirement of the Contract Documents.

§ 3.12.5 The Contractor shall review for compliance with the Contract Documents, approve and submit in writing to the Architect Shop Drawings, Product Data, Samples and similar submittals required by the Contract Documents in accordance with the approved submittal schedule, and otherwise with reasonable promptness and in such sequence as to cause no delay in the Work or in the activities of the Owner or of separate contractors. Submittals which are not marked as reviewed for compliance with the Contract Documents and approved by the Contractor may be returned by the Architect without action. Shop Drawings, Product Data, Samples and similar submittals relating to the fill/finish portion of the Work shall be submitted concurrently to the Architect and the Fill/Finish A/E.

§ 3.12.6 By approving and submitting Shop Drawings, Product Data, Samples and similar submittals, the Contractor represents that the Contractor has determined and verified materials, field measurements and field construction criteria related thereto, or will do so, and has checked and coordinated the information contained within such submittals with the requirements of the Work and of the Contract Documents.

§ 3.12.7 The Contractor shall perform no portion of the Work for which the Contract Documents require submittal and review of Shop Drawings, Product Data, Samples or similar submittals until the respective submittal has been approved by the Architect or the Fill/Finish A/E, as applicable.

§ 3.12.8 The Work shall be in accordance with approved submittals except that the Contractor shall not be relieved of responsibility for deviations from requirements of the Contract Documents by the Architect’s or Fill/Finish A/E’s approval of Shop Drawings, Product Data, Samples or similar submittals unless the Contractor has specifically

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informed the Architect, the Fill/Finish A/E (if applicable) and the Owner in writing of such deviation at the time of submittal and (1) the Architect and the Owner (and Fill/Finish A/E, if applicable) have given written approval to the specific deviation as a minor change in the Work, or (2) a Change Order or Construction Change Directive has been issued authorizing the deviation. The Contractor shall not be relieved of responsibility for errors or omissions in Shop Drawings, Product Data, Samples or similar submittals by the Architect's or Fill/Finish A/E's review and/or approval of Shop Drawings, Product Data or samples unless the Contractor has specifically informed the Architect (and Fill/Finish A/E, if applicable) in writing of such deviation at the time of submission and the Architect or Fill/Finish A/E (if applicable) has indicated in writing as to the review and/or approval of such Shop Drawings, Product Data or samples relevant to the specific deviation.

§ 3.12.9 The Contractor shall direct specific attention, in writing or on resubmitted Shop Drawings, Product Data, Samples or similar submittals, to revisions other than those requested by the Architect or Fill/Finish A/E on previous submittals. In the absence of such written notice the Architect's or Fill/Finish A/E (if applicable) approval of a resubmission shall not apply to such revisions.

§ 3.12.10 The Contractor shall not be required to provide professional services which constitute the practice of architecture or engineering unless such services are specifically required by the Contract Documents for a portion of the Work or unless the Contractor needs to provide such services in order to carry out the Contractor's responsibilities for construction means, methods, techniques, sequences and procedures. The Contractor shall not be required to provide professional services in violation of Applicable Laws. If professional design services or certifications by a design professional related to systems, materials or equipment are specifically required of the Contractor by the Contract Documents, the Owner and the Architect (or Fill/Finish A/E, if applicable) will specify all performance and design criteria that such services must satisfy. The Contractor shall cause such services or certifications to be provided by a properly licensed design professional, whose signature and seal shall appear on all drawings, calculations, specifications, certifications, Shop Drawings and other submittals prepared by such professional. Shop Drawings and other submittals related to the Work designed or certified by such professional, if prepared by others, shall bear such professional's written approval when submitted to the Architect and Fill/Finish A/E, if applicable. The Owner, the Architect and the Fill/Finish A/E shall be entitled to rely upon the adequacy, accuracy and completeness of the services, certifications or approvals performed by such design professionals, provided the Owner and Architect (or Fill/Finish A/E, if applicable) have specified to the Contractor all performance and design criteria that such services must satisfy. Pursuant to this Section 3.12.10, the Architect (or Fill/Finish A/E, if applicable) will review, approve or take other appropriate action on submittals only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Contractor shall not be responsible for the adequacy of the performance or design criteria required by the Contract Documents.

§ 3.12.11 Shop drawings and other submittals relating to all Work other than the fill/finish Work shall be submitted to the Architect and the Owner. Shop drawings and other submittals relating to the fill/finish Work shall be submitted to the Architect, the Fill/Finish A/E and the Owner.

§ 3.12.12 The Contractor shall assemble for the Architect's approval and transmittal to the Owner three (3) complete copies in loose leaf binders of all operating and maintenance data from all manufacturers whose equipment is installed in the Work. The Contractor shall also prepare a check list of schedules showing the type of lubricant to be used at each point of application, and the intervals between lubrication for each item of equipment.

§ 3.13 USE OF SITE

§ 3.13.1 The Contractor shall confine operations at the Site to areas permitted by Applicable Laws, permits and the Contract Documents and shall not unreasonably encumber the Site with materials or equipment.

§ 3.13.2 Only the materials and equipment which are to be used directly in the Work shall be brought to and stored on the Project Site by the Contractor. Materials or equipment no longer required for the Work shall be promptly removed from the Project site. Protection of construction materials and equipment stored at the Project site from weather, theft, damage or all other adversity is solely the responsibility of the Contractor.

§ 3.14 CUTTING AND PATCHING

§ 3.14.1 The Contractor shall be responsible for cutting, fitting or patching required to complete the Work or to make its parts fit together properly.

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§ 3.14.2 The Contractor shall not damage or endanger a portion of the Work or fully or partially completed construction of the Owner or separate contractors by cutting, patching or otherwise altering such construction, or by excavation. The Contractor shall not cut or otherwise alter such construction by the Owner or a separate contractor except with written consent of the Owner and of such separate contractor; such consent shall not be unreasonably withheld. The Contractor shall not unreasonably withhold from the Owner or a separate contractor the Contractor's consent to cutting or otherwise altering the Work.

§ 3.14.3 The Contractor shall not cut or alter any completed or installed portion of the Work without the prior written approval of the Owner. Any request by the Contractor for such approval shall be in the form of a submission of Shop Drawings. The submission shall show the nature and extent of the cutting or alteration to be performed and the method of restoration of the cut or altered work so that the finished Work will comply in all respects with the Contract Documents. Such submission shall be accompanied by sufficient information to enable the Architect (or Fill/Finish A/E, if applicable) to determine if the proposed cutting or alteration (a) is necessary, (b) will not adversely affect the structural integrity or moisture resistance or watertight integrity of any element of the Project, (c) will not require modification of the Contract Documents or change in other items of the Work, (d) will not result in a cost disadvantage to the Owner, (e) will be protected by guarantees and warranties at least as stringent as those required in the Contract Documents for the Work affected and (f) will be in conformity with the intent of the Contract Documents.

§ 3.15 CLEANING UP

§ 3.15.1 The Contractor shall keep the premises and surrounding area free from accumulation of waste materials or rubbish caused by operations under the Contract. At completion of the Work, the Contractor shall remove from and about the Project waste materials, rubbish, the Contractor's tools, construction equipment, machinery and surplus materials.

§ 3.15.2 If the Contractor fails to clean up as provided in the Contract Documents, the Owner may do so and the cost thereof shall be charged to the Contractor.

§ 3.15.3 The Contractor shall be responsible for replacing any damaged or broken glass at completion of the Work. After broken glass has been replaced, the Contractor shall remove all labels and wash and polish both sides of all glass.

§ 3.16 Not used

(Paragraphs deleted)

§ 3.17 ROYALTIES, PATENTS AND COPYRIGHTS

§ 3.17.1 The Contractor shall pay all royalties and license fees. The Contractor shall defend suits or claims for infringement of copyrights and patent rights and shall hold the Owner, Project Manager, Architect and Fill/Finish A/E harmless from loss on account thereof, but shall not be responsible for such defense or loss when a particular design, process or product of a particular manufacturer or manufacturers is required by the Contract Documents or where the copyright violations are contained in Drawings, Specifications or other documents prepared by the Owner or Architect or Fill/Finish A/E. However, if the Contractor has reason to believe that the required design, process or product is an infringement of a copyright or a patent, the Contractor shall be responsible for such loss unless such information is promptly furnished to the Architect and the Owner (and Fill/Finish A/E, if applicable).

§ 3.18 INDEMNIFICATION

§ 3.18.1 Contractor hereby agrees, to the fullest extent permitted by law, to defend, with counsel reasonably acceptable to Owner indemnify and hold harmless Owner, the Project Manager, the Architect (subject to the limitation set forth in Section 3.18.3 below), the Fill/Finish A/E (subject to the limitation set forth in Section 3.18.3 below), the Owner's lender or others providing financing for the Project (collectively, the "Lender"), and their respective owners, partners, members, managers, shareholders, affiliates, officers, directors, employees, trustees, agents, successors and assigns (each, an "Owner Indemnitee" and collectively, "Owner Indemnites") from and against any and all claims, damages, liabilities, losses, costs, expenses (including attorney's fees), proceedings (including any brought in or before any court administrative body, arbitration panel or other tribunal), fines, penalties and expenses (including attorneys' fees and disbursements), causes of action or the like (including claims relating to bodily injury (including mental injury or death), personal injury (including violation

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of civil rights, defamation, wrongful arrest and invasion of privacy), property damage (including loss of use or value) or theft, or damage to the environment, in each case in any way deriving from a claim made by a third party (including any governmental or quasi-governmental party) against any Owner Indemnitee arising from or out of (or alleged to arise from or out of directly or indirectly (i) the acts or omissions of Contractor, its agents, subcontractors or suppliers or their respective owners, partners, members, managers, shareholders, affiliates, officers, directors, employees, trustees or agents (each, a "Contractor Party" and collectively, "Contractor Parties") (ii) the performance of the Work, or any other work in or around the Site except to the extent caused by the negligence of such Owner Indemnitee, (iii) the breach of any covenant to be performed by Contractor hereunder (and, without limiting the foregoing, Contractor shall be liable to the Owner Indemnitees for any costs and expenses, including attorneys' fees and expenses, incurred by any Owner Indemnitee in the enforcement of its rights under this Agreement, including a demand for indemnification hereunder) and (iv) a misrepresentation made by Contractor hereunder. This indemnity shall survive the expiration or termination of the Contract. The waiver of consequential damages set forth in Section 4.3.10 shall not apply to the indemnification obligations of the Contractor hereunder.

§ 3.18.2 The Contractor intends that the Owner Indemnitees (other than Owner) shall be third-party beneficiaries of this Agreement.

§ 3.18.3 The Contractor shall not be required to indemnify the Architect or the Fill/Finish A/E for claims arising out of their respective professional acts or omissions.

§ 3.18.4 Regarding the liabilities and indemnities of the Contractor set forth in Section 3.18.1 above, to the extent any claim contains an allegation that any or all of the Contractor Parties are responsible, the Contractor shall defend such claim until such time as a final judgment is entered. To the extent such final judgment holds that one or more Owner Indemnitees was responsible, the Contractor shall be entitled to recover from the Owner a proportionate amount of reasonable costs it incurred on account of its indemnification and defense of such Owner Indemnitees (based on the relative share of responsibility of the Contractor Parties and the Owner Indemnitees), but only to the extent not covered and/or paid by applicable insurance. Nothing contained in this Section 3.18 shall be construed as an agreement to indemnify the Owner Indemnitees for their own negligence, but the obligation to defend shall continue until the comparative responsibility for the claim has been finally adjudicated in a court of law.

§ 3.19 CONTRACTOR'S WORK FORCE

§ 3.19.1 The Contractor shall maintain on the Project at all times a sufficient work force to carry out its obligations in full in an efficient and timely manner. The Contractor shall employ only competent, skilled workers who will work in harmony with other workers.

§ 3.19.2 The Contractor shall not employ any labor or allocate any portions of the Work to any trade if such employment or allocation increases the possibility of strikes, work stoppages, delays, suspension of the Work or other interference with the smooth progress of the Work.

§ 3.19.3 If the Work is to be performed by trade unions, the Contractor shall reconcile, without delay, damage or cost to the Owner and without recourse to the Owner, any conflict between the Contract Documents and any agreements or regulations of any kind at any time in force among members or councils which regulate or distinguish what activities shall not be included in the work of any particular trade.

§ 3.19.4 In case the progress of the Work is affected by any undue delay in furnishing or installing any items or materials or equipment required under the Contract Documents because of such conflict involving any such labor agreement or regulations, the Owner may require that other material or equipment of equal kind and quality be provided pursuant to a Change Order or Construction Change Directive.

§ 3.20 ACCESS TO THE WORK

§ 3.20.1 The Owner, the Project Manager, the Architect, the Fill-Finish A/E and the Owner's consultants shall at all times have reasonable access to the Work wherever it is being carried out for review of the Work. The Contractor shall provide reasonable accommodations and safe facilities for such access and for observation at the Project site, at the place of manufacture or elsewhere.

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§ 3.21 SIGNS

§ 3.21.1 No sign, sign trademark or other advertisement shall be displayed on or about the Project site without the prior written consent of the Owner, which shall be withheld, conditioned or delayed in the sole discretion of the Owner. If Owner consents to the hanging of any signs at the Project, Owner will designate an appropriate area for such signs. Notwithstanding the foregoing, under no circumstances will Contractor or any of its Subcontractors be permitted to hang or erect a sign on the building structure. At Owner's sole direction and discretion, Contractor and/or its Subcontractors shall remove any signs from the Project.

§ 3.22 CONTRACTOR'S EXAMINATION OF SITE

§ 3.22.1 Failure to visit the site shall in no way relieve the Contractor or a Subcontractor from furnishing materials or equipment or performing work that may be required to complete the Work in accordance with Contract Documents without additional cost to Owner.

§ 3.23 SURVEYS, LINES AND LEVELS

§ 3.23.1 Contractor shall establish all lines, grades, benchmarks and other information required for all of the Work executed under the Contract Documents. All grades shown on Drawings are believed to be correct but the Contractor shall verify them at the site and notify the Architect in writing of any discrepancies found before proceeding with the Work; Contractor shall check the drawings against such established lines and grades and notify the Architect in writing of any discrepancies found.

ARTICLE 4 ADMINISTRATION OF THE CONTRACT

§ 4.1 ARCHITECT/FILL/FINISH A/E

§ 4.1.1 The Architect is the person lawfully licensed to practice architecture or an entity lawfully practicing architecture identified as such in the Agreement and is referred to throughout the Contract Documents as if singular in number. The term “Architect” means the Architect or the Architect’s authorized representative.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Architect as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner and Architect. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Architect is terminated, the Owner shall employ a new Architect whose status under the Contract Documents shall be that of the former Architect.

§ 4.1.4 The term “Fill/Finish A/E” means the Fill/Finish A/E or its authorized representative.

§ 4.1.2 Duties, responsibilities and limitations of authority of the Fill/Finish A/E as set forth in the Contract Documents shall not be restricted, modified or extended without written consent of the Owner and Fill/Finish A/E. Consent shall not be unreasonably withheld.

§ 4.1.3 If the employment of the Fill/Finish A/E is terminated, the Owner shall employ a new Fill/Finish A/E whose status under the Contract Documents shall be that of the former Fill/Finish A/E.

§ 4.2 ADMINISTRATION OF THE CONTRACT

§ 4.2.1 The Architect and the Fill/Finish A/E will provide administration of the Contract as described in the Contract Documents, and will be an Owner’s representative (1) during construction, (2) until final payment is due and (3) with the Owner’s concurrence, from time to time during the periods for correction of Work described in Section 12.2. The Architect and the Fill/Finish A/E will have authority to act on behalf of the Owner only to the extent provided in the Contract Documents, unless otherwise modified in writing in accordance with other provisions of the Contract. Notwithstanding the foregoing, the Project Manager may provide administration of the Contract in lieu of the Architect or the Fill/Finish A/E, to the extent such administration does not relate to professional design services. The Architect and the Fill/Finish A/E shall not exceed the authority vested in it in accordance with the Contract Documents, or as otherwise communicated to the Contractor in writing by the Owner.

§ 4.2.2 The Architect and the Fill/Finish A/E, as representatives of the Owner, will visit the Site at intervals appropriate to the stage of the Contractor’s operations (1) to become generally familiar with and to keep the Owner

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informed about the progress and quality of the portion of the Work completed, (2) to endeavor to guard the Owner against defects and deficiencies in the Work, and (3) to determine in general if the Work is being performed in a manner indicating that the Work, when fully completed, will be in accordance with the Contract Documents. However, the Architect and the Fill/Finish A/E will not be required to make exhaustive or continuous on-Site inspections to check the quality or quantity of the Work. The Architect and the Fill/Finish A/E will neither have control over or charge of, nor be responsible for, the construction means, methods, techniques, sequences or procedures, or for the safety precautions and programs in connection with the Work, since these are solely the Contractor's rights and responsibilities under the Contract Documents, except as provided in Section 3.3.1.

§ 4.2.3 The Architect and/or the Fill/Finish A/E will not be responsible for the Contractor's failure to perform the Work in accordance with the requirements of the Contract Documents. The Architect and the Fill/Finish A/E will not have control over or charge of and will not be responsible for acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons or entities performing portions of the Work.

§ 4.2.4 Communications Facilitating Contract Administration. Communications by and with the Architect's consultants shall be through the Architect. Communications by and with the Owner's consultants (other than the Architect and the Fill/Finish A/E) shall be through the Owner. Communications by and with Subcontractors and material suppliers shall be through the Contractor. Communications by and with separate contractors shall be through the Owner.

§ 4.2.5 At the option of the Owner, the Architect and/or the Fill/Finish A/E may review the Contractor's Applications for Payment. Upon the Owner's request, the Architect and/or the Fill/Finish A/E may certify the amounts due the Contractor and may, at the Owner's request, issue Certificates for Payment in such amounts. Such certifications shall be advisory only and shall not be binding on the Owner.

§ 4.2.6 The Architect and the Fill/Finish A/E will have authority to recommend to the Owner the rejection of Work that does not conform to the Contract Documents, and the cost for the repair or replacement of such Work shall be the sole responsibility of the Contractor. Whenever the Architect or the Fill/Finish A/E consider it necessary or advisable, the Architect or the Fill/Finish A/E may recommend to the Owner that there be inspection or testing of the Work in accordance with Section 13 hereof, whether or not such Work is fabricated, installed or completed. However, no recommendation by the Architect or the Fill/Finish A/E, nor a decision made in good faith either to make or not make such recommendation shall give rise to a duty or responsibility of the Architect or the Fill/Finish A/E to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons or entities performing portions of the Work.

§ 4.2.7 The Architect and the Fill/Finish A/E (as applicable) will review and approve or take other appropriate action upon the Contractor's submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. The Architect's and/or Fill/Finish A/E's action will be taken (a) in accordance with the submittal schedule agreed to among the Owner, the Architect, the Fill/Finish A/E and the Contractor, or (b) if a submittal is not referred to in the submittal schedule, with such reasonable promptness as to cause no delay in the Work or in the activities of the Owner, Contractor or separate contractors while allowing sufficient time in the Architect's or Fill/Finish A/E's professional judgment to permit adequate review. Review of such submittals is not conducted for the purpose of determining the accuracy and completeness of other details such as dimensions and quantities, or for substantiating instructions for installation or performance of equipment or systems, all of which remain the responsibility of the Contractor as required by the Contract Documents. The Architect's or Fill/Finish A/E's review of the Contractor's submittals shall not relieve the Contractor of the obligations under Sections 3.3, 3.5 and 3.12. The Architect's or Fill/Finish A/E's review shall not constitute approval of safety precautions or, unless otherwise specifically stated by the Architect or Fill/Finish A/E, of any construction means, methods, techniques, sequences or procedures. The Architect's or Fill/Finish A/E's approval of a specific item shall not indicate approval of an assembly of which the item is a component.

§ 4.2.8 The Architect will assist the Contractor in the preparation of Change Orders and shall assist the Owner in the preparation of Construction Change Directives, and may authorize minor changes in the Work as provided in Section 7.4.

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§ 4.2.9 The Architect the Fill/Finish A/E (if applicable) the Project Manager and the Owner will conduct inspections to determine the date or dates of Substantial Completion of the Work and the date of final completion of the Work, and the Architect will receive and forward to the Owner, for the Owner's review and records, written warranties and related documents required by the Contract and assembled by the Contractor, and, if requested by the Owner, the Architect will issue a final Certificate for Payment upon compliance with the requirements of the Contract Documents, which certificate shall be advisory only and not binding on the Owner.

§ 4.2.10 If the Owner and Architect (or Fill/Finish A/E, if applicable) agree, the Architect and/or the Fill/Finish A/E will provide one or more project representatives to assist in carrying out the Architect's or Fill/Finish A/E's responsibilities at the Site. The duties, responsibilities and limitations of authority of such project representatives shall be as set forth in an exhibit to be incorporated in the Contract Documents.

§ 4.2.11 The Architect and the Fill/Finish A/E shall, upon the Owner's request, advise the Owner regarding matters concerning performance of the Contractor under and advise the Owner regarding interpretation of the requirements of the Contract Documents on written request of the Owner. The Architect's or Fill/Finish A/E's response to such requests will be made in writing within any time limits agreed upon or otherwise with reasonable promptness. If no agreement is made concerning the time within which interpretations required of the Architect or Fill/Finish A/E shall be furnished in compliance with this Section 4.2, then delay shall not be recognized on account of failure by the Architect or Fill/Finish A/E to furnish such interpretations until fifteen (15) days after written request is made for them.

§ 4.2.12 Interpretations and recommendations of the Architect or Fill/Finish A/E will be consistent with the intent of and reasonably inferable from the Contract Documents and will be in writing or in the form of drawings. When making such interpretations and recommendations, the Architect and the Fill/Finish A/E will not be liable for results of interpretations or recommendations so rendered in good faith.

(Paragraphs deleted)

§ 4.3 CLAIMS AND DISPUTES

§ 4.3.1 Definition. A Claim is a demand or assertion by the Contractor seeking, as a matter of right, adjustment or interpretation of Contract terms, payment of money, extension of time or other relief with respect to the terms of the Contract. Claims must be initiated by written notice. The responsibility to substantiate Claims shall rest with the Contractor.

§ 4.3.2 Time Limits on Claims. Except to the extent otherwise provided in the Contract Documents, Claims must be initiated within five (5) days after occurrence of the event giving rise to such Claim or within five (5) days after the Contractor first recognizes the condition giving rise to the Claim, whichever is later. Claims must be initiated by written notice to the Owner and the Architect. Claims not made by the Contractor within the time periods required by the Contract Documents shall be deemed waived.

§ 4.3.3 Continuing Contract Performance. Pending final resolution of a Claim except as otherwise agreed in writing or as provided in Section 9.7.1 and Article 14, the Contractor shall proceed diligently with performance of the Contract and the Owner shall continue to make payments not in dispute in accordance with the Contract Documents.

§ 4.3.4 Claims for Concealed or Unknown Conditions. Subject to the provisions of Sections 1.1.8 and 3.22, if conditions are encountered at the Site which are (1) subsurface or otherwise concealed physical conditions which differ materially from those indicated in the Contract Documents or (2) unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract Documents, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than five (5) days after first observance of the conditions. The Owner will promptly investigate such conditions and, if they differ materially and cause an increase or decrease in the Contractor's cost of, or time required for, performance of any part of the Work, will recommend to the Owner an equitable adjustment in the Contract Sum or Contract Time, or both. If the Owner determines that the conditions at the Site are not materially different from those indicated in the Contract Documents and that no change in the terms of the Contract is justified, the Owner shall so notify the Contractor in writing, stating the reasons. Claims by either party in opposition to such determination must be made within twenty one (21) days after the Owner has given notice of the decision. If the conditions encountered are materially different, the Contract Sum and Contract Time shall be equitably adjusted, but if the Owner and

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Contractor cannot agree on an adjustment in the Contract Sum or Contract Time, the adjustment shall be subject to dispute resolution as provided in Section 4.4 below. If notice of such condition is not given with the five (5) day period set forth above, any Claim relating thereto shall be waived.

§ 4.3.5 Claims for Additional Cost. If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Prior notice is not required for Claims relating to an emergency endangering life or property arising under Section 10.6. Contractor shall have no claim against the Owner or the Project for additional compensation for services rendered or Work performed outside the scope of this Agreement unless it shall have advised the Owner before rendering such services or performing such Work that such construction is outside the scope of this Agreement and the Owner has authorized such services or Work in writing, in accordance with Article 7. The Owner may also require the approval of the Lender, if any, prior to authorizing Work outside the scope of this Agreement. The Contractor shall have no claim against the Owner or the Project for other relief unless notice of such claim has been given within fifteen (15) days after the date on which such claim arises.

§ 4.3.6 If the Contractor believes additional cost is involved for reasons including but not limited to (1) a written interpretation from the Architect or the Fill/Finish A/E, (2) an order by the Owner to stop the Work where the Contractor was not at fault, (3) a written order for a minor change in the Work issued by the Architect or the Fill/Finish A/E, (4) failure of payment of undisputed amounts by the Owner, (5) termination of the Contract by the Owner, (6) Owner's suspension or (7) other reasonable grounds, Claim shall be filed in accordance with this Section 4.3.

§ 4.3.7 Claims for Additional Time

§ 4.3.7.1 If the Contractor wishes to make Claim for an increase in the Contract Time, written notice as provided herein shall be given. The Contractor's Claim shall include an estimate of cost and of probable effect of delay on progress of the Work. In the case of a continuing delay only one Claim is necessary. Contractor shall have no claim against the Owner or the Project for additional compensation for delay on account of services rendered or Work performed outside the scope of the Contract Documents unless it shall have advised the Owner in writing before rendering such services or performing such Work that such construction is outside the scope of the Contract Documents and the Owner has authorized such services or Work in writing. The Owner may also require the approval of the Lender, if any, prior to authorizing an extension of time on account of Work outside the scope of the Contract Documents. The Contractor shall have no claim against the Owner or the Project for other relief unless written notice of such claim has been given within five (5) days after the date on which such claim arises or such other time period as is specified elsewhere in the Contract Documents. Notwithstanding anything in the Contract Documents to the contrary, an extension of time shall be granted only to the extent the Contractor can demonstrate that the subject matter of the Claim will prevent the Contractor from achieving Substantial Completion of the Work within the Contract Time, as adjusted.

§ 4.3.7.2 If adverse weather conditions are the basis for a Claim for additional time, such Claim shall be documented by data substantiating that weather conditions were abnormal for the period of time, could not have been reasonably anticipated and had an adverse effect on the critical path of the Work. Notwithstanding the foregoing, the Contractor acknowledges that the scheduled date of Substantial Completion set forth in the Project Schedule anticipates a certain number of lost days due to normal weather conditions. Only unusual or extreme weather conditions for the time of year will be considered as justification for an extension of time to achieve substantial completion of the Work or portions thereof. Extensions of time for weather delay will only be considered if such inclement weather exceeds the average of that recorded by the National Oceanic and Atmospheric Administration for the same month and closest recording location over the preceding five (5) years.

§ 4.3.8 Injury or Damage to Person or Property. If either party to the Contract suffers injury or damage to person or property because of an act or omission of the other party, or of others for whose acts such party is legally responsible, written notice of such injury or damage, whether or not insured, shall be given to the other party within a reasonable time not exceeding seven (7) days after discovery. The notice shall provide sufficient detail to enable the other party to investigate the matter.

§ 4.3.9 If unit prices are stated in the Contract Documents or subsequently agreed upon, and if quantities originally contemplated are materially changed in a proposed Change Order or Construction Change Directive so that

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application of such unit prices to quantities of Work proposed will cause substantial inequity to the Owner or Contractor, the applicable unit prices shall be equitably adjusted.

§ 4.3.10 Claims for Consequential Damages. The Contractor and Owner waive Claims against each other for consequential damages arising out of or relating to this Contract except to the extent payable and actually paid by insurance relating to the Project and except with respect to the Contractor's indemnification obligations hereunder. This mutual waiver includes:

- .1 damages incurred by the Owner for rental expenses, for losses of use, income, profit, financing, business and reputation, and for loss of management or employee productivity or of the services of such persons; and
- .2 damages incurred by the Contractor for principal office expenses including the compensation of personnel stationed there, for losses of financing, business and reputation, and for loss of profit.

This mutual waiver is applicable, without limitation, to all consequential damages due to either party's termination in accordance with Article 14. Nothing contained in this Section 4.3.10 shall be deemed to preclude an award of liquidated damages, when applicable, in accordance with the requirements of the Contract Documents.

§ 4.4 RESOLUTION OF CLAIMS AND DISPUTES

§ 4.4.1 MEETING OF SENIOR STAFF. Within fifteen (15) days after the filing of a Claim by the Contractor, the Owner's and Contractor's senior staff member on Site shall meet to attempt to resolve such claim.

(Paragraphs deleted)

§ 4.4.2 MEDIATION. If such Claim is not resolved by senior staff within thirty (30) days of the filing of the same, the claim shall be subject to nonbinding mediation at the election of the Owner pursuant to written notice to the Contractor. If the Owner elects nonbinding mediation, the Contractor and the Owner shall select a mutually acceptable mediator, and shall share the cost thereof. If the parties are unable to agree on the selection of a mediator, they shall utilize the American Arbitration Association's mediation services. The mediator shall be given any written statement(s) of the parties and may review the Site and any relevant documentation. The mediator shall call a meeting of the parties affected by such Claim within ten (10) business days after his/her appointment, which meeting shall be attended by senior non-Site representatives of the parties with authority to settle such Claim. During such ten (10) day period, the mediator may meet with the affected parties separately. No minutes shall be kept and the comments and/or findings of the mediator, together with any written statements prepared, shall be non-binding, confidential and without prejudice to the rights and remedies of any party. The parties shall use good faith efforts to complete the entire mediation process within twenty (20) business days of the date the mediator is selected, unless the parties agree otherwise in writing.

§ 4.4.3 LITIGATION OR ARBITRATION

§ 4.4.3.1 Any Claim arising out of or related to the Contract, except those waived as provided for in Sections 4.3.10, 9.10.4 and 9.10.5, shall, if mediation is unsuccessful, be subject to litigation or, at the sole election of the Owner, arbitration. If the Owner does not elect arbitration, such Claim shall be litigated in the appropriate courts of the State of Maryland.

§ 4.4.3.2 Any arbitration shall be in accordance with the Construction Industry Arbitration Rules of the American Arbitration Association currently in effect. The demand for arbitration shall be filed in writing with the other party to the Contract and with the American Arbitration Association, and a copy shall be filed with the Architect.

§ 4.4.3.3 A demand for arbitration shall be made within thirty (30) days after the mediation process is complete, and in no event shall it be made after the date when institution of legal or equitable proceedings based on such Claim would be barred by the applicable statute of limitations.

§ 4.4.4 Any arbitration permitted hereunder may include, by consolidation or joinder or in any other manner, an additional person or entity not a party to this Agreement involved in the dispute to the extent such additional person or entity has consented to such consolidation or joinder pursuant to agreement or specifically with respect to such dispute. The Contractor shall include in its agreements with Subcontractors and others performing Work the joinder or consolidation requirement as aforesaid. The foregoing agreement to arbitrate and other agreements to arbitrate with an additional person or entity duly consented to by parties to the Agreement shall be specifically enforceable under applicable law in any court having jurisdiction thereof.

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§ 4.4.5.5 Claims and Timely Assertion of Claims. The party filing a notice of demand for arbitration or filing a complaint in litigation must assert in the demand all Claims then known to that party on which litigation or arbitration, as applicable, is permitted.

§ 4.4.6 The award rendered by the arbitrator or arbitrators, if applicable, shall be final, and judgment may be entered upon it in accordance with applicable law in any court having jurisdiction thereof.

(Paragraphs deleted)

ARTICLE 5 SUBCONTRACTORS

§ 5.1 DEFINITIONS

§ 5.1.1 A Subcontractor is a person or entity who has a direct contract with the Contractor to perform a portion of the Work at the Site or supply materials or equipment for the Project. The term “Subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Subcontractor or an authorized representative of the Subcontractor. The term “Subcontractor” does not include a separate contractor or subcontractors of a separate contractor.

§ 5.1.2 A Sub-subcontractor is a person or entity who has a direct or indirect contract with a Subcontractor to perform a portion of the Work at the Site or supply materials or equipment for the Project. The term “Sub-subcontractor” is referred to throughout the Contract Documents as if singular in number and means a Sub-subcontractor or an authorized representative of the Sub-subcontractor.

§ 5.2 AWARD OF SUBCONTRACTS AND OTHER CONTRACTS FOR PORTIONS OF THE WORK

§ 5.2.1 As part of its bid to the Owner, the Contractor has furnished to the Owner the names of persons or bidders (including those who are to furnish materials or equipment fabricated to a special design) proposed for each principal portion of the Work.

§ 5.2.2 The Contractor shall not contract with a proposed person or entity to whom the Owner or Architect has made reasonable and timely objection. The Contractor shall not be required to contract with anyone to whom the Contractor has made reasonable objection.

§ 5.2.3 Upon request of the Owner, Contractor shall make available to the Owner at the Contractor’s main office copies of all bids, proposals, or other information concerning the Subcontractors and material suppliers, including financial statements, which may be helpful to the Owner, or any person or entity providing financing on behalf of the Owner, in evaluating any of the Subcontractors proposed to perform any part of the Work. Contractor may also be required to make available to the Owner with respect to the proposed subcontractors and material suppliers such other proof of financial stability and experience, lists of completed projects and letters of reference as may be required by the Owner. Upon request of the Owner, Contractor shall submit for review its forms of subcontract and purchase order. Submission of the foregoing information and review by Owner shall not relieve Contractor from sole responsibility for all subcontractors and suppliers

§ 5.2.4 The Contractor shall not change a Subcontractor, person or entity previously selected if the Owner or Architect makes reasonable objection to such substitute. Owner may require the Contractor to change any Subcontractor previously approved and, if at such time the Contractor is not then in default hereunder, the Contract Sum shall be increased or decreased by the difference in cost occasioned by such change.

§ 5.3 SUBCONTRACTUAL RELATIONS

§ 5.3.1 By written agreement, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the obligations and responsibilities, including the responsibility for safety of the Subcontractor’s Work, which the Contractor, by these Documents, assumes toward the Owner and Architect. Each subcontract agreement shall preserve and protect the rights of the Owner and Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights, and shall allow to the Subcontractor, unless specifically provided otherwise in the subcontract agreement, the benefit of all rights, remedies and redress against the Contractor that the Contractor, by the Contract Documents, has against the Owner. The Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to

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the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, and, upon written request of the Subcontractor, identify to the Subcontractor terms and conditions of the proposed subcontract agreement which may be at variance with the Contract Documents. Subcontractors will similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors. The Contractor shall furnish to the Owner copies of all subcontract agreements within five (5) days of the execution thereof.

§ 5.3.2 Subject to the provisions of Section 3.10.4.1 above, every Subcontract shall:

- .1 require that such Work be performed in accordance with the requirements of the Contract Documents;
- .2 waive all rights the contracting parties may have against one another or that the Subcontractor may have against the Owner for damages caused by fire or other perils covered by the property insurance described in the Contract Documents;
- .3 require the Subcontractor to carry and maintain insurance required by the provisions of Exhibit I to the Agreement, and furnish all information required by the provisions of Exhibit I; and
- .4 require the Subcontractor to furnish the waivers of liens set forth in Exhibit H to the Agreement as well as such other documents as the Owner may reasonably request prior to receiving any payments for Work performed.
- .5 affirmatively state that the Contractor is not entitled to backcharge the Subcontractor for amounts owed to the Contractor on projects other than the Project.

§ 5.4 CONTINGENT ASSIGNMENT OF SUBCONTRACTS

§ 5.4.1 Each subcontract agreement for a portion of the Work is assigned by the Contractor to the Owner provided that:

- .1 assignment is effective only after termination of the Contract by the Owner pursuant to Section 14 and only for those subcontract agreements which the Owner accepts by notifying the Subcontractor and Contractor in writing; and
- .2 assignment is subject to the prior rights of the surety, if any, obligated under bond relating to the Contract.

§ 5.4.2 Upon such assignment, if the Work has been suspended for more than thirty (30) days, the Subcontractor's compensation shall be equitably adjusted for increases in direct, out-of-pocket cost resulting from the suspension.

ARTICLE 6 CONSTRUCTION BY OWNER OR BY SEPARATE CONTRACTORS

§ 6.1 OWNER'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

§ 6.1.1 The Owner reserves the right to perform construction or operations related to the Project with the Owner's own forces, and to award separate contracts ("Separate Contracts") in connection with other portions of the Project or other construction or operations on the Site.. If the Contractor claims that delay or additional cost is involved because of such action by the Owner, the Contractor shall make such Claim as provided in Section 4.3.

§ 6.1.2 A "Separate Contractor" is a contractor who enters into a Separate Contract with the Owner.

§ 6.1.3 The Contractor shall provide for organization, direction and coordination of the activities of the Owner's own forces and of each Separate Contractor with the Work of the Contractor, who shall cooperate with them.

(Paragraphs deleted)

§ 6.2 MUTUAL RESPONSIBILITY

§ 6.2.1 The Contractor shall afford the Owner and Separate Contractors reasonable opportunity for introduction and storage of their materials and equipment and performance of their activities, and shall connect and coordinate the Contractor's construction and operations with theirs as required by the Contract Documents.

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§ 6.2.2 If part of the Contractor's Work depends for proper execution or results upon construction or operations by the Owner or a Separate Contractor, the Contractor shall, prior to proceeding with that portion of the Work, promptly report to the Owner and the Architect apparent discrepancies or defects in such other construction that would render it unsuitable for such proper execution and results. Failure of the Contractor so to report shall constitute an acknowledgment that the Owner's or Separate Contractor's completed or partially completed construction is fit and proper to receive the Contractor's Work, except as to defects not then reasonably discoverable.

§ 6.2.3 Should the Contractor cause damage to the Work or property of a Separate Contractor on the Project, or a Separate Contractor cause damage to the Contractor, the party damaged shall notify the offending contractor in writing of such damage within a reasonable time and the offending contractor shall bear the reasonable costs of repairing all such damage. The Owner reserves the right to effectuate the repairs and to charge the cost thereof against the offending contractor. So long as the following subparagraphs are contained in the contract with the Separate Contractor, the Contractor shall be bound by the following procedures regarding disputes between the Contractor and the Separate Contractor:

.1 The Contractor agrees that claims for damage caused by Separate Contractors may be brought directly against the Contractor, and for purposes of enforcement of this provision, the Separate Contractors are intended beneficiaries of the Contract and may enforce this provision directly without need to involve the Owner.

.2 All claims between Separate Contractors and the Contractor shall be resolved by binding arbitration in accordance with the Construction Industry Rules of the American Arbitration Association. Such arbitration shall be held in the State of Maryland and the award of the arbitrator(s) shall be enforceable in any court of competent jurisdiction.

.3 To the extent a party does not pay in full the amount of an arbitration award against it (the "Losing Party") within thirty (30) days of the date such award becomes final and non-appealable, the amount of the nonpayment shall be paid to the party entitled to such funds (the "Winning Party") from retainage held by the Owner on behalf of the Losing Party. The Owner shall not be required to pay such amount until such time as the Owner would otherwise owe such retainage to the Losing Party.

.4 If funds paid by the Losing Party, together with funds paid by the Owner from retainage, are insufficient to discharge the arbitration award in full, then the Winning Party may make a claim, at its sole cost, in the Owner's name, against the performance bond, if any, issued on behalf of the Losing Party in favor of the Owner. All proceeds received by the Owner on account of such bond claim shall be paid by the Owner to the Winning Party upon receipt.

.5 The Winning Party shall indemnify and hold harmless the Owner from and against any costs the Owner may incur as a result of any performance bond claim made by the Winning Party.

§ 6.2.4 The Contractor shall promptly remedy damage wrongfully caused by the Contractor to completed or partially completed construction or to property of the Owner or Separate Contractors as provided in Section 10.2.5.

§ 6.2.5 The Owner and each Separate Contractor shall have the same responsibilities for cutting and patching as are described for the Contractor in Section 3.14.

§ 6.3 OWNER'S RIGHT TO CLEAN UP

§ 6.3.1 If a dispute arises among the Contractor, separate contractors and the Owner as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish, the, after two (2) days written notice, the Owner may clean up and the Owner will allocate the cost among those responsible.

ARTICLE 7 CHANGES IN THE WORK

§ 7.1 GENERAL

§ 7.1.1 Changes in the Work may be accomplished after execution of the Contract, and without invalidating the Contract, by Change Order, Construction Change Directive or order for a minor change in the Work, subject to the limitations stated in this Article 7 and elsewhere in the Contract Documents. Unless otherwise agreed to in writing

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by the Owner, any adjustments to the Contract Time resulting from changes to the Contract Documents shall be agreed upon at the time of approval of each change request unless otherwise noted in the Change Order. Requests for changes to the Contract made by the Contractor will simultaneously include, if applicable, any request for change of the Contract Time to the extent that the delay time is known at the time of the request. If the delay time is not known at the time of the request, the Contractor shall furnish supplemental information as to the delay time within five (5) days of the date when such information becomes known.

§ 7.1.2 A Change Order shall be based upon agreement between the Owner and the Contractor; a Construction Change Directive may or may not be agreed to by the Contractor; an order for a minor change in the Work may be issued by the Architect alone, so long as it does not affect the Contract Time, Contract Sum, or any other material portion of the Work.

§ 7.1.3 Changes in the Work shall be performed under applicable provisions of the Contract Documents, and the Contractor shall proceed in accordance with the dates set forth in the applicable Change Order, Construction Change Directive or order for a minor change in the Work. Notwithstanding anything contained in the Contract Documents to the contrary, a change in the Contract Sum or the Contract Time shall be accomplished only by Change Order or Construction Change Directive.

§ 7.1.4 No course of conduct or dealing between the parties, no express or implied acceptance of alterations or additions to the Work and no claim that the Owner has been unjustly enriched by any alteration or addition to the Work, whether there is any unjust enrichment, shall be the basis of any claim for adjustment in compensation due the Contractor in connection with the Project or for adjustment in any time period provided for under the Contract. Moreover, the Contractor hereby waives and forfeits all claims that any work, services or other activities were performed pursuant to an oral contract or other oral agreement separate from the Contract. All Claims of the parties shall be resolved in accordance with the requirements, provisions and limitations of the Contract Documents.

§ 7.1.5 Agreement by the Contractor and the Owner as evidenced by execution of a Change Order shall constitute a final settlement of all matters relating to the change in the Work which is the subject of the Change Order, including, but not limited to, all direct and indirect costs associated with such change and any and all adjustments to the Contract Sum and the Project Schedule. The Schedule of Values shall be modified accordingly for Work covered by Change Orders.

§ 7.1.6 No Change Order or Construction Change Directive shall be effective or binding on the Owner unless it is executed by the Owner.

§ 7.2 CHANGE ORDERS

§ 7.2.1 A Change Order is a written instrument prepared by the Architect or Contractor, or both and signed by the Owner and the Contractor, stating their agreement upon all of the following:

- .1 change in the Work;
- .2 the amount of the adjustment, if any, in the Contract Sum; and
- .3 the extent of the adjustment, if any, in the Contract Time.

§ 7.2.2 In all cases, regardless of the method used to determine the value of changes, the estimated or actual cost shall be submitted in detailed breakdown form, giving quantity and unit costs of each item, labor cost with hourly rates, allowable overhead and profit. No additional amount will be paid for submittal in this form for re-submittal should the breakdown be considered inadequate by the Architect.

§ 7.2.3 Time being of the essence in the performance of this Contract, any Work which is the subject of a change to this Contract will be proceeded with promptly upon receipt by the Contractor of a written instruction signed by the Owner. Proceeding with such Work by the Contractor will not be delayed in the event of dispute between the Owner and the Contractor on the method of evaluating the change or on the amount of any adjustment to the Contract Sum or Contract Time.

§ 7.2.4 If the Contractor believes that it is entitled to additional payment, or to an extension of time, for performing Work ordered to be done, it shall notify the Owner in writing as provided in Article 4 before performing such Work.

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§ 7.3 CONSTRUCTION CHANGE DIRECTIVES

§ 7.3.1 A Construction Change Directive is a written order prepared by the Architect or the Fill/Finish A/E, as appropriate, and signed by the Owner, directing a change in the Work prior to agreement on adjustment, if any, in the Contract Sum or Contract Time, or both. The Owner may by Construction Change Directive, without invalidating the Contract, order changes in the Work within the general scope of the Contract consisting of additions, deletions or other revisions, the Contract Sum and Contract Time being adjusted accordingly.

§ 7.3.2 A Construction Change Directive shall be used in the absence of total agreement on the terms of a Change Order.

§ 7.3.3 If the Construction Change Directive provides for an adjustment to the Contract Sum, the adjustment shall be based on one of the following methods, at the election of the Owner in its sole discretion:

- .1 mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation;
- .2 unit prices stated in the Contract Documents or subsequently agreed upon;
- .3 cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee; or
- .4 as provided in Section 7.3.6.

§ 7.3.4 Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved and advise the Owner of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.

§ 7.3.5 A Construction Change Directive signed by the Contractor indicates the agreement of the Contractor therewith, including adjustment in Contract Sum and Contract Time or the method for determining them. Such agreement shall be effective immediately and shall be recorded as a Change Order.

§ 7.3.6 If the Contractor does not respond promptly or disagrees with the method for adjustment in the Contract Sum, the method and the adjustment shall be determined by the Owner on the basis of reasonable expenditures and savings of those performing the Work attributable to the change plus markups and fees as set forth in Section 5.3.2 of the Agreement. In such case, and also under Section 7.3.3.3, the Contractor shall keep and present, in such form as the Architect may prescribe, an itemized accounting together with appropriate supporting data. Unless otherwise provided in the Contract Documents, costs for the purposes of this Section 7.3.6 shall be limited to the following:

- .1 costs of labor, including social security, old age and unemployment insurance, fringe benefits required by agreement or custom, and workers' compensation insurance;
- .2 costs of materials, supplies and equipment, including cost of transportation, whether incorporated or consumed;
- .3 rental costs of machinery and equipment, exclusive of hand tools, whether rented from the Contractor or others;
- .4 costs of premiums for all bonds and insurance, permit fees, and sales, use or similar taxes related to the Work; and
- .5 additional costs of supervision and field office personnel and other allowable General Conditions Costs directly attributable to the change

§ 7.3.6 The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a net decrease in the Contract Sum shall be actual net cost as confirmed by the Project Manager. When both additions and credits covering related Work or substitutions are involved in a change, the allowance for overhead and profit shall be figured on the basis of net increase, if any, with respect to that change

§ 7.3.7 Pending final determination of the total cost of a Construction Change Directive to the Owner, to the extent permitted by the Lender, amounts not in dispute for such changes in the Work shall be included in Applications for Payment accompanied by a Change Order indicating the parties' agreement with part or all of such costs. For any portion of such cost that remains in dispute, the Contractor may file a Claim as provided in Article 4.

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§ 7.3.8 When the Owner and Contractor agree in writing to adjustments in the Contract Sum and Contract Time such agreement shall be effective immediately and shall be recorded by preparation and execution of an appropriate Change Order.

§ 7.3.9 If the Change in the Work will result in an extension or contraction of the Contract Time, and the parties are unable to agree as to the number of days by which the time for performance will be extended or contracted, then the matter shall be decided by the Owner, subject to the Contractor's right to dispute such decision and make a Claim for additional time and compensation as set forth in Article 4.

§ 7.4 FIELD CHANGES

§ 7.4.1 In order to deal with field conditions, to expedite the progress of the Work, to coordinate the Work among the various trades or otherwise for the mutual convenience of the Owner and the Contractor, the Architect may authorize or direct, by Field Change Order, minor departures from the scope of Work as defined in the Drawings and Specifications that do not result in any change in the Contract Sum, result in extension in the Contract Time, or give rise to any claim by the Contractor against the Owner. If the Contractor believes that a Field Change Order will extend the Contract Time or increase the Contract Sum, it shall notify the Owner in writing before proceeding with the Field Change Order and shall not proceed without further written direction from the Owner.

§ 7.5 DETERMINATION OF COST

§ 7.5.1 If the Owner and the Contractor cannot agree on what constitutes "cost" for purposes of this Article, Contractor and Owner agree that the maximum reimbursable cost for an item shall be that stated in Means Cost Data Book, 2006 edition (and not Means Change Order Cost Book).

§ 7.5.2 The Contractor acknowledges that on a project of the size, scope and complexity of the Project, a number of changes to the Work are anticipated. Therefore, other than the markups for Subcontractors and the Contractor's Fee and General Conditions costs reimbursement directly related to each change, as provided for in the Contract Documents, the Contractor agrees that it shall not be entitled to any further compensation on the basis of the number of changes initiated, the aggregate value of the changes, or any similar claim. Each Change Order shall not contain any reservation of rights or residual claims to additional adjustments for time or price being preserved beyond the entitlements actually set forth in the Change Order.

ARTICLE 8 TIME

§ 8.1 DEFINITIONS

§ 8.1.1 Unless otherwise provided, Contract Time is the period of time, including authorized adjustments, allotted in the Contract Documents for Substantial Completion of the entire Work.

§ 8.1.2 The date of commencement of the Work is the date established in the Agreement.

§ 8.1.3 The date of Substantial Completion is the date certified by the Owner and the Architect in accordance with Section 9.8.

§ 8.1.4 The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

§ 8.2 PROGRESS AND COMPLETION

§ 8.2.1 Time limits stated in the Contract Documents are of the essence of the Contract. By executing the Agreement the Contractor confirms that the Contract Time is a reasonable period for performing the Work.

§ 8.2.2 The Contractor shall not knowingly, except by agreement or instruction of the Owner in writing, prematurely commence operations on the Site or elsewhere prior to the effective date of insurance required by Exhibit I to be furnished by the Contractor and Owner, as applicable. The date of commencement of the Work shall not be changed by the effective date of such insurance. Unless the date of commencement is established by the Contract Documents or a notice to proceed given by the Owner, the Contractor shall notify the Owner in writing not less than five (5) days or other agreed period before commencing the Work to permit the timely filing of mortgages, mechanic's liens and other security interests.

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§ 8.2.3 The Contractor shall proceed expeditiously with adequate forces and shall achieve Substantial Completion of the entire Work within the Contract Time and if interim Substantial Completion dates are set forth in the Project Schedule, shall achieve Substantial Completion of designated portions of the Work by the dates set forth therefor.

§ 8.3 DELAYS AND EXTENSIONS OF TIME

§ 8.3.1 If the Contractor is delayed at any time in the commencement or progress of the Work by an act or neglect of the Owner, Architect or Fill/Finish A/E, or of an employee of either, or of a separate contractor employed by the Owner, or by changes ordered in the Work, or by Force Majeure (hereinafter defined) (collectively, "Excusable Delays"), and such delay adversely affects the critical path of the Work, then the Contract Time shall be extended by Change Order, subject to satisfaction of the conditions set forth in the other provisions of the Contract Documents relating to Claims.

§ 8.3.2 “Force Majeure” is defined as (1) extraordinary conditions of weather for the area and time of year, war or national conflicts or priorities arising therefrom, fires beyond the reasonable control of the Contractor, strikes or other labor disruptions not due to breach of applicable collective bargaining agreements (except for the first five (5) business days of any strike or labor disruption), or any other cause beyond Contractor’s reasonable control and not the fault of the Owner or those within its control.

§ 8.3.2 Claims relating to time shall be made in accordance with applicable provisions of Section 4.3. In the case of a continuing delay only one Claim is necessary. The Contractor shall immediately take all steps reasonably possible to lessen the adverse impact of any delay.

§ 8.3.3 The Contractor shall not be entitled to any such extension of time for Excusable Delays unless Contractor notifies the Owner in writing within five (5) days after the commencement of each such Excusable Delay, together with essential supporting data, and thereafter promptly gives written notice of the cessation thereof. Except as otherwise provided in the following sentence, the Contractor shall not be entitled to recover from the Owner, and hereby waives any and all claims against the Owner for, increased compensation or damages that the Contractor may suffer on account of any Excusable Delay, and the Contractor further waives any and all claims against the Owner for increased compensation or damages for any other disruption, interference, acceleration or loss of efficiency or productivity caused by the Owner or the Architect, or their officers, agents, employees or consultants. A limited exception to the aforementioned provision is that the Contractor is entitled to increased compensation due to Excusable Delays due to the act or neglect of the Owner equal to only the Contractor’s out-of-pocket expenses and incremental General Conditions Costs on account of the Excusable Delay. At the Owner’s option, the Contractor shall submit to the Owner a proposal to accelerate the Work on account of the Excusable Delay, which proposal, if accepted in writing, shall become the basis for a Change Order increasing the Contract Sum in lieu of increasing the Contract Time.

§ 8.3.4 The provisions set forth in this Section 8.3 are the Contractor’s sole remedy in the event of Excusable Delay. In the event of concurrent delay, no additional compensation shall be paid.

§ 8.3.5 Claims not made within the time limit set forth above are hereby waived.

§ 8.3.6 TIME IS OF THE ESSENCE OF THIS CONTRACT. Contractor agrees that the Work can be performed in the time agreed to herein. On a best efforts basis, estimating time for proposed Change Orders shall not exceed twenty (20) days from date of receipt of sufficient information and/or drawings with reference to such plans or Change Orders. Revisions to initial proposals are to be prepared with immediacy.

ARTICLE 9 PAYMENTS AND COMPLETION

§ 9.1 CONTRACT SUM

§ 9.1.1 The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the Owner to the Contractor for performance of the Work under the Contract Documents.

§ 9.2 SCHEDULE OF VALUES

§ 9.2.1 Before the first Application for Payment, the Contractor shall submit to the Owner and the Project Manager a schedule of values allocated to various portions of the Work, prepared in such form and supported by such data to substantiate its accuracy as the Owner may require. This schedule, unless objected to by the Owner or the Project Manager, shall be used only as a basis for reviewing the Contractor’s Applications for Payment where appropriate

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under the Contract Documents. The Owner shall have the authority to adjust the schedule of values from time to time on the basis of modifications of subcontracts and allocations of estimates to actual costs. The schedule of values and each Application for Payment shall list separately the Contingency, General Conditions Costs, other guaranteed line items and Contractor's Fee and all Change Orders issued by the Owner prior to the date of the particular Application for Payment (including as a single line item all of the costs of such Change Order). The schedule of values shall be prepared in such a manner that each item of Work and each subcontracted item of Work is shown as a single line item on AIA Documents G702/703, Application and Certificate for Payment, and Continuation Sheet.

§ 9.3 APPLICATIONS FOR PAYMENT

§ 9.3.1 Each Application for Payment shall also include an affidavit or affirmation by the Contractor setting forth the following:

- .1 A certification that all Work for which payment is requested has been completed in accordance with the Contract Documents.
- .2 The names and addresses of all Subcontractors (including suppliers) for whom payment is requested.
- .3 The contract amount of each such subcontract or purchase order, and the amounts paid and owed to each such Subcontractor (including suppliers) for whom payment is requested.
- .4 The Contract Sum, including all adjustments.
- .5 The amount paid by the Owner to the Contractor to the date of the current Application for Payment.
- .6 The amount requested in the current Application for Payment.
- .7 The balance due on the Contract Sum after the amount due set forth in the current Application for Payment is paid by the Owner.
- .8 The amount of money retained by the Owner and the amount of the Work that has been completed.

(Paragraphs deleted)

§ 9.3.2 The Contractor will furnish with each Application for Payment evidence in the form of a list of disbursements and release of liens and claims (in the forms attached to the Agreement as Exhibit H) confirming that all amounts included in previous progress payments for Work executed by Subcontractors have been paid in full to such Subcontractors or have been withheld for a proper reason. Nothing contained in this provision shall place any additional responsibilities on the Owner, the Project Manager, the Architect or the Fill/Finish A/E other than those indicated in other relevant provisions in this Contract.

§ 9.3.3 As provided in Section 7.3.8, such applications may include requests for payment on account of changes in the Work which have been properly authorized by Construction Change Directives, or by interim determinations of the Owner, but not yet included in Change Orders.

§ 9.3.4 Such applications may not include requests for payment for portions of the Work for which the Contractor does not intend to pay to a Subcontractor, unless such Work has been performed by others whom the Contractor intends to pay.

§ 9.3.5 Payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the Work. If approved in advance in writing by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for materials and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such materials and equipment or otherwise

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protect the Owner's interest, and shall include the costs of applicable insurance, storage and transportation to the site for such materials and equipment stored off the site.

§ 9.3.6 The Contractor warrants that title to all Work covered by an Application for Payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application for Payment all Work for which payments have been received from the Owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of liens, claims, security interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.

.1 The Contractor further expressly undertakes to defend the Owner Indemnitees, at the Contractor's sole expense, against any actions, lawsuits or proceedings brought against the Owner Indemnitees as a result of liens filed against the Work, the Project site, the site of any of the Work, payments due the Contractor or any portion of the property of any of the Owner Indemnitees (referred to collectively as "Liens"). The Contractor hereby agrees to indemnify and hold the Owner Indemnitees harmless against any damages, costs, expenses (including, without limitation, reasonable attorneys' fees), losses, claims and liabilities arising out of or in connection with Liens or claims of Lien, unless such Lien is due solely to a failure by the Owner to pay the Contractor amounts properly due and owing. The Contractor hereby agrees that Liens filed on account of amounts which are subject to a good faith dispute between the Owner and the Contractor shall nevertheless be required to be bonded off by the Contractor, but in the event the Contractor prevails on account of such claim, the costs of such bond shall be reimbursable as Cost of the Work.

.2 The Contractor shall discharge all Liens within five (5) days after written notice by the Owner, and may contest a Lien only if the Contractor furnishes the Owner with security acceptable to the Owner or procures a lien release bond that complies with the requirements of the lien laws of the State of Maryland and those set forth below in this subsection .2. The Owner shall release any payments withheld due to a Lien or claim of Lien if the Contractor obtains security acceptable to the Owner or a lien release bond which is: (i) issued by a surety acceptable to the Owner, ii) in form and substance satisfactory to the Owner and (iii) in an amount not less than one hundred twenty five percent (125%) of such Lien. By posting a lien release bond or other acceptable security, however, the Contractor shall not be relieved of any responsibilities or obligations under this Section 9.3, including, without limitation, the duty to defend and indemnify the Owner Indemnitees.

.3 Notwithstanding anything to the contrary in the Contract Document, if the Contractor fails to post a bond or other security acceptable to the Owner in connection with any Lien or claim of Lien, the Owner may discharge such Lien or Lien claim by payments to the lien claimant or by such other means as the Owner, in the Owner's sole discretion, determines is the most economical or advantageous method of settling the dispute. The Contractor shall promptly reimburse the Owner, upon demand, for any payments so made. In such case, the Contractor shall have no claim against the Owner relating to the appropriateness or propriety of payment so made.

§ 9.4 CERTIFICATES FOR PAYMENT

§ 9.4.1 The Architect and/or the Fill/Finish A/E will, within seven (7) days after receipt of the Contractor's Application for Payment, but only upon the request of the Owner, either issue to the Owner a Certificate for Payment, with a copy to the Contractor, for such amount as they determine is properly due, or notify the Contractor and Owner in writing of their reasons for withholding certification in whole or in part as provided in Section 9.5.1. Such Certificate for Payment is advisory only and not binding on the Owner.

§ 9.4.2 The issuance of a Certificate for Payment, if issued, will constitute a representation by the Architect or the Fill/Finish A/E (as applicable) to the Owner, based on their evaluation of the Work and the data comprising the Application for Payment, that the Work has progressed to the point indicated and that, to the best of their knowledge, information and belief, the quality of the Work is in accordance with the Contract Documents. The foregoing representations are subject to an evaluation of the Work for conformance with the Contract Documents upon Substantial Completion, to results of subsequent tests and inspections, to correction of minor deviations from the Contract Documents prior to completion and to specific qualifications expressed by the Architect or the Fill/Finish A/E. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified. However, the issuance of a Certificate for Payment will not be a representation that the Architect or Fill/Finish A/E has (1) made exhaustive or continuous on-site inspections to check the quality or quantity of the Work, (2) reviewed construction means, methods, techniques, sequences or

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procedures, (3) reviewed copies of requisitions received from Subcontractors and material suppliers and other data requested by the Owner to substantiate the Contractor's right to payment, or (4) made examination to ascertain how or for what purpose the Contractor has used money previously paid on account of the Contract Sum.

§ 9.5 DECISIONS TO WITHHOLD CERTIFICATION

§ 9.5.1 The Owner may withhold approval of an Application for Payment to the extent as may be necessary to protect the Owner from loss for which the Contractor is responsible, including loss resulting from acts and omissions described in Section 3.3.2, because of:

- .1 defective Work not remedied;
- .2 third party claims filed or reasonable evidence indicating probable filing of such claims unless security acceptable to the Owner is provided by the Contractor;
- .3 failure of the Contractor to make payments properly to Subcontractors or for labor, materials or equipment;
- .4 reasonable evidence that the Work cannot be completed for the unpaid balance of the Contract Sum;
- .5 damage to the Owner or another contractor to the extent not covered by insurance;
- .6 reasonable evidence that the Work will not be completed within the Contract Time, and that the unpaid balance would not be adequate to cover actual or liquidated damages for the anticipated delay;
- .7 material failure to carry out the Work in accordance with the Contract Documents; or
- .8 any other material default or breach of the Contractor under the Contract Documents.

If the Owner intends to withhold all or any part of an Application for Payment for one or more of the reasons set forth above, the Owner shall notify the Contractor in writing of the reasons for withholding.

§ 9.5.2 When the above reasons for withholding are removed, payment will be made for amounts previously withheld as part of the next Application for Payment. If the Contractor disputes any determination with regard to amounts paid, the Contractor shall nevertheless expeditiously continue to prosecute the Work and the Owner shall continue to make timely payment of amounts not in dispute.

§ 9.6 PROGRESS PAYMENTS

§ 9.6.1 The Contractor shall promptly pay each Subcontractor, upon receipt of payment from the Owner, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled, reflecting percentages actually retained from payments to the Contractor on account of such Subcontractor's portion of the Work. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

§ 9.6.2 Neither the Owner nor Architect nor the Fill/Finish A/E shall have an obligation to pay or to see to the payment of money to a Subcontractor except as may otherwise be required by law.

§ 9.6.3 A progress payment, or partial or entire use or occupancy of the Project by the Owner shall not constitute acceptance of Work not in accordance with the Contract Documents.

§ 9.6.4 Unless the Contractor provides the Owner with a payment bond in the full penal sum of the Contract Sum, payments received by the Contractor for Work properly performed by Subcontractors shall be held by the Contractor for those Subcontractors who performed Work or furnished materials, or both, under contract with the Contractor for which payment was made by the Owner. Nothing contained herein shall require money to be placed in a separate account and not commingled with money of the Contractor, shall create any fiduciary liability or tort liability on the part of the Contractor for breach of trust or shall entitle any person or entity to an award of punitive damages against the Contractor for breach of the requirements of this provision.

(Paragraphs deleted)

§ 9.7 FAILURE OF PAYMENT

§ 9.7.1 If the Owner does not pay the Contractor undisputed amounts within twenty (20) days after the due date set forth in the Agreement, then the Contractor may, upon seven (7) additional business days' written notice to the Owner, if the Owner has not made such payment within such seven (7) business days, stop the Work until payment of the undisputed amount owing has been received. Such cessation of Work shall be deemed an Excusable Delay caused by the Owner under the provisions of Section 8.3.3 above, and the Contract Time and the Contract Sum shall be adjusted as provided in Section 8.3.3.

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§ 9.8 SUBSTANTIAL COMPLETION

§ 9.8.1 Substantial Completion is the stage in the progress of the Work when the Work or designated portion thereof agreed to in writing by the Owner, which agreement may be granted or withheld in the Owner's sole discretion (a) is sufficiently complete in accordance with the Contract Documents so that the Owner can occupy or utilize the Work for its intended use, (b) all inspections and tests required under the Contract Documents and Applicable Laws have been completed successfully, (c) all systems and equipment installed by or on behalf of the Contractor are in good working order, (d) a temporary or permanent certificate of occupancy is received, (e) all other governmental, quasi- governmental and other approvals required under the Contract Documents and necessary for use and occupancy are obtained, and (f) the Owner has approved the Substantial Completion of the Work. Notwithstanding the foregoing, if there is a delay in achieving Substantial Completion of the Work or portions thereof because the Contractor cannot obtain a certificate of occupancy or other approval due to reasons other than the fault of the Contractor, then Substantial Completion shall be deemed to have occurred for purposes of calculation of liquidated damages and release of retainage. The Owner is not obligated to accept a portion of the Work as substantially complete. Use and occupancy of a portion of the Work by the Owner shall not relieve the Contractor from liability for liquidated damages under the Agreement, which liquidated damages are intended by the parties to apply to failure to achieve substantial completion of the entire Work within the time period set forth in the Project Schedule, as adjusted pursuant to the provisions of the Contract Documents.

§ 9.8.2 When the Contractor considers that the Work, or a designated portion thereof which is acceptable to the Owner, in its sole discretion, is substantially complete as defined in Subparagraph 9.8.1, the Contractor shall prepare for submission to the Owner, the Project Manager, the Fill/Finish A/E and the Architect a list of items to be completed or corrected. The failure to include any items on such list does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. Within five (5) days of submission of such list, the Owner, the Project Manager, the Fill/Finish A/E and Architect will conduct an inspection to determine whether the Work or designated portion thereof is, in fact, substantially complete. When the Owner on the basis of an inspection determines that the Work or designated portion thereof is substantially complete, the Architect will then prepare a Certificate of Substantial Completion which shall establish the Date of Substantial Completion, shall state the responsibilities of the Owner and the Contractor for security, maintenance, heat, utilities, damage to the Work and insurance and shall fix the time within which the Contractor shall complete the items listed therein. Warranties required by the Contract Documents shall commence on the Date of Substantial Completion. The Certificate of Substantial Completion shall be submitted to the Owner and the Contractor for their written acceptance of the responsibilities assigned to them in such Certificate. If the Architect or the Fill/Finish A/E or the Project Manager are required to inspect the Work to determine Substantial Completion more than twice due to the fault or neglect of the Contractor, all reasonable costs charged by the Architect, the Fill/Finish A/E and the Project Manager and other costs incurred by the Owner on account of additional inspections shall be paid to the Owner by the Contractor or deducted from amounts otherwise due to the Contractor.

§ 9.8.3 Not less than four (4) weeks prior to the making of application for its Certificate of Substantial Completion, the Contractor shall produce to the Architect two (2) three-ring binders containing manuals for the Work equipment and operating systems as well as two copies of all documentation with respect to manufacturer's warranties. Not less than one (1) week prior to the making of application for its Certificate of Substantial Completion, the Contractor shall produce to the Project Manager one (1) full set of Redline Record Drawings.

§ 9.8.4 Applications for Payment shall not be processed by the Owner until it is reasonably satisfied that the Redline Record Drawings are being satisfactorily maintained and updated. The Contractor acknowledges and recognizes the Owner's need to have an accurate set of such drawings available at all times.

(Paragraphs deleted)

§ 9.9 PARTIAL OCCUPANCY OR USE

§ 9.9.1 The Owner may occupy or use any completed or partially completed portion of the Work at any stage when such portion is designated by separate agreement with the Contractor, provided such occupancy or use is consented to by the insurer and authorized by public authorities having jurisdiction over the Work. Such partial occupancy or use may commence whether or not the portion is substantially complete, provided the Owner and Contractor have accepted in writing the responsibilities assigned to each of them for payments, retainage, if any, security, maintenance, heat, utilities, damage to the Work and insurance, and have agreed in writing concerning the period for correction of the Work and commencement of warranties required by the Contract Documents. When the Owner

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elects to occupy and use a portion of the Work, it shall so notify the Contractor, and the Contractor shall prepare and submit a list as provided under Section 9.8.2. Consent of the Contractor to partial occupancy or use shall not be unreasonably withheld. The stage of the progress of the Work shall be determined by written agreement between the Owner and Contractor or, if no agreement is reached, by decision of the Architect

§ 9.9.2 Immediately prior to such partial occupancy or use, the Owner, Contractor, Project Manager, Architect and Fill/Finish A/E (if applicable) shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

§ 9.9.3 Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of Work not complying with the requirements of the Contract Documents.

§ 9.10 FINAL COMPLETION AND FINAL PAYMENT

§ 9.10.1 Upon receipt of written notice that the entire Work is ready for final inspection and acceptance and upon receipt of a final Application for Payment, the Architect, Fill/Finish A/E, Project Manager and the Owner will promptly make such inspection and, when they all find the Work acceptable under the Contract Documents and the Contract fully performed, the Architect will promptly issue a final Certificate for Payment stating that to the best of the Architect's knowledge, information and belief, and on the basis of the Architect's on-Site visits and inspections, the Work has been completed in accordance with terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor and noted in the final Certificate is due and payable. The Architect's final Certificate for Payment will constitute a further representation that conditions listed in Section 9.10.2 as precedent to the Contractor's being entitled to final payment have been fulfilled.

§ 9.10.2 Neither final payment nor any remaining retained percentage shall become due until the Contractor submits to the Owner and the Architect (1) an affidavit that payrolls for Contractor's employees, bills for materials and equipment, and other indebtedness connected with the Work for which the Owner or the Owner's property might be responsible or encumbered (less amounts withheld by Owner) have been paid or otherwise satisfied, (2) a certificate evidencing that insurance required by the Contract Documents to be maintained by the Contractor and to remain in force after final payment is currently in effect and will not be canceled or allowed to expire until at least thirty (30) days' prior written notice has been given to the Owner, (3) a written statement that the Contractor knows of no substantial reason that such insurance will not be renewable to cover the period required by the Contract Documents, (4) consent of surety, if any, to final payment and (5), other data establishing payment or satisfaction of obligations, including, but not limited to, final waivers and releases of liens from the Contractor and first tier Subcontractors in the forms set forth in Exhibit H to the Agreement, to the extent and in such form as may be designated by the Owner. If a Subcontractor refuses to furnish a final waiver and release of liens and claims as specified, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such lien. If such lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

§ 9.10.3 If, after Substantial Completion of the entire Work, final completion thereof is materially delayed through no fault of the Contractor or by issuance of Change Orders affecting final completion, and the Owner so confirms, the Owner shall, upon application by the Contractor, and without terminating the Contract, make payment of the balance due for that portion of the Work fully completed and accepted. If the remaining balance for Work not fully completed or corrected is less than retainage stipulated in the Contract Documents, and if bonds have been furnished, the written consent of surety to payment of the balance due for that portion of the Work fully completed and accepted shall be submitted by the Contractor to the Owner prior to certification of such payment. Such payment shall be made under terms and conditions governing final payment, except that it shall not constitute a waiver of claims.

§ 9.10.4 Acceptance of final payment by the Contractor or a Subcontractor shall constitute a waiver of Claims by
(Paragraphs deleted)

that payee except those previously made in writing and identified by that payee as unsettled at the time of final Application for Payment.

§ 9.10.5 Application for final payment shall contain the information required in Applications for Payment specified in the Contract Documents and shall include, in addition, the following:

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- .1 A certification by the Contractor that all Work has been completed in accordance with the Contract Documents.
 - .2 A certification by the Contractor that he has complied with all of the requirements for final payment reasonably imposed by Owner's Lender, if any (provided that such requirements are provided to the Contractor on or before Substantial Completion of the Work).
 - .3 A certification by the Contractor that all warranties, guarantees, certificates, operating manuals and other documents required by the Contract Documents, including the conformed or as-built construction drawings, have been delivered to the Architect or Owner.
 - .4 A certification by the Contractor that all Work performed and all materials and equipment furnished by the Contractor are guaranteed against defects in material and workmanship for a period of one year from the date of Substantial Completion of the entire Work or for

such longer period as is provided for in the Contract Documents and specifying that the Contractor will make good any defects in materials, equipment or workmanship which may develop or become apparent during the guarantee period, including, as necessary, the removal and replacement of the Work of the Owner or any other contractor or the repair of damage caused in the Work of the Owner or any other Contractor necessitated thereby.

.5 A certification by the Contractor that the Application for final payment includes without exception all claims of the Contractor against the Owner arising in connection with the Project except those previously made in writing and identified by the Contractor as unsettled at the time of final Application for Payment. With respect to such outstanding Claims, the Contractor shall describe each one with specificity, and shall also set forth the maximum dollar value of each.

.6 A certification by the Contractor that the conformed or as-built construction drawings maintained by the Contractor are complete and accurate.

§ 9.11 SCHEDULE OF ANTICIPATED PROGRESS PAYMENTS

§ 9.11.1 Before commencing the Work, the Contractor shall submit to the Owner a schedule of anticipated progress payments which shall be based upon the Project Schedule and Schedule of Values. The Contractor shall revise and update the payment schedule as necessary from time to time to conform it to the Project Schedule as revised and updated.

ARTICLE 10 PROTECTION OF PERSONS AND PROPERTY

§ 10.1 SAFETY PRECAUTIONS AND PROGRAMS

§ 10.1.1 The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the performance of the Contract.

§ 10.2 SAFETY OF PERSONS AND PROPERTY

§ 10.2.1 The Contractor shall take reasonable precautions for safety of, and shall provide reasonable protection to prevent damage, injury or loss to:

- .1 employees on the Work and other persons who may be affected thereby;
- .2 the Work and materials and equipment to be incorporated therein, whether in storage on or off the Site, under care, custody or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and
- .3 other property at the Site or adjacent thereto, such as trees, shrubs, lawns, walks, pavements, roadways, structures and utilities not designated for removal, relocation or replacement in the course of construction.

§ 10.2.2 The Contractor shall give notices and comply with Applicable Laws bearing on safety of persons or property or their protection from damage, injury or loss.

§ 10.2.3 The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations and notifying owners and users of adjacent sites and utilities.

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§ 10.2.4 When use or storage of explosives or other hazardous materials or equipment or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel and shall notify local, state and federal authorities, to the extent required by Applicable Laws.

§ 10.2.5 The Contractor shall promptly remedy damage and loss (other than damage or loss insured under property insurance required by the Contract Documents) to property referred to in Sections 10.2.1.2 and 10.2.1.3 caused in whole or in part by the Contractor, a Subcontractor, a Sub-subcontractor, or anyone directly or indirectly employed by any of them, or by anyone for whose acts they may be liable and for which the Contractor is responsible under Sections 10.2.1.2 and 10.2.1.3, except damage or loss attributable to acts or omissions of the Owner or Architect or anyone directly or indirectly employed by either of them, or by anyone for whose acts either of them may be liable, and not attributable to the fault or negligence of the Contractor. The foregoing obligations of the Contractor are in addition to the Contractor's obligations under Section 3.18.

§ 10.2.6 The Contractor shall designate a responsible member of the Contractor's organization at the Site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the Owner and Architect.

§ 10.2.7 The Contractor shall not load or permit any part of the construction or Site to be loaded so as to endanger its safety.

§ 10.3 HAZARDOUS MATERIALS

§ 10.3.1 "Hazardous Materials" means any substance:

.1 the presence of which requires investigation or remediation under any federal, state or local law, statute, regulation, ordinance, order, or common law; or

.2 which is or becomes defined, at any time during the duration of this Agreement, as a "hazardous waste", "hazardous substance", pollutant or contaminant under any federal, state or local law, statute, regulation, rule or ordinance or amendments thereto, including without limitation the Comprehensive Environmental Response, Compensation and Liability Act, 42 U.S.C. §§ 9601 et seq. ("CERCLA"), as amended, or the Resource, Conservation and Recovery Act, as amended, 42 U.S.C. §§ 6901 et seq. ("RCRA"), and any comparable Maryland law; or

.3 which is petroleum, including crude oil or any fraction thereof not otherwise designated as a "hazardous substance" under CERCLA, including without limitation gasoline, diesel fuel or other petroleum hydrocarbons; or

.4 which is toxic, explosive, corrosive, flammable, infectious, radioactive, carcinogenic, mutagenic, or otherwise hazardous and is or becomes regulated at any time during the duration of this Agreement by any governmental authority or agency or by any instrumentality of the United States, the State of Maryland, or any political subdivision thereof; or

.5 the presence of which on the Project Site causes or threatens to cause a nuisance upon the Project Site or to adjacent properties or poses or threatens to pose a hazard to the health or safety of persons on or about the Project Site; or

.6 the presence of which on adjacent properties could constitute a trespass by the Design/Builder or the Authority; or

.7 which contains asbestos.

§ 10.3.2 If any Hazardous Materials, other than those (1) included in the Contractor's scope of Work or (2) brought to the site by the Contractor, are encountered on the Site by the Contractor (collectively, "Owner Hazardous Materials"), the Contractor shall, upon recognizing the condition, immediately stop Work in the affected area and report the condition to the Owner and the Architect in writing. The Owner shall obtain the services of a licensed laboratory to verify the presence or absence of the Owner Hazardous Materials reported by the Contractor and, in the event such material or substance is found to be Owner Hazardous Materials, to verify that it has been rendered

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harmless. Unless otherwise required by the Contract Documents, the Owner shall furnish in writing to the Contractor and Architect the names and qualifications of persons or entities who are to perform tests verifying the presence or absence of Owner Hazardous Materials or who are to perform the task of removal or safe containment of such Owner Hazardous Materials. When the Owner Hazardous Materials have been rendered harmless, Work in the affected area shall resume. Such delay shall be deemed to be Force Majeure, and the Contractor shall be entitled to a time extension and additional compensation to the extent permitted by Section 8.3.

§ 10.3.3 To the fullest extent permitted by law, the Owner shall indemnify and hold harmless the Project Manager, Contractor, Subcontractors, Architect, Fill/Finish A/E, their consultants and agents and employees of any of them from and against claims, damages, losses and expenses, including but not limited to attorneys' fees, arising out of the existence of Owner Hazardous Materials at the Site if in fact the Owner Hazardous Materials present the risk of bodily injury or death as described in Section 10.3.1 and have not been rendered harmless, provided that such claim, damage, loss or expense is attributable to bodily injury, sickness, disease or death, or to injury to or destruction of tangible property (other than the Work itself) and except to the extent such damage, loss or expense is not due to the negligence or willful misconduct of a party seeking indemnity. The Contractor agrees, however, that the Owner's indemnity obligations under this Section 10.3.3 shall be conditional upon the Contractor's full compliance with Subparagraph 10.3.2 above, and in no event shall this indemnity apply where the Contractor contributed to the release, disbursement or unlawful handling of Owner Hazardous Materials

§ 10.4 PHYSICAL CONDITION OF SITE

The Owner assumes no responsibility or liability for the physical condition or safety of the Site or any improvements located on the Site, except to the extent a portion of the Site is within the exclusive control of the Owner and not the Contractor. The Contractor shall be solely responsible for providing a safe place for the performance of the Work. The Contractor shall use best efforts to provide for the safety and protection of all persons who may come in contact with the Work within or adjacent to the Site.

§ 10.5 EMERGENCIES

§ 10.5.1 In an emergency affecting safety of persons or property, the Contractor shall act, at the Contractor's discretion, to prevent threatened damage, injury or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Section 4.3 and Article 7. The Contractor shall notify the Owner and the Architect of such emergency as promptly as is practicable under the circumstances.

§ 10.6 SECURITY OF PROJECT AREA

10.6.1 The Contractor shall be responsible for the protection and security of the Work and of its own personnel, materials, supplies and equipment whether on or off the Site. The Owner may provide guards, watchmen or other security for the Project; but the Owner shall be under no obligation to the Contractor to do so and by doing so shall not assume any responsibility to the Contractor.

§ 10.7 SAFETY REQUIREMENTS

§ 10.7.1 The Contractor shall comply with all applicable safety requirements of the Owner, all insurance carriers and all governmental agencies having jurisdiction. The Contractor shall provide barriers, barricades, fences, flagmen, fire prevention and other measures and safeguards necessary for the protection of health, safety and property. The Contractor shall maintain the good order and discipline of its employees and other persons under its direction and control or present at the Project site in connection with the Contractor's work, and shall enforce the Owner's regulations with respect to safety, fire prevention and smoking. The use of alcoholic beverages, drugs and other dangerous substances constitute a danger to life, health or property and are strictly prohibited at the Project site. Contractor specifically agrees that he will comply with all of the statutory and regulatory requirements of the Drug Free Workplace Act of 1990.

§ 10.8 OFF - SITE SAFETY MEASURES AND TRAFFIC

§ 10.8.1 The Contractor shall provide for the protection of the general public and the buildings, sidewalks and streets adjacent to the Project site and shall cooperate with all authorities having jurisdiction in maintaining the free flow of traffic in the vicinity of the Project site. Where such authorities are legally entitled to reimbursement, the Contractor shall reimburse such authorities for the cost of such traffic control measures, including the cost of policemen, or other traffic control personnel.

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§ 10.9 LOSS PREVENTION PROGRAM

§ 10.9.1 Contractor shall establish and administer a safety and loss prevention program, including fire prevention, in compliance with the requirements of the Owner, all insurance carriers, and governmental agencies having jurisdiction. The Contractor shall designate a safety and loss prevention supervisor and shall give him responsibility and authority to enforce the program and to coordinate the Contractor's safety program with those of the Owner, all insurance carriers and other contractors.

§ 10.10 REPORT OF ACCIDENTS

§ 10.10.1 Contractor shall promptly report to the Owner in writing any accident occurring on or off the Project site that relates to the Work and, in no event, later than twenty-four (24) hours after the Contractor's learning of such accident, and shall, in addition, immediately give notice, by telephone or messenger, of any accident resulting in death or serious personal injury or property damage. Such notice shall include all known details of the circumstances, the nature and extent of any injuries or property damage, the names of all witnesses and other persons who may have knowledge of the circumstances of the accident, and such other details as the Owner or the Owner's insurer shall require. As more details become known, the Contractor shall update the Owner in writing with such additional information.

§ 10.11 PROTECTION OF WORK IN PROGRESS AND FINISHED WORK

§ 10.11.1 Contractor shall routinely inspect and protect the Work and property of its Subcontractors, whether finished or unfinished, from damage, injury, or loss arising in connection with operations under the Contract Documents, and shall carry out its operations so as to avoid damage, injury or loss to completed Work and to the work of the Owner and any separate contractor of the Owner, including, but not limited to, the Other Contractor. If the Owner or a separate Contractor has not sufficiently protected the Work the Contractor shall promptly so notify the Owner.

(Paragraphs deleted)

ARTICLE 11 INSURANCE AND BONDS

§ 11.1 See provisions of the Agreement relating to bonds, and the provisions of Exhibit I to the Agreement with respect to insurance requirements.

(Paragraphs deleted)

ARTICLE 12 UNCOVERING AND CORRECTION OF WORK

§ 12.1 UNCOVERING OF WORK

§ 12.1.1 If a portion of the Work is covered contrary to the Architect's or Fill/Finish A/E's request or to requirements specifically expressed in the Contract Documents, it must, if required in writing by the Architect or Fill/Finish A/E, be uncovered for the Architect's examination and be replaced at the Contractor's expense without change in the Contract Time.

§ 12.1.2 If a portion of the Work has been covered which the Architect or Fill/Finish A/E have not specifically requested to examine prior to its being covered, the Architect or Fill/Finish A/E may, after receiving the prior written approval of the Owner, request to see such Work and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncovering and replacement shall, by appropriate Change Order, be at the Owner's expense. If such Work is not in accordance with the Contract Documents, correction shall be at the Contractor's expense unless the condition was caused by the Owner or a separate contractor in which event the Owner shall be responsible for payment of such costs. The foregoing shall apply in like effect to surveys or tests as well as examination of the completed Work. In all cases the cost shall include the reasonable cost of professional advice and services necessary to complete the examination, survey and tests.

§ 12.2 CORRECTION OF WORK

§ 12.2.1 BEFORE OR AFTER SUBSTANTIAL COMPLETION

§ 12.2.1.1 The Contractor shall promptly correct Work rejected by the Architect or Fill/Finish A/E or failing to conform to the requirements of the Contract Documents, whether discovered before or after Substantial Completion and whether or not fabricated, installed or completed. Costs of correcting such rejected Work, including additional testing and inspections and compensation for the Architect's or Fill/Finish A/E's services and expenses made necessary thereby, shall be at the Contractor's expense. If the Contractor disputes that the rejected Work is not in accordance with the Contract Documents, it shall notify the Owner and the Architect in writing within five (5) days after such rejection and before incurring any costs which could become the subject of a Change Order.

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§ 12.2.2 AFTER SUBSTANTIAL COMPLETION

§ 12.2.2.1 In addition to the Contractor's obligations under Section 3.5, if, within one year after the date of Substantial Completion of the Work or designated portion thereof or after the date for commencement of warranties established under Section 9.9.1, or by terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the Owner to do so unless the Owner has previously given the Contractor a written acceptance of such condition. If the Contractor fails to correct nonconforming Work within a reasonable time during that period after receipt of notice from the Owner or Architect, the Owner may correct it in accordance with Section 2.4. The obligations under this Section shall also include any repairs and/or replacement to any part of the Work and any other real and personal property which is damaged in the process of correcting any defective Work.

§ 12.2.2.2 The one-year period for correction of Work shall be extended with respect to portions of Work first performed after Substantial Completion by the period of time between Substantial Completion and the actual performance of the Work.

§ 12.2.2.3 The one-year period for correction of Work shall be extended by corrective Work performed by the Contractor pursuant to this Section 12.2 for an additional one-year period from the date of completion of such corrective Work, provided, however that the total period for correction of Work shall not exceed eighteen (18) months.

§ 12.2.3 The Contractor shall remove from the Site portions of the Work which are not in accordance with the requirements of the Contract Documents and are neither corrected by the Contractor nor accepted by the Owner.

§ 12.2.4 The Contractor shall bear the cost of correcting destroyed or damaged construction, whether completed or partially completed, of the Owner or Separate Contractors caused by the Contractor's correction or removal of Work which is not in accordance with the requirements of the Contract Documents.

§ 12.2.5 Nothing contained in this Section 12.2 shall be construed to establish a period of limitation with respect to other obligations which the Contractor might have under the Contract Documents. Establishment of the periods for correction of Work as described herein relate only to the specific obligation of the Contractor to correct the Work, and have no relationship to the time within which the obligation to comply with the Contract Documents may be sought to be enforced, nor to the time within which proceedings may be commenced to establish the Contractor's liability with respect to the Contractor's obligations other than specifically to correct the Work.

§ 12.3 ACCEPTANCE OF NONCONFORMING WORK

§ 12.3.1 If the Owner prefers to accept Work which is not in accordance with the requirements of the Contract Documents, the Owner may do so instead of requiring its removal and correction, in which case the Contract Sum will be reduced as appropriate and equitable. Such adjustment shall be effected whether or not final payment has been made.

ARTICLE 13 MISCELLANEOUS PROVISIONS

§ 13.1 GOVERNING LAW

§ 13.1.1 The Contract shall be governed by the law of the State of **Maryland without reference to the rules governing choice of law.**

§ 13.2 RIGHTS AND REMEDIES

§ 13.2.1 Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights and remedies otherwise imposed or available by law.

§ 13.2.2 No action or failure to act by the Owner, Architect or Contractor shall constitute a waiver of a right or duty afforded them under the Contract, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

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§ 13.3 TESTS AND INSPECTIONS

§ 13.3.1 If the Contract Documents or Applicable Laws require any portions of the Work to be inspected, tested or approved, unless otherwise provided, the Contractor shall make arrangements for such tests, inspections and approvals with an independent testing laboratory or entity acceptable to the Owner, or with the appropriate public authority, and shall bear all related costs of tests, inspections and approvals. The Contractor shall give the Owner and Architect (and Fill/Finish A/E, if applicable) timely notice of when and where tests and inspections are to be made so that the Architect and Fill/Finish A/E, if applicable, may be present for such procedures. The Owner shall bear costs of tests, inspections or approvals which do not become requirements until after bids are received or negotiations concluded.

§ 13.3.2 If the Architect, Fill/Finish A/E, Project Manager, Owner or public authorities having jurisdiction determine that portions of the Work require additional testing, inspection or approval not included under Section 13.5.1, the Architect will, upon written authorization from the Owner, instruct the Contractor to make arrangements for such additional testing, inspection or approval by an entity acceptable to the Owner, and the Contractor shall give timely notice to the Owner, Project Manager, Architect and Fill/Finish A/E (if applicable) of when and where tests and inspections are to be made so that the Architect may be present for such procedures. Such costs, except as provided in Section 13.5.3, shall be at the Owner's expense.

§ 13.3.3 If such procedures for testing, inspection or approval under Sections 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, all costs made necessary by such failure including those of repeated procedures and reasonable compensation for the Owner's, Project Manager's Fill/Finish A/E's and Architect's services and expenses shall be at the Contractor's expense.

§ 13.3.4 Required certificates of testing, inspection or approval shall, unless otherwise required by the Contract Documents, be secured by the Contractor and promptly delivered to the Architect.

§ 13.3.5 If the Architect, Project Manager, Fill/Finish A/E or the Owner wish to observe tests, inspections or approvals required by the Contract Documents, the Contractor shall give reasonable prior notice of the dates, places and times of such tests.

§ 13.3.6 Tests or inspections conducted pursuant to the Contract Documents shall be made promptly to avoid unreasonable delay in the Work.

§ 13.3.7 If, after the commencement of the Work, the Architect or the Fill/Finish A/E determine that any of the work requires special observation, testing or approval which Section 13.5.1 does not include, it may, upon written authorization from the Owner, in lieu of the procedure specified in Section 13.5.2, secure the services of an independent testing agency to perform such tests, inspections and approvals. The Contractor shall make all arrangements, furnish all samples and materials, and deliver the samples and materials to the testing agency. Reports of such tests, observations and approvals shall be submitted to the Architect. The Contractor or the Owner shall bear the costs of such tests, as provided above.

§ 13.3.8 All observations, tests and approvals of any methods or means of construction, materials or workmanship included in the Work required by the Specifications or by Applicable Laws shall be performed at such times as the Owner shall approve by independent agencies selected by the Owner. Representatives of the testing laboratories and observers shall have access to the Work at all times. The Contractor shall furnish samples of all materials and component parts of the Work required as test specimens in connection with the tests and observations and shall furnish labor and facilities at the site as necessary in connection with testing and observation services.

§ 13.3.9 The Owner may require testing or observation, not required by the Specifications or by Applicable Laws, or any methods or means of construction, material or workmanship in order to determine the acceptability thereof under the Contract Documents. Representatives of the testing laboratories and observers shall have access to the Work at all times. The Contractor shall furnish samples of all materials and component parts of the Work required as test specimens in connection with the testing and observation services. If such testing or observation does not disclose that the methods or means of construction, material or workmanship are not in compliance with the Contract Documents, the Owner shall bear the cost of such testing and observation and of the labor and facilities in connection with such testing and observations. If such testing or observation discloses that such methods or means of construction, material or workmanship are not in compliance with the Contract Documents, the Contractor shall

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bear such cost.

§ 13.3.10 The Owner may in its discretion provide and pay for such other tests and inspections it deems necessary or appropriate during construction through an independent quality control agency. The Contractor shall cooperate with such tests and shall notify the testing agency at least 24 hours prior to performing any test directed by Owner. The Contractor acknowledges that the tests referred to herein may include, without limitation, concrete and reinforcement inspection and testing, waterproofing inspection, structural steel inspection, inspections and testing in connection with mechanical and electrical installations.

§ 13.3.11 To the extent any of the foregoing testing, inspections or approvals relate to Work that is adjacent to the Montgomery County-owned garage, the Contractor shall give at least ten (10) business days' prior written notice to appropriate employees of Montgomery County so that they may be present for such testing, inspections or approvals.

§ 13.4 QUALITY OF WORKMANSHIP AND MATERIALS

§ 13.4.1 The Contractor shall perform the Work in accordance with the best modern practice and shall employ only first-class workmanship and materials as specified in the Contract Documents.

(Paragraphs deleted)

§ 13.5 INTERPRETATION

§ 13.5.1 All personal pronouns used in this Contract, whether used in the masculine, feminine or neuter gender, shall include all other genders; and the singular shall include the plural and vice versa. Titles of Articles, Paragraphs and Subparagraphs are for convenience only, and neither limit nor amplify the provisions of this Contract in itself. The use herein of the word "including," when following any general statement, term or matter, shall not be construed to limit such statement, term or matter to the specific items or matters set forth immediately following such word or to similar items or matters, whether or not non-limiting language (such words as "without limitation," or "but not limited to," or words of similar import) is used with reference thereto, but rather shall be deemed to refer to all other items or matters that could reasonably fall within the broadest possible scope of such general statement, term or matter.

§ 13.5.2 Wherever possible, each provision of this Agreement shall be interpreted in a manner as to be effective and valid under applicable law. If, however, any provision of this Agreement, or portion thereof, is prohibited by law or found invalid under any law, only such provision or portion thereof shall be ineffective, without in any manner invalidating or affecting the remaining provisions of this Agreement or valid portions of such provision, which are hereby deemed severable.

(Paragraphs deleted)

ARTICLE 14 TERMINATION OR SUSPENSION OF THE CONTRACT

§ 14.1 TERMINATION BY THE CONTRACTOR

§ 14.1.1 The Contractor may terminate the Contract if the Work is stopped through no act or fault of the Contractor or a Subcontractor, Sub-subcontractor or their agents or employees or any other persons or entities performing portions of the Work under direct or indirect contract with the Contractor

- .1 for a period of ninety (90) days on account of the issuance of an order of a court or other public authority having jurisdiction;
- .2 for a period of ninety (90) days on account of an act of government, such as a declaration of national emergency, making material unavailable; or
- .3 for a period of thirty (30) days because the Owner has not made payments to the Contractor of amounts not in dispute and due and owing.

§ 14.1.2 If one of the reasons described in Section 14.1.1, the Contractor may, upon seven (7) business days' written notice to the Owner, terminate the Contract and recover from the Owner payment for Work executed and for proven loss with respect to materials, equipment, tools, and construction equipment and machinery as provided in Section 14.3 below. Such recovery shall be the sole remedy of the Contractor in the event of a Contractor termination of the Contract.

(Paragraphs deleted)

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§ 14.2 TERMINATION BY THE OWNER FOR CAUSE

§ 14.2.1 The Owner may terminate the Contract if the Contractor:

- .1 persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;
- .2 fails to make payment to Subcontractors for materials or labor in accordance with the respective agreements between the Contractor and the Subcontractors;
- .3 persistently disregards laws, ordinances, or rules, regulations or orders of a public authority having jurisdiction;
- .4 fails to provide or maintain the bonds or insurance required by the Contract Documents; or
- .5 otherwise is guilty of substantial breach of a provision of the Contract Documents.

§ 14.2.2 When any of the above reasons exist, the Owner may without prejudice to any other rights or remedies of the Owner and after giving the Contractor and the Contractor's surety, if any, seven (7) days' written notice, terminate employment of the Contractor and may, subject to any prior rights of the surety:

- .1 take possession of the Site and of all materials, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;
- .2 accept assignment of subcontracts pursuant to Section 5.4; and
- .3 finish the Work by whatever reasonable method the Owner may deem expedient. Upon request of the Contractor, the Owner shall furnish to the Contractor a detailed accounting of the costs incurred by the Owner in finishing the Work.

§ 14.2.3 When the Owner terminates the Contract for one of the reasons stated in Section 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is finished.

§ 14.2.4 When the Work is finally complete, if the unpaid balance of the Contract Sum (adjusted for Change Orders, Construction Change Directives and Claims) exceeds all costs of finishing the Work, including reasonable compensation for the Architect's, Fill/Finish A/E's, Project Manager's and Owner's services and expenses made necessary thereby, and other damages incurred by the Owner and not expressly waived, such excess shall be paid to the Contractor. If such costs and damages exceed the unpaid balance, the Contractor shall pay the difference to the Owner. This obligation for payment shall survive termination of the Contract.

§ 14.3 SUSPENSION BY THE OWNER FOR CONVENIENCE

§ 14.3.1 The Owner may, without cause, order the Contractor in writing to suspend, delay or interrupt the Work in whole or in part for such period of time as the Owner may determine. Such suspension shall be treated as an Excusable Delay, and the provisions of Section 8.3 shall apply to time extensions and increases in the Contract Sum.

(Paragraphs deleted)

§ 14.4 TERMINATION BY THE OWNER FOR CONVENIENCE

§ 14.4.1 The Owner may, at any time, terminate the Contract for the Owner's convenience and without cause.

§ 14.4.2 Upon receipt of written notice from the Owner of such termination for the Owner's convenience, the Contractor shall:

- .1 cease operations as directed by the Owner in the notice;
- .2 take actions necessary, or that the Owner may direct, for the protection and preservation of the Work; and
- .3 except for Work directed to be performed prior to the effective date of termination stated in the notice and those subcontracts of which the Owner elects to take assignment (as stated in the notice), terminate all existing subcontracts and purchase orders and enter into no further subcontracts and purchase orders.

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§ 14.4.3 In case of such termination for the Owner's convenience, the Contractor shall be entitled to receive payment for Work executed, and costs incurred by reason of such termination, along with proportionate Contractor's Fee on Work performed. The foregoing shall be the Contractor's sole remedy in the event of termination for convenience, and the Contractor hereby waives any claims for compensation or damages other than as set forth above.

§ 14.5 SURVIVAL OF PROVISIONS

§ 14.5.1 All provisions of the Contract Documents relating to indemnification and other obligations that may extend beyond termination of the Contract shall survive termination or other expiration of the Contract.

ARTICLE 15 OTHER PROVISIONS

§ 15.1 WORK TO CONTINUE DURING DISPUTES

§ 15.1.1 In the event of a dispute, controversy or question between the Owner and the Contractor or the Contractor and any other person, with respect to the Project, or this Agreement, or the interpretation of the Contract Documents, the performance of any portion of the Work, the delivery of any materials, the payment of any money or otherwise, the Owner and the Contractor shall continue to perform their respective obligations under this Agreement without interruption or delay, pending the resolution or settlement of such dispute, controversy or question; and the Contractor shall not directly or indirectly stop or delay the performance of the Work, including the delivery of materials to the site.

§ 15.2 PARTIAL OCCUPANCY BY OWNER

§ 15.2.1 The Owner reserves the right to place and install equipment and furnishings in the building as necessary and convenient prior to substantial completion, and the Contractor shall cooperate with the Owner and coordinate work with the Owner to allow installation of such equipment and furnishings. Such placing of equipment and partial occupancy of the addition shall not be construed as evidence of substantial or final completion of the Work or any portion of it, nor signify Owner's acceptance of the Work or any part of it.

§ 15.3 OCCUPANCY

§ 15.3.1 The Contractor shall allow the Owner to take possession of and use any partially completed portion of the structure, or to place and install as much equipment and machinery during the process of the work as is possible without unreasonable interference with the progress of the Contractor. Possession and use of the structure or placing and installing of equipment, or both, shall not in any way evidence the substantial or final completion of the Work or signify the Owner's acceptance of the Work or any part thereof.

§ 15.4 INTERFERENCE WITH ADJOINING PROPERTIES

§ 15.4.1 All operations necessary for the execution of the Work shall, so far as compliance with the requirements of the Contract permits, be carried on so as not to interfere unnecessarily or improperly with the convenience of the public, or the access to, use and occupation of public or private roads and footpaths to or of properties whether in the possession of the Owner or of any other person. The Contractor shall save harmless and indemnify the Owner in respect of all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of, or in relation to, any such matters in so far as the Contractor is responsible therefor.

§ 15.4.2 The Contractor shall use every reasonable means to prevent any of the routes to the Site from being damaged or injured by any traffic of the Contractor or any of its Subcontractors and, in particular, shall select routes, choose and use vehicles and restrict and distribute loads so that any such extraordinary traffic as may arise from the moving of plant and materials from and to the site shall be limited, as reasonably possible, so that no damage or injury may be occasioned to such highways and bridges. Contractor shall save harmless and indemnify the Owner in respect of all claims, proceedings, damages, costs, charges and expenses whatsoever arising out of, or in relation to, any such matters in so far as the Contractor is responsible therefor.

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EXHIBIT C

EQUIPMENT MATRIX [to be inserted at time as the GMP is agreed upon]

[This exhibit has been superseded by Amendment No. 1]

EXHIBIT D

SCOPE OF AUTHORITY OF PROJECT MANAGER

Stranix Associates, LLC is the Project Manager. The Project Manager shall be entitled to act or make decisions on behalf of the Owner only to the extent such actions or decisions do not increase the Guaranteed Maximum Price or extend the Substantial Completion Date of the Work. To the extent the Construction Manager believes that an action or decision of the Project Manager may have the effect of increasing the Guaranteed Maximum Price or extending the Substantial Completion Date of the Work, it shall be the responsibility of the Construction Manager to obtain the prior written approval of the Owner before it is entitled to rely on such act or decision of the Project Manager.

EXHIBIT E

PROJECT SCHEDULE [Detailed Construction Schedule to be inserted at such time as the GMP is agreed upon]

[This exhibit has been superseded by Amendment No. 1]

EXHIBIT F

KEY PERSONNEL

Whiting-Turner Key Personnel	Project Role Description	Fully Burdened Hourly Rates
1 Jonathan Hess	Project Executive	NC
2 Jeff Jenkins	Sr. Project Manager	\$[***]
3 Tom Brady	Construction Project Manager	\$[***]
4 Warren Strozyk	Superintendent	\$[***]
5 Glen Causey	Fill/Finish Project Manager	\$[***]
6 Jonathon Santamont	MEP Project Manager	\$[***]

EXHIBIT G

GMP, Including General Conditions Items and Costs, Fee and Contingency [Control Budget attached - GMP & Contingency to be inserted at such time as the GMP is agreed upon]

[This exhibit has been superseded by Amendment No. 1]

EXHIBIT H

FORM OF PARTIAL AND FINAL WAIVERS AND RELEASES OF LIENS

(see attached)

CONTRACTOR AFFIDAVIT AND PARTIAL RELEASE OF LIENS AND CLAIMS

OWNER:

CONTRACTOR:

PROJECT :

CONTRACT DATE:

FROM:

STREET:

CITY, ST.:

I. Certifications, Affirmations and Warranties

The undersigned, to support its entitlement to the requested payment, and for and in consideration of payments made by ("Owner") to the undersigned or to a Subcontractor, Materialman, or Supplier of the undersigned, and contingent upon the receipt of such payment, for work performed in the construction of the above-referenced Project pursuant to the above-referenced Contract, hereby affirms, certifies and warrants as follows:

1. Payment Request No. _____ represents the actual value of work performed through the above indicated payment request period for which payment is due under the terms of the Contract (and all authorized changes thereto) between the undersigned and Owner relating to the Project, including (i) all labor expended in the construction of the Project, (ii) all materials, fixtures and equipment delivered to Project, (iii) all materials, fixtures and equipment for the Project stored offsite to the extent authorized by Owner and for which payment therefore is permitted by the Contract and all requirements of said Contract with respect to materials stored offsite have been fulfilled, (iv) all services performed in the construction of the Project, and (v) all equipment used, for provided for use, in the construction of the Project. Such work including items (I) through (v) is hereafter collectively referred to as "work performed in the construction of the Project".

2. Except for retainage, if applicable, there are no outstanding claims against the Owner and/or its lenders and guarantors, or the Project, in connection with the work performed in the construction of the Project through the _____ day of _____, 200 .

3. The undersigned has not assigned to anyone any claim, any lien, or any right to file or perfect a lien, against the Owner and/or its lenders, or the Project.

4. The undersigned has paid in full all laborers, Subcontractors, Suppliers, Materialmen, trade unions and others with respect to all work performed in the construction of the Project through _____ day of _____, 200 . No such party has filed or can properly file any claim, demand, lien, encumbrance or action against the Owner and/or its lenders, or the Project.

5. The undersigned has not given or executed any security interest for or in connection with any materials, equipment, appliances, machines, fixtures or furnishings which have been or are to be placed upon or installed in the Project, and is conveying good title to the same to the Owner.

6. The undersigned has paid all amounts due benefit funds, trade unions, applicable taxes, applicable fees, duties and other like charges relating directly or indirectly to the work performed in the construction of the Project.

7. The undersigned has complied with all applicable federal, state and local laws, codes, ordinances and regulations relating to the work performed in the construction of the Project.

8. The undersigned has the right, power and authority to execute this document.

II. **Waiver and Release**

In accord with the Contract, the undersigned does hereby forever waive and release in favor of the Owner and its lenders, the Project and the title company or companies examining and/or insuring title to the Project, and any and all successors and assignees of the above, all rights that presently exist or hereafter may accrue to the undersigned by reason of work performed in the construction of the Project through the _____ day of _____, 200____, (1) to assert a lien upon the land and/or improvements comprising the Project, and (2) to assert or bring any causes of action, claims, suits and demands which the undersigned ever had or now has against the Owner and/or its lenders, or the Project.

III. **Indemnification**

The undersigned hereby agrees to indemnify and hold harmless the Owner and its lenders, from any and all damages, costs, expenses, demands, and suits, (including reasonable legal fees) directly or indirectly relating to any cause of action, claim or lien filing by any party with respect to any (1) work performed in the construction of the Project or work which should have been performed in construction of the Project through the _____ of _____, 200____ (2) any rights waived or released herein, and (3) any misrepresentation or breach of any certification, affirmation or warranty made by the undersigned in this Affidavit, Waiver and Release of Liens, and upon the request the Owner or its lenders, will undertake to defend such causes of action, claims or lien filings at its sole cost and expense.

Date: _____

(Construction Manager - Full Corporate Name)

By: _____
(Authorized Signature)

Title: _____
(Corporate Title)

Subscribed and sworn before me
this _____ day of _____, _____,
200____.

Notary Public

My Commission Expires:

CONTRACTOR FINAL AFFIDAVIT, WAIVER AND RELEASE OF LIENS AND CLAIMS

OWNER:

CONTRACTOR:

PROJECT :

CONTRACT DATE:

FROM:

STREET:

CITY, ST.:

I. Certifications, Affirmations and Warranties

The undersigned, to support its entitlement to the requested payment, and for and in consideration of final payment made by ("Owner") to the undersigned or to a subcontractor, materialman, or supplier of the undersigned, and contingent upon the receipt of such payment, for work performed in the construction of the above-referenced Project pursuant to the above-referenced Contract, hereby affirms, certifies and warrants as follows:

1. Upon receipt of the sum of \$, the undersigned will have received final payment under the terms of the Contract (and all authorized changes thereto) between the undersigned and Owner relating to the Project, including (1) all labor expended in the construction of the Project, (2) all materials, fixtures and equipment delivered to the site and either incorporated or to be incorporated into the Project, (3) all materials, fixtures and equipment for the Project stored offsite to the extent authorized by Owner and for which payment therefor is permitted by the Contract and all requirements of said Contract with respect to materials stored offsite have been fulfilled, (4) all services performed in the construction of the Project, and (5) all equipment used, or provided for use, in the construction of the Project. Such work including items (1) through (5) is hereafter collectively referred to as "work performed in the construction of the Project."

2. Except for receipt of final payment as set forth in paragraph I, there are no outstanding claims against the Owner and/or its lenders, or the Project, in connection with the work performed in the construction of the Project.

3. The undersigned has not assigned to anyone any claim, any lien, or any right to file or perfect a lien, against the Owner and/or its lenders, or the Project.

4. The undersigned has paid in full all laborers, and, subject to retainage, all subcontractors, suppliers, materialmen, trade unions and others with respect to all work performed in the construction of the Project. No such party has filed or can properly file any claim, demand, lien, encumbrance or action against the Owner and/or its lenders, or the Project.

5. The undersigned has not given or executed any security interest for or in connection with any materials, equipment, appliances, machines, fixtures or furnishings which have been or are to be placed upon or installed in the Project, and is conveying good title of the same to the Owner.

6. The undersigned has paid all amounts due benefit funds, trade unions, applicable taxes, applicable fees, duties and other like charges relating directly or indirectly to the work performed in the construction of the Project.

7. The undersigned has complied with all applicable federal, state and local laws, codes, ordinances and regulations relating to the work performed in the construction of the Project.

8. The undersigned has the right, power and authority to execute this document.

II. Waiver and Release

In accord with the Contract, the undersigned does hereby forever waive and release in favor of the Owner and its lenders, the Project and the title company or companies examining and/or insuring title to the Project, and any and all successors and assignees of the above, all rights that presently exist or hereafter may accrue to the undersigned by reason of work performed in the construction of the Project through the _____ day of _____, 200____, (1) to assert a lien upon the land and/or improvements comprising the Project, and (2) to assert or bring any causes of action, claims, suits and demands which the undersigned ever had or now has against the Owner and/or its lenders, or the Project.

III. Indemnification

The undersigned hereby agrees to indemnify and hold harmless the Owner and its lenders, from any and all damages, costs, expenses, demands, and suits, (including reasonable legal fees) directly or indirectly relating to any cause of action, claim or lien filing by any party with respect to any (1) work performed in the construction of the Project or work which should have been performed in construction of the Project through the _____ of _____, 200____, (2) any rights waived or released herein, and (3) any misrepresentation or breach of any certification, affirmation or warranty made by the undersigned in this Final Affidavit, Waiver and Release of Liens and Claims, and upon the request of the Owner or its lenders, will undertake to defend such causes of action, claims or lien filings at its sole cost and expense.

This Final Affidavit, Waiver and Release of Liens and Claims shall be an independent covenant and shall operate and be effective with respect to work and labor done and materials furnished under any supplemental contract or contracts, whether oral or written for extra or additional work on the project and for any further work done or materials furnished at any time with respect to the project subsequent to the execution hereof.

Date: _____
(Construction Manager - Full Corporate Name)

By: _____
(Authorized Signature)

Title: _____
(Corporate Title)

Subscribed and sworn before me
this _____ day of _____,
200____.

Notary Public

My Commission Expires:

SUBCONTRACTOR AFFIDAVIT AND PARTIAL RELEASE OF LIENS

OWNER:

CONTRACTOR:

PROJECT :

SUBCONTRACT DATE:
PURCHASE ORDER NO.

FROM:
STREET:
CITY, ST.:

I. Certifications, Affirmations and Warranties

The undersigned, to support its entitlement to the requested payment, and for and in consideration of payments made by ("Construction Manager") to the undersigned or to a Subcontractor, Materialman, or Supplier of the undersigned, and contingent upon the receipt of such payment, for work performed in the construction of the above-referenced Project pursuant to the above-referenced Subcontract or Purchase Order, hereby affirms, certifies and warrants as follows:

1. Payment Request No. _____ represents the actual value of work performed through the above indicated payment request period for which payment is due under the terms of the Subcontract or Purchase Order (and all authorized changes thereto) between the undersigned and Construction Manager relating to the Project, including (i) all labor expended in the construction of the Project, (ii) all materials, fixtures and equipment delivered to Project, (iii) all materials, fixtures and equipment for the Project stored offsite to the extent authorized by Construction Manager and for which payment therefore is permitted by Construction Manager=s contract with the Owner and all requirements of said contract with respect to materials stored offsite have been fulfilled, (iv) all services performed in the construction of the Project, and (v) all equipment used, for provided for use, in the construction of the Project. Such work including items (i) through (v) is hereafter collectively referred to as "work performed in the construction of the Project."

2. Except for retainage, there are no outstanding claims against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders and guarantors, or the Project, in connection with the work performed in the construction of the Project through the _____ day of _____, 200 .

3. The undersigned has not assigned to anyone any claim, any lien, or any right to file or perfect a lien, against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders, or the Project.

4. The undersigned has paid in full all laborers, Subcontractors, Suppliers, Materialmen, trade unions and others with respect to all work performed in the construction of the Project through _____ day of _____, 200 . No such party has filed or can properly file any claim, demand, lien, encumbrance or action against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders, or the Project.

5. The undersigned has not given or executed any security interest for or in connection with any materials, equipment, appliances, machines, fixtures or furnishings which have been or are to be placed upon or installed in the Project, and is conveying good title to the same to Construction Manager or the Owner.

6. The undersigned has paid all amounts due benefit funds, trade unions, applicable taxes, applicable fees, duties and other like charges relating directly or indirectly to the work performed in the construction of the Project.

7. The undersigned has complied with all applicable federal, state and local laws, codes, ordinances and regulations relating to the work performed in the construction of the Project.

8. The undersigned has the right, power and authority to execute this document.

II. Waiver and Release

In accord with the Subcontract Agreement or the Purchase Order, as applicable, the undersigned does hereby forever waive and release in favor of Construction Manager and its sureties, the Owner of the Project and its lenders, the Project and the title company or companies examining and/or insuring title to the Project, and any and all successors and assignees of the above, all rights that presently exist or hereafter may accrue to the undersigned by reason of work performed in the construction of the Project through the _____ day of _____, 200 , (1) to assert a lien upon the land and/or improvements comprising the Project, and (2) to assert or bring any causes of action, claims, suits and demands which the undersigned ever had or now has against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders, or the Project.

III. Indemnification

The undersigned hereby agrees to indemnify and hold harmless Construction Manager and its sureties, and the Owner of the project and its lenders, from any and all damages, costs, expenses, demands, and suits, (including reasonable legal fees) directly or indirectly relating to any cause of action, claim or lien filing by any party with respect to any (1) work performed in the construction of the Project or work which should have been performed in construction of the Project through the _____ of _____, 200 , (2) any rights waived or released herein, and (3) any misrepresentation or breach of any certification, affirmation or warranty made by the undersigned in this Affidavit, Waiver and Release of Liens, and upon the request of Construction Manager, its sureties, the Owner of the Project or its lenders, will undertake to defend such causes of action, claims or lien filings at its sole cost and expense.

Date: _____

(Subcontractor - Full Corporate Name)

By: _____
(Authorized Signature)

Title: _____
(Corporate Title)

Subscribed and sworn before me
this _____ day of _____, _____
200 .

Notary Public

My Commission Expires:

SUBCONTRACTOR FINAL AFFIDAVIT, WAIVER AND RELEASE OF LIENS

OWNER:

CONTRACTOR:

PROJECT :

SUBCONTRACT DATE:
PURCHASE ORDER NO.

FROM:
STREET:
CITY, ST.:

I. Certifications, Affirmations and Warranties

The undersigned, to support its entitlement to the requested payment, and for and in consideration of final payment made by (“Construction Manager”) to the undersigned or to a subcontractor, materialman, or supplier of the undersigned, and contingent upon the receipt of such payment, for work performed in the construction of the above-referenced Project pursuant to the above-referenced Subcontract or Purchase Order, hereby affirms, certifies and warrants as follows:

1. Upon receipt of the sum of \$ _____, the undersigned will have received final payment under the terms of the Subcontract or Purchase Order (and all authorized changes thereto) between the undersigned and Construction Manager relating to the Project, including (1) all labor expended in the construction of the Project, (2) all materials, fixtures and equipment delivered to the site and either incorporated or to be incorporated into the Project, (3) all materials, fixtures and equipment for the Project stored offsite to the extent authorized by Construction Manager and for which payment therefor is permitted by Construction Manager’s contract with the Owner and all requirements of said contract with respect to materials stored offsite have been fulfilled, (4) all services performed in the construction of the Project, and (5) all equipment used, or provided for use, in the construction of the Project. Such work including items (1) through (5) is hereafter collectively referred to as “work performed in the construction of the Project.”

2. Except for receipt of final payment as set forth in paragraph I, there are no outstanding claims against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders, or the Project, in connection with the work performed in the construction of the Project.

3. The undersigned has not assigned to anyone any claim, any lien, or any right to file or perfect a lien, against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders, or the Project.

4. The undersigned has paid in full all laborers, and, subject to retainage, all subcontractors, suppliers, materialmen, trade unions and others with respect to all work performed in the construction of the Project. No such party has filed or can properly file any claim, demand, lien, encumbrance or action against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders, or the Project.

5. The undersigned has not given or executed any security interest for or in connection with any materials, equipment, appliances, machines, fixtures or furnishings which have been or are to be placed upon or installed in the Project, and is conveying good title of the same to Construction Manager or the Owner.

6. The undersigned has paid all amounts due benefit funds, trade unions, applicable taxes, applicable fees, duties and other like charges relating directly or indirectly to the work performed in the construction of the Project.

7. The undersigned has complied with all applicable federal, state and local laws, codes, ordinances and regulations relating to the work performed in the construction of the Project.

8. The undersigned has the right, power and authority to execute this document.

II. Waiver and Release

In accord with the Subcontract Agreement or the Purchase Order, as applicable, the undersigned does hereby forever waive and release in favor of Construction Manager and its sureties, the Owner of the Project and its lenders and guarantors, the Project and the title company or companies examining and/or insuring title to the Project, and any and all successors and assignees of the above, all rights that presently exist or hereafter may accrue to the undersigned by reason of work performed in the construction of the Project through the _____ day of _____, 200____, (1) to assert a lien upon the land and/or improvements comprising the Project, and (2) to assert or bring any causes of action, claims, suits and demands which the undersigned ever had or now has against Construction Manager and/or its sureties, the Owner of the Project and/or its lenders, or the Project.

III. Indemnification

The undersigned hereby agrees to indemnify and hold harmless Construction Manager and its sureties, and the Owner of the project and its lenders, from any and all damages, costs, expenses, demands, and suits, (including reasonable legal fees) directly or indirectly relating to any cause of action, claim or lien filing by any party with respect to any (1) work performed in the construction of the Project or work which should have been performed in construction of the Project through the _____ of _____, 200____, (2) any rights waived or released herein, and (3) any misrepresentation or breach of any certification, affirmation or warranty made by the undersigned in this Final Affidavit, Waiver and Release of Liens and Claims, and upon the request of Construction Manager, its sureties, the Owner of the Project or its lenders, will undertake to defend such causes of action, claims or lien filings at its sole cost and expense.

This Final Affidavit, Waiver and Release of Liens and Claims shall be an independent covenant and shall operate and be effective with respect to work and labor done and materials furnished under any supplemental contract or contracts, whether oral or written for extra or additional work on the project and for any further work done or materials furnished at any time with respect to the project subsequent to the execution hereof.

Date: _____
(Subcontractor - Full Corporate Name)

By: _____
(Authorized Signature)

Title: _____
(Corporate Title)

Subscribed and sworn before me
this _____ day of _____, 200____.

Notary Public

My Commission Expires:

EXHIBIT I

INSURANCE REQUIREMENTS

CONSTRUCTION MANAGER INSURANCE REQUIREMENTS

The Construction Manager shall procure and maintain in effect during the term of this Agreement, insurance policies described in this Exhibit with (i) responsible insurance companies authorized to do business in Maryland (if so required by law or regulation) with (A) an A.M. Best's Key Rating Guide rating of A- or better, unless otherwise approved by the Owner or (B) a Standard and Poor's or Moody's financial strength rating of A or A2, respectively, or higher, unless otherwise approved by the Owner or (ii) other companies acceptable to the Owner with limits and coverage provisions sufficient to satisfy the requirements set forth below. All policies shall be written on an occurrence basis. All insurance required by this Exhibit shall be in form, amounts and with coverage and deductibles satisfactory to Owner, in its sole discretion. The Construction Manager shall from time to time, but at intervals of not less than twelve (12) months each, undertake all actions and due diligence as

reasonably necessary to determine whether the insurance coverage maintained pursuant to this Agreement is in compliance with all of the requirements of this Exhibit, including any increases in coverage required as a result of any change in applicable laws, and if the Construction Manager determines that such insurance coverage does not meet such requirements, it agrees to promptly cause such coverage to comply with such requirements and to notify the Owner of the steps being taken by the Construction Manager to do so.

Section 2. Construction Manager Provided Insurance. The Construction Manager shall provide the following insurance:

- 1.1 **Worker's Compensation and Employer's Liability Insurance.** Worker's Compensation Insurance, which shall include Stop Gap, with a minimum limit of the statutory limits for Part A and a \$100,000/\$500,000/\$1,000,000 minimum limit for employer liability.
 - 1.2 **Commercial General Liability Insurance.** Liability insurance on an occurrence basis against claims filed anywhere in the world and occurring in the United States for the Construction Manager's and each subcontractor's liability of any tier arising out of claims for bodily injury, personal injury and property damage. Such insurance shall provide coverage for products-completed operations (which coverage shall remain in effect for a period of at least five (5) years following Final Completion of the Work), blanket contractual, broad form property damage, personal injury insurance and independent contractors with a \$1,000,000 minimum limit per occurrence for combined bodily injury and property damage. A maximum deductible or self-insured retention of \$250,000 per occurrence shall be allowed.
-

Such policy must be further endorsed to:

- (a) Provide personal liability coverage including, but not limited to, false arrest, detention or imprisonment or malicious prosecution; libel, slander or defamation of character, invasion of privacy, wrongful eviction or wrongful entry, harassment of any kind and discrimination.
- (b) Contingent Employer's liability coverage
- (c) Blanket contractual liability coverage, including the liability assumed by the Construction Manager under Paragraph 3.18 of the General Conditions;
- (d) Elevator and Hoist liability coverage, as applicable.
- (e) Coverage for shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground surface, tunneling and grading, as applicable.

1.3 **Automobile Liability Insurance.** Automobile liability insurance for the Construction Manager's liability arising out of claims for bodily injury and property damage covering all owned (if any), leased (if any), non-owned and hired vehicles used in the performance of the Construction Manager's obligations under the Contract Documents with a \$1,000,000 minimum limit per accident for combined bodily injury and property damage and containing appropriate no-fault insurance provisions wherever applicable. A maximum deductible or self-insured retention of \$1,000 per occurrence shall be allowed.

1.4 **Umbrella or Excess Liability Insurance.** Umbrella or excess liability insurance on an occurrence basis covering claims in excess of the underlying insurance described in the foregoing Sections 1.1 and 1.3 with a \$100,000,000 minimum limit per occurrence, such insurance shall contain a provision that it will not be more restrictive than the primary insurance; provided that aggregate limits of liability, if any, shall apply separately to claims occurring with respect to the Work.

Section 2. Contractor Controlled Insurance Policy ("CCIP"). If the Construction Manager requests, and the Owner approves, the Construction Manager shall be entitled to provide insurance under a CCIP. In such case, the Construction Manager shall provide a CCIP with the following coverages:

2.1 **On-Site Worker's Compensation and Employer's Liability Insurance.** Worker's Compensation Insurance, which shall include Stop Gap, with a minimum limit of the statutory limits for Part A and a \$100,000/\$500,000/\$1,000,000 minimum limit for employer liability.

2.2 **On-Site Commercial General Liability Insurance.** Liability insurance on an occurrence basis against claims filed anywhere in the world and occurring in the United States for the Construction Manager's and each subcontractor's liability of any tier arising out of claims for bodily injury, personal injury and property damage. Such insurance shall provide coverage for products-completed operations (which coverage shall remain in effect for a period of at least five (5) years following Final Completion of the Work), blanket contractual, broad form property damage, personal injury insurance and independent contractors with a \$1,000,000 minimum limit per occurrence for combined bodily injury and property damage. A maximum deductible or self-insured retention of \$250,000 per occurrence shall be allowed.

Such policy must be further endorsed to:

- (a) Provide personal liability coverage including, but not limited to, false arrest, detention or imprisonment or malicious prosecution; libel, slander or defamation of character, invasion of privacy, wrongful eviction or wrongful entry, harassment of any kind and discrimination.
- (b) Contingent Employer's liability coverage
- (c) Blanket contractual liability coverage, including the liability assumed by the Construction Manager under Paragraph 3.18 of the General Conditions;
- (d) Elevator and Hoist liability coverage, as applicable.
- (e) Coverage for shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground surface, tunneling and grading, as applicable.

2.3 **On-Site Automobile Liability Insurance.** Automobile liability insurance for the Construction Manager's liability arising out of claims for bodily injury and property damage covering all owned (if any), leased (if any), non-owned and hired vehicles used in the performance of the Construction Manager's obligations under the Contract Documents with a \$1,000,000 minimum limit per accident for combined bodily injury and property damage and containing appropriate no-fault insurance provisions wherever applicable. A maximum deductible or self-insured retention of \$1,000 per occurrence shall be allowed.

2.4 **On-Site Umbrella or Excess Liability Insurance.** Umbrella or excess liability insurance on an occurrence basis covering claims in excess of the underlying insurance described in the foregoing Sections 1.1 and 1.3 with a \$100,000,000 minimum limit per occurrence, such insurance shall contain a provision that it will not be more restrictive than the primary insurance; provided that aggregate limits of liability, if any, shall apply separately to claims occurring with respect to the Work.

The Construction Manager and each of its Subcontractors enrolled in the CCIP (“Enrolled Subcontractors”) shall be named insureds under the CCIP.

2.5 Off-Site Coverage

The following coverages, which coverages are not provided by the CCIP, shall be provided by the Construction Manager as part of its existing corporate insurance policies:

2.5.1 Off-Site Worker’s Compensation and Employer’s Liability Insurance. Worker’s Compensation Insurance, which shall include Stop Gap, with a minimum limit of the statutory limits for Part A and a \$100,000/\$500,000/\$1,000,000 minimum limit for employer liability.

2.5.2 Off-Site Commercial General Liability Insurance. Liability insurance on an occurrence basis against claims filed anywhere in the world and occurring in the United States for the Construction Manager’s and each subcontractor’s liability of any tier arising out of claims for bodily injury, personal injury and property damage. Such insurance shall provide coverage for products-completed operations (which coverage shall remain in effect for a period of at least five (5) years following Final Completion of the Work), blanket contractual, broad form property damage, personal injury insurance and independent contractors with a \$1,000,000 minimum limit per occurrence for combined bodily injury and property damage. A maximum deductible or self-insured retention of \$250,000 per occurrence shall be allowed.

Such policy must be further endorsed to:

- (a) Provide personal liability coverage including, but not limited to, false arrest, detention or imprisonment or malicious prosecution; libel, slander or defamation of character, invasion of privacy, wrongful eviction or wrongful entry, harassment of any kind and discrimination.
- (b) Contingent Employer’s liability coverage
- (c) Blanket contractual liability coverage, including the liability assumed by the Construction Manager under Paragraph 3.18 of the General Conditions;
- (d) Elevator and Hoist liability coverage, as applicable.
- (e) Coverage for shoring, blasting, excavating, underpinning, demolition, pile driving and caisson work, work below ground surface, tunneling and grading, as applicable.

2.5.3 Off-Site Automobile Liability Insurance. Automobile liability insurance for the Construction Manager’s liability arising out of claims for bodily injury and property damage covering all owned (if any), leased (if any), non-owned and hired vehicles used in the performance of the Construction Manager’s obligations under the Contract

Documents with a \$1,000,000 minimum limit per accident for combined bodily injury and property damage and containing appropriate no-fault insurance provisions wherever applicable. A maximum deductible or self-insured retention of \$1,000 per occurrence shall be allowed.

2.5.4 **Off-Site Umbrella or Excess Liability Insurance.** Umbrella or excess liability insurance on an occurrence basis covering claims in excess of the underlying insurance described in the foregoing Sections 2.1 and 2.3 with a \$25,000,000 minimum limit per occurrence, such insurance shall contain a provision that it will not be more restrictive than the primary insurance; provided that aggregate limits of liability, if any, shall apply separately to claims occurring with respect to the Work.

Section 3. Project Specific Pollution Liability Insurance

Construction Manager shall provide broad form Project Specific Pollution Liability Insurance which covers losses caused by pollution conditions (including sudden and non-sudden pollution conditions) arising from the services and operations of the Construction Manager and all Subcontractors. Such policy (i) shall apply, without limitation, to bodily injury, property damage (including loss of use of damaged property or of property which has not been physically injured or destroyed) and clean-up costs, (ii) shall provide coverage for pollution conditions which arise from encountering pre-existing environmental conditions at the Project Site, (iii) shall provide coverage for liability resulting from the transportation of hazardous wastes, as well as liability relating to non-owned disposal sites, (iv) shall be written with a combined single limit of liability of not less than \$5,000,000 for each occurrence and not less than \$5,000,000 aggregate; (v) shall provide coverage for mold conditions, if such coverage is not provided by the Commercial General Liability Insurance Policies referenced above, (vi) shall contain a deductible no greater than \$100,000, and (vi) shall contain a 5 year extended reporting period.

Section 4. Subcontractors Insurance Requirements.

4.1 Construction Manager agrees that all Subcontractors will be required to obtain and maintain the insurance required of the Construction Manager under Sections 1 or 2 hereof, as applicable, except that the amount of general liability coverage and umbrella liability coverage will be agreed upon by the Owner and the Construction Manager on a case-by-case basis. In the event Owner approves a CCIP, those subcontractors not enrolled in the CCIP shall be required to obtain and maintain the insurance described in Sections 2.1 through 2.4; such insurance shall apply to all on-site and off-site activities and shall be in amounts agreed upon by the Owner and the Construction Manager on a case-by-case basis.

4.2 Construction Manager agrees that it will promptly advise Owner in the event that any subcontractor which it wishes to retain is unable to obtain such requisite insurance coverages; Construction Manager will obtain Owner's prior written approval of any

deviations in such insurance coverages prior to entering into a subcontract with such subcontractor.

4.3 The form of insurance certificate to be provided by subcontractors is attached to this Exhibit I as Annex 1.

Section 5. Terms and Conditions.

5.1 **Endorsements.** Each liability policy required to be maintained under Sections 1, 2 and 3 hereunder shall be endorsed as follows:

- (a) Name Owner, Wachovia Development Corporation (the “Lessor”), all Financing Parties (as defined in Section 5.3.2 below), the Project Manager and each of their respective affiliates, subsidiaries, parent corporations, directors, members, partners, officers, shareholders, employees and agents as additional insureds.
- (b) Stipulate that such insurance is primary and is not contributing with, any other insurance carried by, or for the benefit of the additional insureds.
- (c) Contain cross liability and severability of interest endorsements, or a separation of insureds provision acceptable to the Owner.
- (d) Stipulate that such policy will not be invalidated with respect to the rights of any additional insured should the Construction Manager or any subcontractor, as the case may be, have waived any or all rights of recovery against any party for losses covered by such policy or due to any breach of warranty, fraud, action, inaction or misrepresentation by the Construction Manager or any person acting on behalf of the Construction Manager.

5.2 **Waiver of Subrogation.** The Construction Manager hereby waives any and every claim for recovery from the Lessor and the Owner for any and all loss or damage covered by any of the insurance policies to be maintained under this Agreement to the extent that such loss or damage is recovered under any such policy. Inasmuch as the foregoing waiver will preclude the assignment of any such claim to the extent of such recovery, by subrogation (or otherwise), to an insurance company (or other person), the Construction Manager shall give written notice of the terms of such waiver to each insurance company which has issued, or which may issue in the future, any such policy of insurance (if such notice is required by the insurance policy) and shall cause each such insurance policy to be properly endorsed by the issuer thereof to, or to otherwise contain one or more provisions that, prevent the invalidation of the insurance coverage provided thereby by reason of such waiver.

5.3 **Conditions:**

- (1) **Loss Notification:** The Construction Manager shall promptly notify the Owner of any single loss or event likely to give rise to a claim against an insurer for an amount in excess of \$1,000,000 covered by any insurance maintained pursuant to this Agreement.
- (2) **Policy Cancellation and Change:** All policies of insurance required to be maintained pursuant to Sections 1, 2 or 3 shall be endorsed so that if at any time should they be canceled, or coverage be reduced (by any party including the insured) which affects the interests of the Owner, the Lessor or any entity providing financing for the Project (a "Financing Party") such cancellation or reduction shall not be effective as to the Owner, the Lessor or any Financing Party for 60 days, except for non-payment of premium which shall be for 10 days, after receipt by the Owner and the Lessor of written notice from such insurer of such cancellation or reduction.
- (3) **Separation of Interests:** All policies (other than in respect to liability or workers compensation insurance) shall insure the interests of the Owner and the Lessor regardless of any breach or violation by the Construction Manager or any other party of warranties, declarations or conditions contained in such policies, any action or inaction of the Construction Manager or others.
- (4) **Acceptable Policy Terms and Conditions:** All policies of insurance required to be maintained pursuant to this Agreement shall contain terms and conditions acceptable to the Owner and the Lessor, in their reasonable discretion.
- (5) **Waiver of Subrogation:** All policies of insurance to be maintained by the provisions of this Agreement shall provide for waivers of subrogation in favor of the Owner and the Lessor.

5.4 **Evidence of Insurance.** Within thirty (30) days after execution of the Agreement, and at least 10 days prior to each policy anniversary, the Construction Manager shall furnish the Owner and the Lessor with (1) certificates of insurance or binders, in a form acceptable to the Owner and the Lessor, evidencing all of the insurance required by the provisions of this Agreement and (2) a schedule of the insurance policies held by or for the benefit of the Construction Manager and required to be in force by the provisions of this Agreement. Such certificates of insurance/binders shall be executed by each insurer or by an authorized representative of each insurer where it is not practical for such insurer to execute the certificate itself. Such certificates of insurance/binders shall identify underwriters, the type of insurance, the insurance limits and the policy term and shall specifically list the special provisions enumerated for such insurance required by this Agreement. Upon request, the Construction Manager will promptly furnish the Owner and its lender with copies of all insurance policies, binders and cover notes or other evidence of such insurance relating to the insurance required to be maintained by the Construction Manager. The schedule of insurance shall include the name of the insurance company, policy number, type of insurance, major limits of liability and expiration date of the insurance policies.

5.5 **Reports**. Concurrently with the furnishing of the certification referred to in Section 4.4, the Construction Manager shall furnish the Owner and the Lessor with a report of an independent broker, signed by an officer of the broker, stating that in the opinion of such broker, the insurance then carried or to be renewed is in accordance with the terms of this Agreement and attaching an updated copy of the schedule of insurance required by Section 4.4 above. In addition the Construction Manager will advise the Owner and the Lessor in writing promptly of any default in the payment of any premium and of any other act or omission on the part of the Construction Manager which may invalidate or render unenforceable, in whole or in part, any insurance being maintained by the Construction Manager pursuant to this Agreement.

5.6 **No Duty of Agent to Verify or Review**. No provision of this Agreement shall impose on the Owner, the Lessor, or any Financing Party any duty or obligation to verify the existence or adequacy of the insurance coverage maintained by the Construction Manager, nor shall any of the foregoing parties be responsible for any representations or warranties made by or on behalf of the Construction Manager to any insurance company or underwriter. Any failure on the part of any of the foregoing parties to pursue or obtain the evidence of insurance required by this Agreement from the Construction Manager and/or failure of any of the foregoing parties to point out any non-compliance of such evidence of insurance shall not constitute a waiver of any of the insurance requirements in this Agreement.

5.7 **Certificates**. All certificates and policies of insurance and all notices required pursuant to this Exhibit must be sent to the attention of:

Avi Halpert
United Therapeutics Corporation
1110 Spring Street
Silver Spring, Maryland 20910

5.8 **No Limitation**. The insurance provisions of this Agreement shall not be construed as a limitation on the Construction Manager's responsibilities and liabilities pursuant to the terms and conditions of this Agreement including, but not limited to, liability for claims in excess of the insurance limits and coverages set forth herein.

Section 6. Subguard Insurance

If approved in writing in advance by Owner, instead of requiring Subcontractors to provide payment and performance bonds, Construction Manager may provide Subcontractor Default Insurance ("SDI") (the "Subguard Insurance") to cover its Subcontractors' Work and performance on this Project. Construction Manager shall provide an "Owner's Assignment Endorsement" naming the Owner as an additional insured, and this Endorsement shall become part of the Subguard Insurance policy. Such endorsement shall provide that the SDI is assignable only in the event of the insolvency of the Construction Manager. Construction Manager also shall provide a "Lender's Endorsement" naming the Lessor and any Financing Party as an additional insured, and

this Endorsement shall become part of the Subguard Insurance policy. If a Subcontractor is not eligible to be covered under the Subguard Insurance, such Subcontractor shall provide 100% performance and payment bonds. Construction Manager warrants and represents that no Subcontractor used to perform any part of the Work will be omitted or excluded from coverage under the Subguard Insurance (except as noted above) and that the Subguard Insurance shall apply to all Losses under that policy except as excluded by Exclusions F (nuclear radiation), G (war), and H (terrorism) thereof. (For bonded Subcontractors, the Construction Manager and the Owner shall be named as obligees under the bonds, and the cost of such bonds shall not increase the GMP.) The existence of the Subguard Insurance does not limit the liability of the Construction Manager under the Contract Documents. Construction Manager shall give the Owner notice of any default by a Subcontractor or Supplier in connection with this Project on which that Subcontractor or Supplier holds a contract with the Construction Manager, and Construction Manager shall keep Owner fully apprised of the amount and status of any claims made under the Subguard Insurance policy that may diminish the limits available to this Project. Premiums associated with the Subguard Insurance are included in the GMP, and any additional premium shall not be paid as a Cost of the Work, unless such additional premium amount is a direct result of a Change Order for which the Owner is responsible.”

OWNER INSURANCE REQUIREMENTS

The Owner shall provide the following insurance coverage:

Builder’s Risk Insurance. From commencement of construction until Substantial Completion of the Work, the Owner shall provide Builder’s Risk insurance covering property damage on an “all risk” basis insuring the Construction Manager and the Owner, as their interests may appear, and naming the Lessor and the Owner as loss payees, including coverage for the perils of earth movement (including but not limited to earthquake, landslide, subsidence and volcanic eruption), wind, flood, terrorist acts, if commercially available for similar operations in the mid-Atlantic region of the United States, at commercially reasonable cost, a boiler and machinery accidents.

(A) Property Covered: The builder’s risk insurance shall provide coverage for (i) the buildings, all fixtures, materials, supplies, machinery and equipment of every kind to be used in, or incidental to, the construction, (ii) new underground works, sidewalks, paving, site works and excavation works and landscaping, (iii) the Work, (iv) property of others in the care, custody or control of the Construction Manager or of a Subcontractor, (v) all preliminary works and temporary works, (vi) foundations and other property below the surface of the ground, and (vii) electronic equipment and media.

(B) Additional Coverages: The builder’s risk policy shall insure (i) the cost of preventive measures to reduce or prevent a loss, (ii) inland transit with sub-limits sufficient to insure the largest single shipment to or from the Project site from anywhere within the United States or Canada, (iii) attorney’s fees, engineering and other consulting costs, and permit fees directly incurred in order to repair or replace damaged insured

property, iv) expediting expenses, (v) off-site storage with sub-limits sufficient to insure the full replacement value of any property or equipment not stored on the Project site, (vi) the removal of debris, and (vii) demolition and increased costs of construction due to the operation of building laws or ordinances in an amount not less than \$5,000,000.

(C) Special Clauses: The builder's risk policy shall include (i) a 72 hour flood/storm/earthquake clause, (ii) an unintentional errors and omissions clause, (iii) a requirement that the insurer pay losses within 30 days after receipt of an acceptable proof of loss or partial proof of loss, (iv) an other insurance clause making this insurance primary over any other insurance (except any such builder's risk policy placed and maintained by the Lessor which covers the Property) and (v) a clause stating that the policy shall not be subject to cancellation by the insurer except for non-payment of premium, fraud or material misrepresentation.

(D) Prohibited Exclusions: The builder's risk policy shall not contain any (i) coinsurance provisions, or (ii) exclusion for loss or damage resulting from freezing or mechanical breakdown.

(E) Sum Insured: The builder's risk policy shall (i) be on a completed value form, with no periodic reporting requirements, (ii) insure 100% of the replacement value of the Improvements (except with respect to flood and earthquake, in each case, the policy shall be in an amount not less than \$10,000,000), and (iii) value losses at replacement cost, without deduction for physical depreciation or obsolescence including custom duties, taxes and fees (if rebuilt or repaired).

(F) Deductible: The builder's risk insurance shall have no deductible greater than \$50,000 per occurrence for all coverage.

(G) Payment of Loss Proceeds: The Builder's Risk policy shall provide that the proceeds of such policy shall be payable solely to the Lessor and the Owner.

(H) Loss Adjustment and Settlement: A loss under the Builder's Risk policy shall be adjusted with the insurance companies, including the filing in a timely manner of appropriate proceedings, by the Construction Manager, subject to the approval of the Owner and the Lessor if such loss is in excess of \$1,000,000. In addition the Construction Manager may in its reasonable judgment consent to the settlement of any loss, provided that in the event that the amount of the loss exceeds \$1,000,000 the terms of such settlement is concurred with by the Owner and the Lessor.

(I) Miscellaneous Policy Provisions: The Builder's Risk policy shall (i) not include any annual or term aggregate limits of liability except as regards the insurance applicable to the perils of flood and earth movement and pollutant clean up of land and water at the Land (project site), (ii) shall not include coverage for mold conditions, and (iii) include a clause requiring the insurer to make final payment on any claim within 30 days after the submission of proof of loss and its acceptance by the insurer.

EXHIBIT J

OTHER REQUIREMENTS

Construction Manager agrees to comply with the provisions of the following agreements; to the extent the provisions thereof were included in the Agreement:

1. Right of Entry Agreement and all Amendments dated TBD between United Therapeutics and Montgomery County for access to parking garage #21
 2. Montgomery County Special Inspections (Formerly Complex structures) agreement for the foundation
 3. Montgomery County Special Inspections (Formerly Complex structures) agreement for the building
 4. WSSC bond agreements for storm water and sewer connections
 5. WSSC Service Connection permits
 6. Montgomery County Right of Way agreement, Declaration of Easements dated June 24, 2004
 7. Storm Water Management Inspection and maintenance agreement
 8. Storm Water Management Easement and Right of Way agreement
 9. Sediment Control Permit #231853, when issued
 10. Air and Radiation Management Administration Permit to Construct, when issued
 11. MDE/WMA Storm water Discharge Permit
 12. Wachovia Financial Agreements
 13. Parking Garage Design Criteria Montgomery County Government Department of Public Works and Transportation Division of Traffic and Parking Services REVISED: October 2000
 14. United Therapeutics Monitoring Plan for parking garage dated xxxxxx
 15. Preliminary Geotechnical Engineering Report: Schnabel Engineering
 16. Phase I Geotechnical Engineering Report: Schnabel Engineering dated April 6, 2004
 17. Phase II Geotechnical Engineering Report: Schnabel Engineering dated May 2, 2007
 18. Phase II Monthly Water Level Reading Reports dated May 2, 2007, June, 28, 2007, August 6, 2007, etc.
 19. Phase I Environmental Site Assessment; Spring and Cameron Streets Parking Lot: Schnabel Engineering
 20. Traffic Impact Study: Kimley-Horn and Associates, Inc. dated May 2004
 21. Not Used
 22. Not Used
 23. IPS Fill-Finish Concept Report for Sterile Finishing Facility dated June 1, 2007.
 24. As Built Drawings and specifications, construction progress photos and Zahedian Sheeting and Shoring Permit Drawings from construction of 1040 Spring Street Phase I building. (Transmitted under separate cover.)
 25. Montgomery County DPW&T Garage #21 1967 Ramp Engineering Associates and Bagley-Soule & Associates drawings. (Transmitted under separate cover.)
 26. Montgomery County DPW&T Garage #21 2007 SK&A and KE Renovation 90% Coordination Set (Transmitted under separate cover.)
 27. PHR+A United Therapeutics Garage Location Survey dated 11/08/04
-

28. MHG ALTA/ACSM Land Title Survey for United Therapeutics Addition to Silver Spring dated May 2006
29. PHR+A Existing Conditions Survey dated 1/18/05

EXHIBIT K

FORMS OF CONSTRUCTION MANAGER'S SUBCONTRACT AND PURCHASE ORDER

[Construction Manager to furnish forms incorporating changes as agreed to in accordance with the attached Insertions]



Amendment No. 1

AMENDMENT NO. 1

TO AGREEMENT BETWEEN OWNER AND CONSTRUCTION MANAGER

Pursuant to Section 2.2 of the Agreement between Owner and Construction Manager (and all exhibits thereto) dated February 15, 2007 between United Therapeutics Corporation (“Owner”) and The Whiting-Turner Contracting Company (“the Construction Manager”) (the “Contract”) for the Project (as defined in the Contract), the Owner and Construction Manager establish a Guaranteed Maximum Price and Contract Time for the Work as set forth below. All terms not defined herein shall be as defined in the Contract. All terms and conditions of the Contract not modified by this Amendment shall remain in full force and effect.

ARTICLE I GUARANTEED MAXIMUM PRICE

The Construction Manager’s Guaranteed Maximum Price for the Work, including (a) the estimated Cost of the Work as defined in Article 6 of the Agreement portion of the Contract, (b) the Construction Manager’s Fee as defined in Article 5 of the Agreement portion of the Contract, and (c) the Preconstruction Services compensation (as described in Exhibit G attached to the Agreement portion of the Contract), is Sixty One Million Two Hundred Sixty Five Thousand Six Hundred Seventy Six Dollars (\$61,265,676) (the “GMP”). The GMP is for the performance of the Work (including the preconstruction services) in accordance with the Contract Documents and the documents listed and attached to this Amendment and marked Attachments A through C, as follows:

(Paragraphs deleted)

Attachment A	GMP Proposal Dated 10/14/08
Attachment B	Notes Qualifications & Assumptions dated 10/14/08
Attachment C	Project Schedule UT-04 dated 5/28/08.

(Paragraphs deleted)

It is understood and agreed that the following portions of the Contract have been superseded by this Amendment:

1. Exhibit A: Items 3, 4 & 5
2. Exhibit C: Equipment Matrix
3. Exhibit E: Project Schedule
4. Exhibit G: GMP (Control Budget & Associated NQA’s only).

ADDITIONS AND DELETIONS:

The author of this document has added information needed for its completion. The author may also have revised the text of the original AIA standard form. An *Additions and Deletions Report* that notes added information as well as revisions to the standard form text is available from the author and should be reviewed. A vertical line in the left margin of this document indicates where the author has added necessary information and where the author has added to or deleted from the original AIA text.

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

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User Notes:

(1086662221)

ARTICLE II CONTRACT TIME

The date of Substantial Completion of the Work established by this Amendment is November 16, 2009.

OWNER: United Therapeutics Corporation
(Row deleted)

CONSTRUCTION MANAGER: The Whiting-Turner Contracting Company

/s/ John M. Ferrari
(Signature)

/s/ Timothy J. Regan
(Signature)

John M. Ferrari, CFO
(Printed name and title)

Timothy J. Regan, Senior Vice President
(Printed name and title)

11/21/08
Date

11/14/08
Date

/s/ Avi Halpert
ATTEST

/s/ Jonathan Hess
ATTEST

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ATTACHMENT A

GMP Proposal Dated 10/14/08



UT-Phase IIA Office Building and Laboratory Extension
10/14/08 revised GMP

United Therapeutics Corp.
1040 Spring St., Silver Spring, MD

WT VP : Jonathan Hess
Architect: Schick Goldstein Architects
Document Set: Phase IIA 100% CD, Addenda #12-16

	DIVISION of WORK	GMP Value	Comments
1	General Requirements	\$ [***]	
2	Site work	\$ [***]	
3	Concrete	\$ [***]	
4	Masonry	\$ [***]	
5	Steel & Metals	\$ [***]	
6	Wood & Plastics	\$ [***]	
7	Thermal & Moisture Protection	\$ [***]	
8	Doors & Windows	\$ [***]	
9	Finishes	\$ [***]	
10	Specialties	\$ [***]	
11	Equipment	\$ [***]	
12	Furnishings	\$ [***]	
13	Special Construction	\$ [***]	
14	Conveying Systems	\$ [***]	
15	Mechanical	\$ [***]	
16	Electrical	\$ [***]	
17	Phase 1 Modifications for Temporary Access	\$ [***]	
18	WT Fill Finish Equipment Allowance	\$ [***]	See Exhibit D
	SUBTOTAL SUBCONTRACTOR COSTS	\$ [***]	

Design Contingency	0.00 %	\$	—	Excluded, carried by owner
Construction Contingency	*** %	\$	***	
Remaining Allowances/Addenda 12-16		\$	***	Biowall Excluded (Other than Noted in Div 22)
TOTAL SUBCONTRACTOR COSTS		\$	***	
General Conditions		\$	***	
GC Bond	0.00 %	\$	—	Excluded
GC Liability Insurance	*** %	\$	***	
GC Fee	*** %	\$	***	
Direct Hire Process Piping Fee	*** %	\$	***	
Direct Hire Structural Steel Fee	*** %	\$	***	
Preconstruction April 2007 - September 2007		\$	***	
TOTAL WHITING-TURNER GMP		\$	61,265,676	
Owner Contingency	0.00 %			TBD By United Therapeutics
Builder's Risk Insurance	0.00 %			TBD By United Therapeutics
UT Fill Finish Equipment Allowance		\$	***	Held by UT - See Exhibit D
TOTAL ESTIMATED PROJECT COSTS		\$	***	

United Therapeutics Phase 2A
10/14/08 revised GMP
Base Building Detail

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
1	GENERAL REQUIREMENTS					
	Temporary Facilities				\$ [***]	
1	Misc. Tools & Supplies	23	mo	\$ [***]	\$ [***]	
1	Temp. Road Install (Labor & Material)	0	ea	\$ —	\$ —	By Subs if Req'd
1	Temp. Road Maintenance	0	mo	\$ —	\$ —	By Subs if Req'd
1	Building Permit	0	ea	\$ —	\$ —	By Owner
1	MEP Permit Fees	0	ea	\$ —	\$ —	
1	WSSC SDC's	0	ea	\$ —	\$ —	By Owner
1	Expediting Bldg Permit	0	ea	\$ —	\$ —	By Owner
1	Weather Protection Labor	17	wk	\$ [***]	\$ [***]	
1	Weather Protection Materials	17	wk	\$ [***]	\$ [***]	
1	Special Scaffolding/Shoring	0	mo	\$ —	\$ —	By Subs if Req'd
1	Cameron Street Lane Closure	520	hrs	\$ [***]	\$ [***]	
1	Traffic Control Plan Labor	10	wks	\$ [***]	\$ [***]	MC/Comcast Phased Plan
1	Traffic Control Plan Materials	1	ls	\$ [***]	\$ [***]	MC/Comcast Phased Plan
	Temporary Utilities				\$ [***]	
1	Temp. Heat	36	rntl. mo.	\$ [***]	\$ [***]	For temp heater rentals only. Consumption costs by owner
1	Tenting Building Prior to Dry In	30,120	SF	\$ [***]	\$ [***]	
1	Temp. Light & Power (Consumption)	0	mo	\$ —	\$ —	By Owner
1	Temp. Plumbing (Consumption)	0	mo	\$ —	\$ —	By Owner
1	Start up & Comm. Util. Consumption	0	mo	\$ —	\$ —	By Owner
1	Natural Gas (Consumption)	0	mo	\$ —	\$ —	By Owner
1	Water Meter - Hydrant 3"	4	ea	\$ [***]	\$ [***]	\$ [***] / 6 mo. To WSSC
1	Rental Toilets / Trailer Plumbing	24	mo	\$ [***]	\$ [***]	
	Hoist Facilities				\$ [***]	
1	Material / Personal Hoist & Scaffold	9	mo	\$ [***]	\$ [***]	
1	Temporary Elevators	0	wk	\$ —	\$ —	Included in sub cost
1	Cranes	0	mo	\$ —	\$ —	Included in sub cost
1	Scissor Lifts	0	mo	\$ —	\$ —	Included in sub cost
1	Hoist Operator	1560	hr	\$ [***]	\$ [***]	
1	Operator for Elevator	0	hr	\$ —	\$ —	Included in sub cost
1	Jobsite Signs	10	ea	\$ [***]	\$ [***]	
1	Job Radios & Chargers	10	ea	\$ [***]	\$ [***]	including maintenance
	Protection & Safety				\$ [***]	
1	Safety Labor	2080	hr	\$ [***]	\$ [***]	2 Carpenters for 6 Months
1	Safety Materials	104	wk	\$ [***]	\$ [***]	
1	Safety Incentive	110	wk	\$ [***]	\$ [***]	
1	Plant visits QC Inspections Travel	5	ea	\$ [***]	\$ [***]	
1	Topping Out Ceremony	1	ea	\$ [***]	\$ [***]	
1	Fire Extinguishers	24	mo	\$ [***]	\$ [***]	
1	First Aid	24	mo	\$ [***]	\$ [***]	
1	Covered Walkway @ Spring: Labor	540	hr	\$ [***]	\$ [***]	2 weeks install/ 1 wk remove
1	Covered Walkway @ Spring: Materials	1	ea	\$ [***]	\$ [***]	
1	Covered Walkway @ Ph 1 Labor	180	hr	\$ [***]	\$ [***]	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
1	Covered Walkway @ Ph 1 Material	1	ea	\$ [***]	\$ [***]	
1	Site Fencing	0	lf	\$ —	\$ —	Included in sub cost
1	Protection of Finishes - Materials	99750	SF	\$ [***]	\$ [***]	Wall and Floor Material Only
1	Protection of Finishes - Labor	2080	hr	\$ [***]	\$ [***]	2 Carpenters for 6 Months
1	Watchman/Security Control	0	hr	\$ —	\$ —	Included in sub cost
1	Flagmen/Traffic Control - Gen. Labor	3120	hr	\$ [***]	\$ [***]	1 labor for 1.5 years
1	Traffic Control - Consumable Mat's	78	wk	\$ [***]	\$ [***]	
1	Fire Watch (off hours)	1040	hr	\$ [***]	\$ [***]	
1	Protect Existing Garage	105	lf	\$ [***]	\$ [***]	
1	Pest Control	18	Mo	\$ [***]	\$ [***]	
1	Carpenter Truck for Job Cleaning	78	days	\$ [***]	\$ [***]	
1	Cleaning Labor (Foreman Only)	3120	hr	\$ [***]	\$ [***]	1 labor foreman 1.5 years
1	Composite Cleaning Participation	3120	hr	\$ [***]	\$ [***]	1 laborer for 1.5 years
1	Cleaning Materials	24	mo	\$ [***]	\$ [***]	
1	Front end Loader/Forklift	0	wk	\$ —	\$ —	By Subs if Req'd
1	Trash Chute	12	mo	\$ [***]	\$ [***]	
1	Rubbish Removal	260	ea	\$ [***]	\$ [***]	
1	Site Cleaning	0	\$ —	\$ —	\$ —	Included in sub cost
Total General Requirements					\$ [***]	
2 SITE WORK						
	Earthwork				\$ [***]	
02C	Survey/ Grades/ Layout	n/a	n/a	n/a	\$ [***]	ARL #4 to MHG
02A	Erosion and Sediment Control - Install	—	\$ —	\$ —	\$ —	
2	Erosion and Sediment Control - Maintenance	18	mths	\$ [***]	\$ [***]	
2	Erosion and Sediment Control - Removal	1	ea	\$ [***]	\$ [***]	
2	Site Fencing / Access Gates	500	lf	\$ [***]	\$ [***]	
2	Covered Walkway Materials	—	ls	\$ —	\$ —	Transfer to Division 1
2	Carpenters for Covered Walkway	—	wk	\$ —	\$ —	Transfer to Division 1
2	Maintain/Relocate Covered Walkway	—	wk	\$ —	\$ —	Transfer to Division 1
2	Replacement material for Relocated Covered Walkway	—	LS	\$ —	\$ —	Transfer to Division 1
02A	Temporary Access Road Install and Remove	—	\$ —	\$ —	\$ —	
2	Temporary Access Road Maintenance / Relocations	10	months	\$ [***]	\$ [***]	
	Dust Control/ Truck Cleaning	—	\$ —	\$ —		
2	Flagmen	—	hr	\$ —	\$ —	Transfer to Division 1
2	Traffic Control	—	hr	\$ —	\$ —	Transfer to Division 1
2	Traffic Barrels	—	ea	\$ —	\$ —	Transfer to Division 1
2	Signage and Wind-masters	—	ea	\$ —	\$ —	Transfer to Division 1
2	Labor to Control Sign and Barrels	—	hr	\$ —	\$ —	Transfer to Division 1
2	Preconstruction Damage Survey	n/a	n/a	n/a	\$ —	Provided By Owner
2	Division Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
02A	Clear Site	n/a	n/a	n/a	\$ —	
02A	Bulk Cut	n/a	n/a	n/a	\$ [***]	ARL #5 -AccuBid
2	Bond for Earthwork	1	ls	\$ [***]	\$ [***]	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
02A	Bulk Fill	—	\$ —	\$ —	\$ —	
02B	Shoring and Underpinning Subcontract	n/a	n/a	n/a	\$ [***]	ARL#01 - Superior
02B	Existing Garage Caisson Repairs	n/a	n/a	n/a	\$ [***]	PCO #12
2	Cost of Shoring Work Remaining	n/a	n/a	n/a	\$ [***]	PCO #10
02B	100% CD's	n/a	n/a	n/a	\$ [***]	PCO #06-04
02A	Fine Grade	n/a	n/a	n/a	\$ —	
2	Remove Hazardous Materials	n/a	n/a	n/a	\$ —	None Included
2	Rock Excavation	24	hr	\$ [***]	\$ [***]	
2	Dewatering / Permanent Pumping/Maintenance	6	mths	\$ [***]	\$ [***]	Incl piping, fitters, pumps + O&P + \$[***] maintenance
02A	Haul Spoils for Caissons, Grade Beams, and Pits	n/a	n/a	n/a	\$ —	
	Site Utilities				\$ [***]	
02A	Storm Repair EX-10 and Remove EX-17	n/a	n/a	n/a	\$ [***]	ARL#6 - Accubid
2	Clean & Maintain Sediment Tank	3	ea	\$ [***]	\$ [***]	PCO #11
02A	Credit for Water Line Relocation not required. Includes RWST, and accessories	1	ls	\$ ([***])	\$ ([***])	PCO #02
	Storm Structures	n/a	n/a	n/a	\$ —	
15A	Existing Garage Drain Support	n/a	n/a	n/a	\$ —	Carried in 15A
02A	8" Sanitary Piping - Cast Iron	n/a	n/a	n/a	\$ —	
	Sanitary Manholes	n/a	n/a	n/a	\$ —	
15A	Water Feature Supply Line and Back-Flow Prevention	n/a	n/a	n/a	\$ —	ARL #15
02A	Reroute 8 " Existing Water Line	n/a	n/a	n/a	\$ —	See Credit Above
02A	Test Pit and Patch Street	n/a	n/a	n/a	\$ —	
02A	Thrust Blocks	n/a	n/a	n/a	\$ —	
02A	Fire Hydrant Rework	n/a	n/a	n/a	\$ —	
	Reroute Existing Natural Gas	n/a	n/a	n/a	\$ —	
	Telecomm/Data Ductbank (Conduits)	n/a	n/a	n/a	\$ —	
02A	Site Lighting and Power for Water Feature	n/a	n/a	n/a	\$ —	
	Concrete Electrical Transformer Vault	n/a	n/a	n/a	\$ —	Below in 16D
	Rig and Set Transformer Vault	n/a	n/a	n/a	\$ —	Below in 16D
2	Site Primary Distribution - Power Ductbank	n/a	n/a	n/a	\$ —	Below in 16D
02A	Remove Existing Gas, Water, and Storm	n/a	n/a	n/a	\$ —	
02A	Excavation and Backfill - Site Utilities	n/a	n/a	n/a	\$ —	
2	Flagmen	—	hr	\$ —	\$ —	Transfer to Division 1
2	Traffic Control	—	hr	\$ —	\$ —	Transfer to Division 1
2	Core Drill, Link Seal and Waterproofing for Penetrations	2	ea	\$ [***]	\$ [***]	
16D	Montgomery County/Comcast Utils.	1	ls	\$ [***]	\$ [***]	MC / Comcast Work in excess of \$[***]K allow in ARL # 14
16	Layout/Offsets/Util Loc./Expediting	1	ls	\$ [***]	\$ [***]	For MC / Comcast Work
16	Milling and Paving for MC / Comcast	1	ls	\$ [***]	\$ [***]	Only have 3' patch infill

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
16	Landscaping for MC / Comcast	1	ls	\$ [***]	\$ [***]	
16	Striping for MC / Comcast	1	ls	\$ [***]	\$ [***]	
16	Sidewalk Repair	3,975	SF	\$ [***]	\$ [***]	Only have 3' patch infill
16	Apron Repair	1,250	SF	\$ [***]	\$ [***]	Only have 10' patch infill
16	Final Bends to MC / Comcast Poles	1	ls	\$ [***]	\$ [***]	
16	Remediation for MC and Comcast Work	1	ea	\$ [***]	\$ [***]	Reset Vault Lids, Util MH Elevations
16D	PEPCO Utilities & Streetlights	n/a	n/a	n/a	\$ [***]	Includes Bond, ARL # 14
2	Additional Work for WGL	1	ls	\$ [***]	\$ [***]	Link/Core/Dig
16	Additional Street Light Conduit / Hand Holes	2	ea	\$ [***]	\$ [***]	
	Hardscape/Landscape				\$ [***]	
07C	Edging	n/a	n/a	n/a	\$ —	In Green Roof Package
07C	VM #64 - Alternate Edging Type	n/a	n/a	n/a	\$ —	
2	Asphalt Repair adjacent curbs	733	sy	\$ [***]	\$ [***]	
02F	Silver Spring Standard Basket Weave	n/a	n/a	n/a		
02E	Concrete - Sidewalks	n/a	n/a	n/a		
02E	Site Concrete Award	n/a	n/a	n/a	\$ [***]	02E Bid Analysis
02E	Concrete - Curb & Gutter	n/a	n/a	n/a		
02E	Concrete - Retaining Walls and Stairs	n/a	n/a	n/a		
	02E COWR					
2	Concrete Coolant for Hot Weather Pours	220	cy	\$ [***]	\$ [***]	
2	Sawcut existing Phase I Footer to Install Planter per A5.25	100	lf	\$ [***]	\$ [***]	
2	De-mucking & De-watering for this work (Pump, Bobcat, Operator, Laborer) 3 days total. Excludes haul off of material	1	ls	\$ [***]	\$ [***]	
2	Adjustment of existing utilities (2 fitters * \$[***]/hr * 2 days + \$[***] materials)	1	ls	\$ [***]	\$ [***]	Existing manholes, valve covers, etc
2	Concrete Pads for Benches on Terraces (4 benches * 3 posts * \$[***]/EA)	12	ea	\$ [***]	\$ [***]	
2	Expansion Joint & Caulking at Curb & Gutter (550LF * \$[***]/LF)	550	lf	\$ [***]	\$ [***]	
02F	Hardscape Package	n/a	n/a	n/a	\$ [***]	02F Bid Analysis
02F	VM #5 - Standard Shape Ext Granite	n/a	n/a	n/a	\$ —	Radiuses only at AA through KK
02F	Cobblestone Paving	n/a	n/a	n/a	\$ —	
02F	Bio - Walk Art	n/a	n/a	n/a	\$ —	Etching by others
02F	Bio-Walk of Fame	n/a	n/a	n/a	\$ —	
02F	Granite Steps	n/a	n/a	n/a	\$ —	
02F	2" Granite Veneer on Retaining Walls	n/a	n/a	n/a	\$ —	
02F	5" Granite Veneer on Retaining Walls	n/a	n/a	n/a	\$ —	
	02F-COWR					

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
2	Additional Mobilization	1	ea	\$ [***]	\$ [***]	To complete pavers work at covered walkway
2	Temp Protection	6,600	sf	\$ [***]	\$ —	Of Hard Scape - Transfer to Division 1
07A	Waterproof Retaining Walls for Planting Beds	n/a	n/a	n/a	\$ —	
02F	Compacted Aggregate under pavers	n/a	n/a	n/a	\$ —	
02F	Compacted Aggregate in Planting Beds	n/a	n/a	n/a	\$ —	
02D	Landscaping 02D COWR	n/a	n/a	n/a	\$ [***]	02D Bid Analysis
2	Additional mobilization(s) to install sleeves for irrigation (\$[***/EA])	4	ea	\$ [***]	\$ [***]	
2	Soil Mock up	1	ea	\$ [***]	\$ [***]	
2	Composite Cleanup Crew	—	hr	\$ —	\$ —	Transfer to Division 1
2	Perimeter excavation protection at soil panels (2 laborers * 2hr/day * 2 weeks +\$[***] materials)	1	ls		\$ [***]	Incl guardrails, signage
2	Attic Stocks / Parts	1	ls		\$ [***]	Landscaping parts
2	Shop Drawings - Stone Cladding Final Stamped Dwgs	40	hr	\$ [***]	\$ [***]	
2	Protection of Tree Boxes	2,500	sf	\$ [***]	\$ [***]	
	Planting - Trees (2.5" - 3" cal.)	n/a	n/a	n/a	\$ —	
02D	Honeylocust	n/a	n/a	n/a	\$ —	
02D	Northern Red Oak	n/a	n/a	n/a	\$ —	
02D	Planting - Trees (8' - 10' tall) Street Trees	n/a	n/a	n/a	\$ —	
02D	Planting - Trees (12' - 14' tall) - River Birch	n/a	n/a	n/a	\$ —	
	Planting - Seed/Sod	n/a	n/a	n/a	\$ —	
07C	Planting - Bamboo - 5 gal size (at Roof Terraces)	n/a	n/a	n/a	\$ —	
07C	Planting - Grasses	n/a	n/a	n/a	\$ —	
02D	Japanese Sedge - 1 qt size	n/a	n/a	n/a	\$ —	
02D	Oriental Fountain Grass - 1 qt size	n/a	n/a	n/a	\$ —	
	Planting - Perennials	n/a	n/a	n/a	\$ —	
02D	Daylily - 1 gal size	n/a	n/a	n/a	\$ —	
02D	Siberian Iris "Caesar's Brother" - 1 gal size	n/a	n/a	n/a	\$ —	
02D	Siberian Iris "Cambridge" - 1 gal size	n/a	n/a	n/a	\$ —	
02D	Siberian Iris "Butter and Sugar" - 1 gal size	n/a	n/a	n/a	\$ —	
02D	Gayfeather/Blazing Star - 1 qt size	n/a	n/a	n/a	\$ —	
07C	Perennials at 5th, 6th & 7th floor Terraces	n/a	n/a	n/a	\$ —	
02D	Mulch	n/a	n/a	n/a	\$ —	
02D	Irrigation system	n/a	n/a	n/a	\$ —	
02D	Ground Level - PVC Piping for irrigation system	n/a	n/a	n/a	\$ —	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
02D	Ground Level - Drip tubing for irrigation system	n/a	n/a	n/a	\$ —	
15A	Backflow preventer, valves, water tap for irrigation	n/a	n/a	n/a	\$ —	
02D	Hand Holes	n/a	n/a	n/a	\$ —	
02D	Irrigation Controls and Conduit	n/a	n/a	n/a	\$ —	

2	Additional Landscaper Mobilization for Planting Schedule.	n/a	n/a	n/a	\$	—	
	Sculptural Seating Elements	n/a	n/a	n/a	\$	—	
	Tables, Chairs, Benches	n/a	n/a	n/a	\$	—	
	Site Amenities - Café Tables	n/a	n/a	n/a	\$	—	
	Site Amenities - Dining Tables	n/a	n/a	n/a	\$	—	
	Site Amenities - Dining Chair	n/a	n/a	n/a	\$	—	
	Site Amenities - Low Tables	n/a	n/a	n/a	\$	—	
	Site Amenities - 6' Benches	n/a	n/a	n/a	\$	—	
	6th Floor Terrace Curved Benches	n/a	n/a	n/a	\$	—	
2	Connections for Planter Drain Tile	10	ea	\$	***	***	
6A	6th Floor Terrace Benches with Backs	n/a	n/a	n/a	\$	—	06A Bid Analysis
02D	Ground Level Benches	n/a	n/a	n/a	\$	—	02D Bid Analysis
2	Site Amenities - Custom Curved Argentinean Benches	100	lf	\$	***	***	
07C	Planters - Small	n/a	n/a	n/a	\$	—	In 07C
07C	Planters - Medium	n/a	n/a	n/a	\$	—	
07C	Planters - Large	n/a	n/a	n/a	\$	—	
07C	Planters - Largest	n/a	n/a	n/a	\$	—	
07C	VE #7 IAP Planters	n/a	n/a	n/a	\$	—	This was not realized
02G	Site Amenities - Water Feature	n/a	n/a	n/a	\$	***	02G Bid Analysis
02G	SS Coping at Water Feature	n/a	n/a	n/a	\$	—	Fountain is Non Hobbs Equipment
02G	VM #6 - Water Feature Savings	n/a	n/a	n/a	\$	—	
02G	Custom SS Curved Trench Drain and Grate as Shown	n/a	n/a	n/a	\$	—	
02G	Bowl for Fountain	n/a	n/a	n/a	\$	***	Hard Bid - Fountaincraft
02G	Install Bowl for Fountain	n/a	n/a	n/a	\$	***	Hard Bid - Fountaincraft
02G	Foundation slab for Fountain	12	cy	\$	***	***	
02G	P&P Bond	n/a	n/a	n/a	\$	***	Fountaincraft Bond
02G	Curved TrenchDrain at Fountain	40	lf	\$	***	***	
2	Granite Flooring in Elev 1 & 2	2	cabs	\$	***	***	Granite for Elevator Floors
2	Site Amenities - Bike Rack	n/a	n/a	n/a	\$	—	02D Bid Analysis
2	Site Amenities - Trash Cans	n/a	n/a	n/a	\$	—	02D Bid Analysis
2	Final Cleaning	92760	sf	\$	***	***	
Total Sitework					\$	***	
3	CONCRETE						
	Foundation to 1st Level				\$	***	
03B	Caissons	820	cy	\$	***	***	ARL #2 - Eastern
03B	Rebar for Caissons	n/a	n/a	n/a	\$	—	
03B	Rock Excavation for Caissons	n/a	n/a	n/a	\$	***	PCO #03
03B	Caisson Cans	n/a	n/a	n/a	\$	***	PCO #01

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
03B	Adjusted Caisson Depths	n/a	n/a	n/a	\$ ([***)	PCO #07
03B	100% Docs - Reduced Caissons	n/a	n/a	n/a	\$ ([***)	PCO #06-01
03A	Concrete Award	n/a	n/a	n/a	\$ [***)	ARL #12 - M&L
03A	100% Drawings	n/a	n/a	n/a	\$ [***)	PCO #06-02
03A	Fill under Ramp	n/a	n/a	n/a	\$ —	
03A	Perimeter Foundation drain	n/a	n/a	n/a	\$ —	Previously in 15A
03A	Elevator #1 - Pit Walls	n/a	n/a	n/a	\$ —	
03A	Elevator #1 - Mat Slab	n/a	n/a	n/a	\$ —	
03A	Elevator #2 - Pit Walls	n/a	n/a	n/a	\$ —	
03A	Elevator #2 - Mat Slab	n/a	n/a	n/a	\$ —	
03A	Elevator #3 - Pit Walls	n/a	n/a	n/a	\$ —	
03A	Elevator #3 - Mat Slab	n/a	n/a	n/a	\$ —	
03A	Concrete Retaining wall @ perimeter 12"	n/a	n/a	n/a	\$ —	
03A	Slab on grade - 5"	n/a	n/a	n/a	\$ —	
03A	Elevated Slab - Drive and Pedestrian Ramps - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 24" Round	n/a	n/a	n/a	\$ —	
03A	Walk Ramp Premium	n/a	n/a	n/a	\$ —	
03A	Housekeeping Pads 4"	n/a	n/a	n/a	\$ —	
07A	2" Geo Composite Drainage Panels	n/a	n/a	n/a	\$ —	
	1st to Above PH				\$ —	
03A	Concrete Retaining Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Shear Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Shear Walls - 12"	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Curved	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	VM #2 - Reduce Concrete Finish	n/a	n/a	n/a	\$ —	Industrial Concrete Finish only
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 24" Round	n/a	n/a	n/a	\$ —	
03A	Concrete - Drop Panels - 5"	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8"	n/a	n/a	n/a	\$ —	
	2nd to 3rd Level				\$ —	
03A	Concrete Shear Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Shear Walls - 12"	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 24" Round	n/a	n/a	n/a	\$ —	
03A	Concrete - Drop Panels - 5"	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8"	n/a	n/a	n/a	\$ —	
	3rd to 4th Level				\$ —	
03A	Concrete Shear Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Shear Walls - 12"	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Curved	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 24" Round	n/a	n/a	n/a	\$ —	
03A	Concrete - Drop Panels - 5"	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8"	n/a	n/a	n/a	\$ —	
03A	Walk Ramp Premium	n/a	n/a	n/a	\$ —	
	4th to 5th Level				\$ —	
03A	Concrete Shear Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Shear Walls - 12"	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 24" Round	n/a	n/a	n/a	\$ —	
03A	Concrete - Drop Panels - 5"	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8"	n/a	n/a	n/a	\$ —	
	5th to 6th Level				\$ —	
03A	Concrete Shear Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Shear Walls - 12"	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Curved	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 24" Round	n/a	n/a	n/a	\$ —	
03A	Concrete - Drop Panels - 5"	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8" & 9"	n/a	n/a	n/a	\$ —	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
	6th to 7th Level				\$ —	
03A	Concrete Shear Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Curved	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8"x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 18" Round	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 24" Round	n/a	n/a	n/a	\$ —	
03A	Concrete - Drop Panels - 5"	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8"	n/a	n/a	n/a	\$ —	
	7th to PH				\$ —	
03A	Concrete Shear Walls - 8"	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Curved	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 16" Round	n/a	n/a	n/a	\$ —	
03A	Concrete - Drop Panels - 5"	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 9"	n/a	n/a	n/a	\$ —	
	Penthouse to Penthouse Roof				\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8"	n/a	n/a	n/a	\$ —	
	Above Penthouse Roof				\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 8" x 18" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 12" x 24" Square	n/a	n/a	n/a	\$ —	
03A	Concrete Columns - 22" x 22" Square	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8" 9' N - S extension 7th	n/a	n/a	n/a	\$ —	
03A	Additional 8" Concrete @ 9' N - S extension 8th	n/a	n/a	n/a	\$ —	
	Penthouse Roof to Top of Screenwall Level				\$ —	
03A	Curbs	n/a	n/a	n/a	\$ —	
03A	Concrete Beams - Straight	n/a	n/a	n/a	\$ —	
03A	Concrete - Elevated Deck - 8"	n/a	n/a	n/a	\$ —	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
	Miscellaneous Concrete				\$ [***]	
02C	Survey/ Grades/ Layout	n/a	n/a	n/a	\$ —	
03A	Concrete Fills, Curbs & Toppings	n/a	n/a	n/a	\$ —	
03A	Tower Crane - Erect, Rent, Operate, Dismantle	n/a	n/a	n/a	\$ —	
3	Weather Protection - Admixtures/ Ice	2,750	cy	\$ [***]	\$ [***]	
3	Traffic Control	—	hr	\$ —	\$ —	Transfer to Division 1
3	Flagmen	—	hr	\$ —	\$ —	Transfer to Division 1
3	Perimeter Protection/ Opening Protection	—	hr	\$ —	\$ —	Transfer to Division 1
3	Site / Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
03A	Stair Pan Fill	n/a	n/a	n/a	\$ —	
03A	Precast Stairs	n/a	n/a	n/a	\$ —	
03A	Tower Crane Foundation	n/a	n/a	n/a	\$ —	
03A	Architectural Finishing of Concrete Columns	n/a	n/a	n/a	\$ —	
3	Stair Protection	36	flights	\$ [***]	\$ [***]	
3	Swing Radius Protection				\$ —	excluded
3	Concrete adjustments for CW tolerance conflicts	400	hrs	\$ [***]	\$ [***]	
3	Water at floors for wet cure / clean-up	9	flrs	\$ [***]	\$ [***]	
3	Protection of Industrial Concrete Surfaces	—	sf	\$ —	\$ —	Transfer to Division 1
3	Concrete Pit for Conduit Raceway @ Switchgear	120	sf	\$ [***]	\$ [***]	
03A	PCO #26 North Wall Mods Ductbank Conflict	1	ls	\$ [***]	\$ [***]	
03A	Finishing Exposed Concrete Beams/ Surfaces	n/a	n/a	n/a	\$ —	

	Architectural Pre Cast				\$ [***]	
04B	Precast Concrete (Straight)	n/a	n/a	n/a	\$ [***]	ARL 25R1
04B	Additional Precast @ 9' N - S extension 7th - 10th	n/a	n/a	n/a		
04B	Additional Precast @ New Penthouse Higher Level	n/a	n/a	n/a		
4	Temp Heat/Weather Protection	n/a	n/a	n/a	\$ —	
4	Flashing/Caulking/Sealing around Panels	69	ea	\$ [***]	\$ [***]	
4	Composite Cleanup Crew	—	wk	\$ —	\$ —	Transfer to Division 1
4	Patching of lifting lugs/touchup	138	ea	\$ [***]	\$ [***]	
4	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
	Total Concrete & Pre-Cast				\$ [***]	

4 MASONRY

02F	Granite Wall Panels	n/a	n/a	n/a	\$ —	
04A	8" CMU walls at shafts, bathrooms, cellar partitions	n/a	n/a	n/a	\$ —	
04A	8" CMU - interior partitions	n/a	n/a	n/a	\$ [***]	04A Bid analysis
04A	8" CMU - exterior backup wall	n/a	n/a	n/a	\$ —	
04A	Lintels	n/a	n/a	n/a	\$ —	
	04A- COWR					

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
4	Temp Heat/Weather Protection	4	mths	\$ [***]	\$ [***]	
4	Grout Frames & Sills	70	ea	\$ [***]	\$ [***]	
4	Additional Scaffolding	100	lf	\$ [***]	\$ [***]	
4	Electric Hook-up	9	ea	\$ [***]	\$ [***]	
4	Flagmen & Traffic Control	—	wk	\$ —	\$ —	Transfer to Division 1
4	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
4	RFI # 194 - Wall Changes	50	SF	\$ [***]	\$ [***]	
	Total Masonry				\$ [***]	

5 STEEL & METALS

Structural Steel					\$	***	
02C	Survey/ Grades/ Layout	n/a	n/a	n/a			
05A	Structural Steel Beams	n/a	n/a	n/a	\$	***	ARL #24
05A	Structural Steel Connections	n/a	n/a	n/a			
05A	Structural Steel Moment Connections	n/a	n/a	n/a			
05A	VM #75 - Added support for Cooling Tower Height						
05A	Structural Steel Miscellaneous Items	n/a	n/a	n/a			
05A	Metal Roof Deck - 1-1/2"	n/a	n/a	n/a			
	05A - COWR						
5	Burn Permit	2	ea	\$	***	\$	***
5	Fire Watch	—	wk	\$	—	\$	—
5	Flagmen	—	wk	\$	—	\$	—
5	Final Cleaning	n/a	n/a	n/a	\$	—	
5	Black Iron for Wood Ceiling	15	tons	\$	***	\$	***
5	Framing around roof openings	5	tons	\$	***	\$	***
5	Misc. Skin Support Steel	5	tons	\$	***	\$	***
5	Misc. Steel at Slab Penetrations	7.5	tons	\$	***	\$	***
5	GC Fee on Direct Hire Work	n/a	n/a	n/a	\$	—	Included in Front
5	Safety Floor at Open Shafts / Maint.	230	ea	\$	***	\$	***
5	Misc. Steel for Equip. Lifting/Hoists	6	tons	\$	***	\$	***
	Miscellaneous Metals				\$	—	
05A	Steps for Cooling Towers	n/a	n/a	n/a			3 shown
05A	Steel Support for Metal Panels	n/a	n/a	n/a			
5	Support Steel for Mechanical Equipment	n/a	n/a	n/a	\$	—	
16D	Grate for Transformer Vault	n/a	n/a	n/a	\$	—	Included in 16D
05A	Miscellaneous Steel - Masonry wall clips, angles	n/a	n/a	n/a			
05A	Miscellaneous Steel - Bathroom Countertop Supports	n/a	n/a	n/a			
5	Window Cleaning Anchors	n/a	n/a	n/a			
05A	Roof Ladders	n/a	n/a	n/a			
	Roof Hatch	n/a	n/a	n/a			
05A	Shipmans' Ladder	n/a	n/a	n/a			
	Mezzanine steel and grating 4th floor	n/a	n/a	n/a			
09A	Expansion Joint Cover Assemblies	n/a	n/a	n/a			
05A	Elevator Pit Ladders	n/a	n/a	n/a			
05A	Metal Stairs	n/a	n/a	n/a			
05A	Flights with less than 10 risers	n/a	n/a	n/a			
05A	Flights with 10 to 17 risers	n/a	n/a	n/a			

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
05A	Flights with more than 17 risers	n/a	n/a	n/a		
05A	Handrails @ Stairs - Straight (Ptd. Steel)	n/a	n/a	n/a		
05B	VM #9 - Wood At stairs in Lieu of S.S.	n/a	n/a	n/a		
05B	Atrium Stair	n/a	n/a	n/a		
05B	Atrium Stairs Stone Treads	n/a	n/a	n/a		
5	Final Cleaning	n/a	n/a	n/a	\$ —	Included above
5	Flagmen & Traffic Control	n/a	n/a	n/a	\$ —	Included above
5	Firewatch	n/a	n/a	n/a	\$ —	Included above
	Ornamental Metals				\$ [***]	
05B	Ornamental Metals Package	n/a	n/a	n/a	\$ [***]	ARL 18R2
05B	Sun Control Trellis	n/a	n/a	n/a		
05B	6th Floor Terrace Trellis by "Green Screen"	n/a	n/a	n/a		
05B	6th Floor Terrace Trellis Support	n/a	n/a	n/a		
05B	7th Floor Gazebo	n/a	n/a	n/a		
07D	Cladding on Trellis - Kanalco	n/a	n/a	n/a	\$ —	07D - Bid analysis
05B	SS Glazed Wall Lobby	n/a	n/a	n/a		
05B	SS Column Cove Bases (Curved)	n/a	n/a	n/a		
05B	VM #10 Reduce Quantities of S.S. Base	n/a	n/a	n/a		VM was not shown in docs
09A	VM #12A - Changed Column wraps to Covers in lieu of drywall	n/a	n/a	n/a	\$ —	Included in 09A Award
05B	VM #13 - Use Painted Steel hand rail in lieu of S.S.	n/a	n/a	n/a	\$ —	
05B	SS Cove Base @ Lobby	n/a	n/a	n/a		
	05B - COWR					
5	Caulking at SS Glass Walls at Lobby	430	sf	\$ [***]	\$ [***]	
5	Concrete at SS Bollards	4	ea	\$ [***]	\$ [***]	
5	Core Drilling for Embeds (\$[***]/EA * 40)	40	ea	\$ [***]	\$ [***]	
5	Composite Crew	—	hr	\$ —	\$ —	Transfer to Division 1
5	Blocking for Shoe Organizer	1	ls	\$ [***]	\$ [***]	
5	Temp Guardrails at Stair #9 (2 carp *\$[***]/hr * 2days + \$[***] materials)	1	ls	\$ [***]	\$ [***]	
5	Stair Protection - Stair #9	1	ls	\$ [***]	\$ [***]	
5	Firewatch	—	wk	\$ —	\$ —	Transfer to Division 1
5	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
5	Flagmen & Traffic Control	—	wk	\$ —	\$ —	Transfer to Division 1
5	16ga SS Gowning Benches (6) per A1.2F, (4) per A1.3F	10	ea	\$ [***]	\$ [***]	Hard Bid
5	16ga SS Shoe Organizer (1) per A1.2F	1	ea	\$ [***]	\$ [***]	Hard Bid
5	MoCo Burn Permit (\$[***]/yr per trade)	2	ea	\$ [***]	\$ [***]	
5	Escalation	—	%	\$ —	\$ —	
	Total Steel & Metals				\$ [***]	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
6	WOOD & PLASTICS					
06A	Rough Blocking	n/a	n/a	n/a		
09A	Plywood Backing in Tele/Data Room	n/a	n/a	n/a		
06A	Custom wood Reception Desk with 1" Granite top	n/a	n/a	n/a		
06A	Reception Desk Side Cabinet with 1" Granite top	n/a	n/a	n/a		
06A	Wd Base Cab with 1" Gnte Top - at Conf Rooms	n/a	n/a	n/a		
06A	Mail and Copy Room Millwork	n/a	n/a	n/a		
06A	Kitchenette - Base Cabinets	n/a	n/a	n/a		
06A	Kitchenette - Countertops	n/a	n/a	n/a		
06A	Kitchenette - Wall Cabinets	n/a	n/a	n/a		
06A	Bathroom Countertops	n/a	n/a	n/a		
06A	Coat Closet Rod & Shelf (Large)	n/a	n/a	n/a		
06A	Coat Room Millwork - 6th Floor -	n/a	n/a	n/a		
06A	Credenza - Built in	n/a	n/a	n/a		
06A	Work Area Millwork - 5th floor-Allowance	n/a	n/a	n/a		
06A	Curved Work Surface	n/a	n/a	n/a		
06A	Library - Millwork	n/a	n/a	n/a		
06A	High Density File Room - Millwork	n/a	n/a	n/a		
06A	Millwork / DFH / Interior Glazing Award	n/a	n/a	n/a	\$ [***]	ARL #27
06A	Wood Ceilings	n/a	n/a	n/a		
6	Final Cleaning	n/a	n/a	n/a		
06A	4" Thick Curved Wood Bench	n/a	n/a	n/a		
	06A COWR					
6	Temporary Wall & Door Protection	142	ea	\$ [***]	\$ [***]	06A Bid Analysis
6	Composite Crew (2 laborers * \$[***/hr * 16hr/wk * 45wks)	—	hr	\$ —	\$ —	06A Bid Analysis - Transfer to Division 1
6	Support Steel for Granite Bench in Shower	0.125	ton	\$ [***]	\$ [***]	06A Bid Analysis
6	Cut Holes in Millwork for Elec/Sprinkler (\$[***/EA)	100	ea	\$ [***]	\$ [***]	06A Bid Analysis
6	Storage of Doors and Frames for 1 week delivery (includes storage and labor to shake out delivery trucks, stack material, and load on truck to deliver to site)	1	ls	\$ [***]	\$ [***]	06A Bid Analysis - Hard Bid
6	Construct Room for Hardware (Studs/plywood, shelving, door, labor) (2 carpenters @ 2 days + \$[***/materials)	1	ls	\$ [***]	\$ [***]	06A Bid Analysis
6	Blocking/install for Owner Furnished TV's, mounting bracket excluded. (8 total)	8	ea	\$ [***]	\$ [***]	06A Bid Analysis
6	Door #114	1	ea	\$ [***]	\$ [***]	06A Bid Analysis
6	RFI #199 - Back Painted Glass	1	ls	\$ [***]	\$ [***]	06A Bid Analysis
6	Countertops per A4.4F in rooms 357 and 417 (32LF * \$[***/LF)	n/a	n/a	n/a	\$ —	Incl in ARL #27
6	Removal of existing Phase I window wall at north side 1st floor lobby	80	sf	\$ [***]	\$ [***]	06A Bid Analysis

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
6	Glass Markerboards (7 total incl alum tray)	7	ea	\$ [***]	\$ [***]	06A Bid Analysis
6	Support Steel for floating cabinets and shelving and SS tops in isolator Rm.	16	ea	\$ [***]	\$ [***]	06A Bid Analysis
6	Openings 007A and 707A	2	ea	\$ [***]	\$ [***]	06A Bid Analysis
Total Wood & Plastics					\$ [***]	
7 THERMAL & MOISTURE PROTECTION						
07A	Waterproofing @ Basement Foundation Walls	n/a	n/a	n/a	\$ [***]	ARL #17
07A	VM #14 - Utilize Pre-Proof	n/a	n/a	n/a		
07A	Waterproofing at Transformer Vault	n/a	n/a	n/a		
	Insulation Board Basement Foundation Walls	n/a	n/a	n/a		
07A	Waterproofing basement slab	n/a	n/a	n/a		
07A	Waterproofing/Insulation 1st floor plaza	n/a	n/a	n/a		
07A	Waterproofing @ Elevator Pits	n/a	n/a	n/a		
07A	Waterproofing Skin Substrate	n/a	n/a	n/a		
09A	Insulation at Garage Ceiling	n/a	n/a	n/a		
07C	Roof - Membrane & Insulation	n/a	n/a	n/a	\$ [***]	ARL #22
07C	Gravel at Terraces	n/a	n/a	n/a		
07C	Wood Decking	n/a	n/a	n/a		
07C	VM #15 - Concrete Paver in lieu of IPE	n/a	n/a	n/a		
07C	VM #16 - Alternate Concrete Paver @ Roof	n/a	n/a	n/a		
07C	Pavers on Roof at 7th Floor Terrace	n/a	n/a	n/a		
07C	Green Roof	n/a	n/a	n/a	\$ —	07C Bid Analysis
07C	Flood Test Green Roofs	n/a	n/a	n/a		
07D	Zinc Panels Award	n/a	n/a	n/a	\$ [***]	ARL #21 - incl louvers
07D	Zinc Panels	n/a	n/a	n/a	\$ —	07D - Bid analysis
07D	VM #17A - Add for Composite Panels	n/a	n/a	n/a	\$ —	07D - Bid analysis
07E	Allowance for Flashings @ Roof	n/a	n/a	n/a		
7	Temporary Roof Protection	n/a	n/a	n/a		
07E	Gutters & Down spouts	n/a	n/a	n/a		
15A	Flue Shroud-Stainless Steel exhaust pipe covers	n/a	n/a	n/a		
07E	Terracotta Rain Screen system Award	n/a	n/a	n/a	\$ [***]	ARL 23
07E	Terracotta Rain Screen system (Curved)	n/a	n/a	n/a		
07E	VM #33 Terracotta Soffit	n/a	n/a	n/a		
08A	Metal Panel Sun Screen	n/a	n/a	n/a		
7	Final Cleaning	n/a	n/a	n/a		
07F	Spray on Fire Proofing	n/a	n/a	n/a	\$ [***]	Hard Bid
7	Interior Caulking	n/a	n/a	n/a		

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
7	Flagmen & Traffic Control	n/a	n/a	n/a		
7	Fire Safing and Firestopping	200	crew hr	\$ [***]	\$ [***]	
	07A COWR					
7	Composite Crew Clean up	—	hr	\$ —	\$ —	Transfer to Division 1
7	OT (4 mechanics/1 foreman * 1 day/wk *14 wks)	140	Crew Hr	\$ [***]	\$ [***]	07A Bid Analysis
7	Temporary Weather Protection during curing for foundation w/p	n/a	n/a	n/a	\$ —	
7	Patching of W/P for Penetrations (\$[***/EA)	50	ea	\$ [***]	\$ [***]	07A Bid Analysis
7	Pressure cleaning concrete prior to application of traffic coating. (2 mechanics * 2 days + pressure washer)	1	ls	\$ [***]	\$ [***]	07A Bid Analysis
7	Temporary Heat/Weather Protection to install product in winter for skin w/p (i.e. heaters, tenting, etc.)	3	mo	\$ [***]	\$ [***]	07A Bid Analysis
7	Patching of MEP Penetrations (\$[***/EA)	50	ea	\$ [***]	\$ [***]	07A Bid Analysis
7	Temporary Patching of Phase I W/P behind metal panels (2 mechanics for 1 week + \$[***] materials)	1	ls	\$ [***]	\$ [***]	07A Bid Analysis
	07C COWR					
7	Roof Protection on Completed Roofing at General Traffic Areas/Material Hoist	9,700	sf	\$ [***]	\$ [***]	07C Bid analysis
7	Floor Prep - Sweeping, cleanup prior to roofing	160	hrs	\$ [***]	\$ [***]	07C Bid analysis
7	Composite Crew Clean up	—	ea	\$ —	\$ —	Transfer to Division 1
7	OT (6 mechanics/1 foreman * 1 day/wk *20 wks) to get weathertight	20	Crew Day	\$ [***]	\$ [***]	07C Bid analysis
7	RFI #30 - Design Costs for SS Planters	80	hr	\$ [***]	\$ [***]	07C Bid analysis
7	Stainless Steel Planters	1	ls	\$ [***]	\$ [***]	Hard Bid
7	Exterior Caulking	12,320	sf	\$ [***]	\$ [***]	07C Bid analysis
7	Flashings at Roof	50	ea	\$ [***]	\$ [***]	07C Bid analysis
7	Flagmen & Traffic Control	—	wk	\$ —	\$ —	Transfer to Division 1
7	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
	07D COWR					
7	Penetrations thru Zinc Panels (\$[***/ea)	50	ea	\$ [***]	\$ [***]	07D Bid Analysis
7	Engineered Scaffolding at 6th Floor to reach Soffit Panels at PV roof R12-R13 if can't reach with manlift from plaza	3	floors	\$ [***]	\$ [***]	07D Bid Analysis
7	Touchup	1,004	sf	\$ [***]	\$ [***]	07D Bid Analysis
7	Hookup Welders (2) (2 elec * 16hr)	32	hr	\$ [***]	\$ [***]	07D Bid Analysis
7	Stamped Final Zinc Panel Drawings	40	hr	\$ [***]	\$ [***]	07D Bid Analysis - Letter only to cover drawing
7	Composite Cleanup Crew	—	hr	\$ —	\$ —	Transfer to Division 1

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
7	OT - 8 ironworkers + 1 Foreman * 1 day/wk * 15 weeks	1,350	hr	\$ [***]	\$ [***]	07D Bid Analysis
7	Escalation ([***/% escalation covered)	—	%	\$ —	\$ —	not required
7	Cutouts in Louver Blankoff Panels for MEP Penetrations (\$[***/EA * 10)	10	ea	\$ [***]	\$ [***]	07D Bid Analysis
7	Exterior Caulking	12,320	sf	\$ [***]	\$ [***]	07D Bid Analysis
7	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
7	Flagmen & Traffic Control	—	wk	\$ —	\$ —	Transfer to Division 1
7	VE Option 1a/b or different joint configuration	n/a	n/a	n/a	\$ —	Incl in ARL #21 Award
7	Curved Zinc wall panels at elevation	1	ls	\$ [***]	\$ [***]	

AA at PV Array							
7	Louver for Garage Air intake	1	ea	\$	***	\$	***
7	Visual Mockup Zinc per Add #14	63	sf	\$	***	\$	***
7	Zinc Shopdrawings - Changes	1	ls	\$	***	\$	*** Excludes additional joints
7	Custom Color Louvers	1	ls	\$	***	\$	***)% upcharge
07E COWR							
7	Cutouts for handrail on roof terraces	20	ea	\$	***	\$	*** 07E Bid Analysis
7	Rainscreen Gaskets	n/a	n/a		n/a	\$	— Silicone gaskets incl per ARL #23
7	Infill of hollow sections in Terracotta	n/a	n/a		n/a	\$	— Excluded
7	Hookup Welders (2) (2 elec *16hr)	32	hr	\$	***	\$	*** 07E Bid Analysis
7	Stamped Final Terracotta Drawings	40	hr	\$	***	\$	*** 07E Bid Analysis
7	Composite Cleanup Crew	—	hr	\$	—	\$	— Transfer to Division 1
7	OT - 8 ironworkers + 1 Foreman * 1 day/wk * 15 weeks	1,350	hr	\$	***	\$	*** 07E Bid Analysis
7	Escalation	—	ls	\$	—	\$	— Included in ARL #21 Award
7	Final Cleaning	—	hr	\$	—	\$	— Transfer to Division 1
7	Exterior Caulking	12,320	sf	\$	***	\$	*** 07E Bid Analysis
7	Flagmen & Traffic Control	—	wk	\$	—	\$	— Transfer to Division 1
7	Box-Outs for Walers	36	ea	\$	***	\$	***
7	Waterproofing of Mock-up	235	sf	\$	***	\$	***
Total Thermal & Moisture Protection						\$	***
8 DOORS & WINDOWS							
08A	Store Front Door (Al Door w/Al Frame)	n/a	n/a		n/a	\$	—
08A	Alum. Storefront door with SS Cladding (@ Exteriors)	n/a	n/a		n/a	\$	—
08A	Alum. Storefront door with SS Cladding (@ Exteriors)	n/a	n/a		n/a	\$	—
08D	Fire Rated Won Doors	n/a	n/a		n/a	\$	*** 08D Bid Analysis
06A	2nd Floor labs 4x7 (1' and 3' leaves)	n/a	n/a		n/a	\$	—
06A	H.M Door w/ HM Frame (Fire Rated) - KD	n/a	n/a		n/a	\$	—
06A	3x7	n/a	n/a		n/a	\$	—
06A	6x7 (Double)	n/a	n/a		n/a	\$	—
	H.M Door w/ HM Frame (Non Rated) - KD						

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
06A	3x7	n/a	n/a	n/a	\$ —	
06A	3x8	n/a	n/a	n/a	\$ —	
06A	2x7	n/a	n/a	n/a	\$ —	
06A	6x7 (Double)	n/a	n/a	n/a	\$ —	
06A	5X7	n/a	n/a	n/a	\$ —	
06A	3xTBD	n/a	n/a	n/a	\$ —	
	Wood Door/ HM Frame - KD					
06A	3x7	n/a	n/a	n/a	\$ —	
06A	2x7	n/a	n/a	n/a	\$ —	
	6x7 (Double)	n/a	n/a	n/a	\$ —	
	4x7 (1' and 3' leafs)	n/a	n/a	n/a	\$ —	
	Wood Door/ HM Frame (Fire Rated) - KD	n/a	n/a	n/a	\$ —	
06A	3x7	n/a	n/a	n/a	\$ —	
06A	VM #26A - Changes on 90% Docs to Door Frames	n/a	n/a	n/a	\$ —	
06A	VM #26B - Changes to door Sizes	n/a	n/a	n/a	\$ —	
	Phase 1 large door at 1st floor	n/a	n/a	n/a	\$ —	
08C	Overhead Coiling Doors	n/a	n/a	n/a	\$ [***]	08C Bid Analysis
06A	Interior glass and glazing system - P3	n/a	n/a	n/a	\$ —	Included in 06A Award
06A	Interior SS glass and glazing system - P3	n/a	n/a	n/a	\$ —	Assume Alum.
08A	Flat Aluminum Punch Windows	n/a	n/a	n/a	\$ —	
08A	Glass Curtain wall (Flat)	n/a	n/a	n/a	\$ —	
08A	Curtainwall Award	n/a	n/a	n/a	\$ [***]	ARL #13 - Pioneer
08A	VM #17 - Deduct for Segmented Glass	n/a	n/a	n/a	\$ —	
08A	Channel Glass System (Straight)	n/a	n/a	n/a	\$ —	
08A	Channel Glass System (Curved)	n/a	n/a	n/a	\$ —	
6	Final Cleaning	n/a	n/a	n/a	\$ —	
02C	Survey & Layout	n/a	n/a	n/a	\$ —	
08A	Weather Protection for openings	360	sf	\$ [***]	\$ [***]	
08A	Layout/Installation of Reglets for Glass Fins at Offices - Not required Since Surface applied at columns in lieu of reglets				\$ —	
08A	Survey & Layout of Embeds for Installation by Concrete Sub	112	crew hr	\$ [***]	\$ [***]	
08A	Window Sill Protection	1	ls	\$ [***]	\$ [***]	2 carp * \$[***]/hr * 2 d/fl * 7fl + 1d/mth maint * 6mths + \$[***]mat
08A	Final Adjustment of Doors after Air Balancing is complete	1	ls	\$ [***]	\$ [***]	1foreman/1carp * 8hr/Fl * 4 Fl
08A	Storefront Door Protection	24	ea	\$ [***]	\$ [***]	
08A	Remob to install curtainwall that is left out for equipment				\$ —	Carried in FF
08A	Stamped Final Curtainwall Drawings	40	hr	\$ [***]	\$ [***]	
08A	Composite Cleanup Crew	—	hr	\$ —	\$ —	Transfer to Division 1
08A	OT - 8 ironworkers + 1 Foreman * 1 day/wk * 16 weeks	1	ls	\$ [***]	\$ [***]	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
08A	Replacement glass unassignable damages	n/a	n/a	n/a	\$ —	
08A	100%CD Drawings - Change trellis design (added glass 504SF), change metal panels to spandrel glass (624SF).	n/a	n/a	n/a	\$ —	Below
08A	100% CD	1	ls	\$ [***]	\$ [***]	PCO #006-03
08A	Key Storage Cabinet per spec 08410-2.3.F,G	1	ea	\$ [***]	\$ [***]	
08A	Sliding Door 714 Hardware - Unclear on dwgs	1	ea	\$ [***]	\$ [***]	
08A	Security Wiring for Storefront Doors	24	ea	\$ [***]	\$ [***]	
8	Sunshades for Units W, W1	1	ls	\$ [***]	\$ [***]	PCO #14
8	Perimeter Spray Foam Insulation	1	ls	\$ [***]	\$ [***]	Hard Bid Alternate
8	Two paint colors in lieu of 1	n/a	n/a	n/a	\$ —	Not Included
8	Radius window wall framing units @ K&L	1	ls	\$ [***]	\$ [***]	Hard Bid Alternate
8	Radius sunshade blades	1	ls	\$ [***]	\$ [***]	Hard Bid Alternate
8	Signage support brackets	n/a	n/a	n/a	\$ —	In Base Contract
8	radius sill extensions	n/a	n/a	n/a	\$ —	Not Included
8	In Plant structural testing.	n/a	n/a	n/a	\$ —	Not Included
8	Glass spandrels in lieu of Zinc at unit R	1	ls	\$ [***]	\$ [***]	Hard Bid Alternate
8	Curved Framing at Units I & Q	1	ls	\$ [***]	\$ [***]	Hard Bid Alternate
8	PCO #25 - Terrace Doors	1	ls	\$ [***]	\$ [***]	
8	Peer review skin	—	hr	\$ [***]	\$ —	by UT
8	Flagmen & Traffic Control	—	hr	\$ —	\$ —	Transfer to Division 1
Total Doors & Windows					\$ [***]	

9 FINISHES

	Perimeter Walls				\$ [***]	
09A	Ext Studs/Sheathing/Drywall Award	n/a	n/a	n/a	\$ [***]	ARL 19
09A	Insulation	n/a	n/a	n/a	\$ —	09A includes 09B
	Drywall COWR				\$ [***]	
09A	GWB - 1 layer 5/8" each side of 3 5/8" metal stud at 16" o.c. to underside of the deck above - P1	n/a	n/a	n/a	\$ —	
09A	GWB - 2 layer 5/8" each side of 3 5/8" metal stud at 16" o.c. to underside of the deck above - P1 Fire Rated	n/a	n/a	n/a	\$ —	
09A	GWB - 1 layer 5/8" (1) side on metal hat channel	n/a	n/a	n/a	\$ —	
09A	GWB - 1 Layer 5/8" on studs	n/a	n/a	n/a	\$ —	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
09A	GWB - 2 Layers 5/8" on studs above.	n/a	n/a	n/a	\$ —	
09A	Shaft Wall (2 hr)	n/a	n/a	n/a	\$ —	
09A	2nd Floor labs Skim Coat	n/a	n/a	n/a	\$ —	
09A	2nd Layer of Drywall at Elev Lobbies	n/a	n/a	n/a	\$ —	
09A	GWB - 1 layer 5/8" each side of 3 5/8" metal stud at 16" o.c. - wall 6ft high - type P5	n/a	n/a	n/a	\$ —	
09A	Metal Strapping	n/a	n/a	n/a	\$ —	
9	09A - COWR					
9	Surveyor to layout radiuses) for drywall subcontractor (\$[***]/hr*8 hrs/floor *7 floors)	56	crew hr	\$ [***]	\$ [***]	
9	2x10 Cedar Rafters at Gazebo/Trellis	880	Bft	\$ [***]	\$ [***]	
9	Composite Crew Clean up	—	hr	\$ —	\$ —	Transfer to Division 1
9	Patching at Phase I wall if required due to removal of metal panels to keep Phase I weathertight during construction. (2 carpenters for 1 week + \$[***] materials)	1	ls	\$ [***]	\$ [***]	
9	Patching/rework of Phase I ceilings at tie-ins (2 carpenters for 2 days per floor + \$[***] materials)	1	ls	\$ [***]	\$ [***]	
9	Curved Electrical column covers (6 ea * 18 * \$[***]/EA)	108	ea	\$ [***]	\$ [***]	
9	Material Escalation (i.e. [***]% Feb, [***]% Mar, [***]% April)	1	ls	\$ [***]	\$ [***]	Escalation thru April - Hard Bid
9	Drywall grid support framing/GWB for wood veneer ceiling ILO black iron framing	1	ls	\$ [***]	\$ [***]	Hard Bid
9	Acoustical Caulking at Drywall Partitions	38,268	sf	\$ [***]	\$ [***]	Acoustical caulking at all drywall partitions
9	RFI # 166 - Room Sealing	1	ls	\$ [***]	\$ [***]	
9	RFI #166 - Run drywall full length at 214, acoustical caulking at required partitions	1	ls	\$ [***]	\$ [***]	
9	75deg cants at ledge >2" in elevator shafts	300	lf	\$ [***]	\$ [***]	
9	RCP Conflicts	5,000	sf	\$ [***]	\$ [***]	
9	Fire rated partition conflicts	3,500	lf	\$ [***]	\$ [***]	
9	Strapping in fire rated partitions	500	lf	\$ [***]	\$ [***]	
9	Patching of phase 1 F.A. Devices	4,000	sf	\$ [***]	\$ [***]	patch 1ft wide strip where drywall is cut out, inc. painting of that strip only
9	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
9	Flagmen & Traffic Control	—	hr	\$ —	\$ —	Transfer to Division 1
9	Protection of finishes	—	sf	\$ —	\$ —	Transfer to Division 1
9	Drywall/framing adjustments	3,500	sf	\$ [***]	\$ [***]	
9	RFI # 208 - Blocking for Lat Files	390	LF	\$ [***]	\$ [***]	
9	RFI # 213 - Added Ceiling and Lighting	1	LS	\$ [***]	\$ [***]	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
09A	Metal Column Covers	n/a	n/a	n/a	\$ —	
	Ceilings				\$ —	
09A	ACT Ceilings	n/a	n/a	n/a	\$ —	
09A	Lab ACT Ceilings	n/a	n/a	n/a	\$ —	
09A	GWB Ceilings	n/a	n/a	n/a	\$ —	
9	SS Panel in Front Lobby	n/a	n/a	n/a		Incl in Entry Vestibule Allow Div 22
09A	Bulkhead (Curved)	n/a	n/a	n/a	\$ —	
09A	Bulkhead (Straight)	n/a	n/a	n/a	\$ —	
	Interior Layout	n/a	n/a	n/a		
02C	Survey/ Layout - Interior	n/a	n/a	n/a		
	Paint				\$ [***]	
09G	Painting Award	n/a	n/a	n/a	\$ [***]	09G Bid Analysis
09G	2nd Floor Labs latex paint hallway	n/a	n/a	n/a	\$ —	
09G	Paint CMU walls	n/a	n/a	n/a	\$ —	
09G	Paint GWB Walls	n/a	n/a	n/a	\$ —	
09G	Paint GWB Ceilings	n/a	n/a	n/a	\$ —	
09G	Paint HM Frames	n/a	n/a	n/a	\$ —	
09G	Paint HM Doors/Frames	n/a	n/a	n/a	\$ —	
09G	Paint Sprinkler Piping	n/a	n/a	n/a	\$ —	
09G	Painted Concrete Ceilings at Garage	n/a	n/a	n/a	\$ —	
09G	Painted Concrete & CMU walls at Garage	n/a	n/a	n/a	\$ —	
09G	Painted Concrete Floors at Garage	n/a	n/a	n/a	\$ —	
09G	Paint-Exposed Ceiling Areas	n/a	n/a	n/a	\$ —	
09G	Striping	n/a	n/a	n/a	\$ —	
09G	Painting of Concrete Stairs	n/a	n/a	n/a	\$ —	
9	Attic Stock	n/a	n/a	n/a	\$ —	
	Finish Materials				\$ [***]	
09f	Ceramic Tile Award	n/a	n/a	n/a	\$ [***]	09F - Bid Analysis
09f	VM #20A - Ceramic Wall tile in lieu of Marble	n/a	n/a	n/a	\$ —	
09f	V m#40A - Ceramic Wall partitions in lieu of marble	n/a	n/a	n/a	\$ —	
09f	Stone on Walls at Main Lobby	n/a	n/a	n/a		
09D	Carpet / VCT / Linol Award	n/a	n/a	n/a	\$ [***]	09D Bid Analysis
09E	Epoxy Flooring Award	n/a	n/a	n/a	\$ [***]	09E Bid Analysis
09D	2nd Floor Labs vinyl base	n/a	n/a	n/a		
09D	Vinyl Base	n/a	n/a	n/a		
09E	Painted/Sealed Concrete Floors	n/a	n/a	n/a		
09f	Marble	n/a	n/a	n/a		
09f	VM #70 - Change to Ceramic @ Bathroom	n/a	n/a	n/a		
09C	Terrazzo Award	n/a	n/a	n/a	\$ [***]	09C Bid Analysis
09C	VM #19 - Terrazzo in lieu of granite	n/a	n/a	n/a	\$ —	
	09C - COWR					
9	Floor Protection Post Work	—	sf	\$ —	\$ —	Transfer to Division 1

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
9	Composite Cleanup Crew	—	wk	\$ —	\$ —	Transfer to Division 1
9	Floor Preparation Prior to Work (excluding crack filling)	4,000	sf	\$ [***]	\$ [***]	
9	100% Coverage Anti-Fracture Membrane	1	ls	\$ [***]	\$ [***]	Hard Bid
9	Moisture Barrier Primer	1	ls	\$ [***]	\$ [***]	Hard Bid
9	Overtime to maintain schedule	375	hr	\$ [***]	\$ [***]	
	09D - COWR				\$ —	
9	Moisture Test	3	ea	\$ [***]	\$ [***]	
9	Composite Cleanup Crew	—	wk	\$ —	\$ —	Transfer to Division 1
9	Temporary Floor Protection	—	rolls	\$ —	\$ —	Transfer to Division 1
9	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
	09E - COWR					
9	Ventilation During Installation	6	wk	\$ [***]	\$ [***]	
9	Floor Patch/Prep	9,961	sf	\$ [***]	\$ [***]	
9	spec 09705 - epoxy in stairway				\$ —	Included in Div 22
9	Early application of epoxy “paint” for underneath process equipment - mobilization	1	ea	\$ [***]	\$ [***]	
9	Composite Cleanup Crew	—	wk	\$ —	\$ —	Transfer to Division 1
9	Underlayment for Epoxy	9,961	sf	\$ [***]	\$ [***]	
	09F - COWR					
9	Floor Protection	—	sf	\$ —	\$ —	Transfer to Division 1
9	Flash Patching	6,500	sf	\$ [***]	\$ [***]	
9	Composite Crew	—	wk	\$ —	\$ —	Transfer to Division 1
	09G - COWR					
9	concrete sealer mechanical room floors	6,640	sf	\$ [***]	\$ [***]	
9	Composite Crew	—	wk	\$ —	\$ —	Transfer to Division 1
9	Paint Color Schedule	1	ls	\$ [***]	\$ [***]	
9	Additional Room Finishes	5	ea	\$ [***]	\$ [***]	RFI # 106
9	Finishes Repair and Relocation Work	1	ls	\$ [***]	\$ [***]	RFI # 109
09D	Linoleum	n/a	n/a	n/a	\$ —	
	Additional office space @ 5th Floor	n/a	n/a	n/a		
	Terrazzo	n/a	n/a	n/a		
Total Finishes					\$ [***]	

10 SPECIALTIES

06A	Fire Extinguishers	n/a	n/a	n/a	\$ —	
10	Fire Extinguisher Signage	30	ea	\$ [***]	\$ [***]	
07D	Louvers	n/a	n/a	n/a	\$ —	07D - Bid analysis
06A	Toilet Accessories - Single Bathroom	n/a	n/a	n/a	\$ —	
06A	Toilet Accessories - Multi Bathroom	n/a	n/a	n/a	\$ —	
06A	Mirrors - Single Bathroom	n/a	n/a	n/a	\$ —	
06A	Mirrors - Multi Bathroom	n/a	n/a	n/a	\$ —	
	Lockers	n/a	n/a	n/a		
	Locker Bench	n/a	n/a	n/a		

22

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
06A	White Boards & Tack Boards	n/a	n/a	n/a	\$ —	
10	Wall Bumpers	650	lf	\$ [***]	\$ [***]	
10	Building Numbers	n/a	n/a	n/a	\$ —	Signage allowance
	Directory	n/a	n/a	n/a		Excluded
10A	Mecho Shades	n/a	n/a	n/a	\$ [***]	10A Bid Analysis
10	VM #21A - Revised QTY of shades	n/a	n/a	n/a		
10	Black Out Shades	n/a	n/a	n/a		Included in 10A

10	Awnings	n/a	n/a	n/a			
	Impact Resistant Wall Panel System - P4	n/a	n/a	n/a			
10	Glass Operable Partition at Conference Room	n/a	n/a	n/a	\$	—	
10	VM #23 - Delete Glass Operable Partition	n/a	n/a	n/a	\$	—	
10	Division Final Cleaning	—	hr	\$	—	\$	Transfer to Division 1
10	Knox Box Installation	1	ea	\$	***	\$	RFI # 149
10	Pit Cover Hatches	5	ea	\$	***	\$	RFI # 157
10	Angle for Davit	n/a	n/a	n/a	\$	—	Below in Div 22
10	Scaffolding for Davit installation	n/a	n/a	n/a	\$	—	Below in Div 22
10C	Davit	n/a	n/a	n/a	\$	—	Below in Div 22
Total Specialties					\$	***	
11 EQUIPMENT							
11	Kitchen Equipment	n/a	n/a	n/a	\$	—	By Owner
11	VM #24 - Reduce Kitchen Equipment	n/a	n/a	n/a	\$	—	
	Vending Equipment	n/a	n/a	n/a	\$	—	
	Dock Leveler & Bumpers	n/a	n/a	n/a	\$	—	
	Trash Equipment	n/a	n/a	n/a	\$	—	
	AV Projectors/ Projection Screens	n/a	n/a	n/a	\$	—	
11	Photography - Professional	16	mo	\$	***	\$	***
Total Equipment					\$	***	
12 FURNISHINGS							
12	Entry Mat - Ground Level	300	sf	\$	***	\$	Re-work existing
12A	Casework	n/a	n/a	n/a	\$	***	12A Bid Analysis
12	Air flow monitors for Fume Hoods	3	ea	\$	***	\$	***
12A	2nd Floor Lab Casework - Countertops	n/a	n/a	n/a	\$	—	
12A	2nd Floor Lab Casework - wall cabinets	n/a	n/a	n/a	\$	—	
12A	2nd Floor Lab Casework - Shelves	n/a	n/a	n/a	\$	—	
12A	3rd Floor Lab Casework - Sink	n/a	n/a	n/a	\$	—	
12A	Chemical Fume Hoods	n/a	n/a	n/a	\$	—	
15A	Eye Wash Stations	n/a	n/a	n/a	\$	—	
12A	Peg Boards	n/a	n/a	n/a	\$	—	
12	Protection of Epoxy Tops	780	sf	\$	***	\$	***
12	Division Final Cleaning	—	hr	\$	—	\$	Transfer to Division 1
12	toe kick backer for cove	540	lf	\$	***	\$	***
12	vinyl base at casework	540	lf	\$	***	\$	***
Total Furnishings					\$	***	

DESCRIPTION		QTY	UNIT	UNIT COST	GMP TOTAL	Comments
13 SPECIAL CONSTRUCTION						
Total Special Construction					\$ —	
14 CONVEYING SYSTEMS						
14A	Elevator Award	n/a	n/a	n/a	\$ [***]	ARL #10
14A	PE #1 - Cab Allowance	n/a	n/a	n/a	\$ —	
14A	PE #2 - Elevator	n/a	n/a	n/a	\$ —	
14A	PE #2 - Cab Allowance	n/a	n/a	n/a	\$ —	
14A	FE #3 - Elevator	n/a	n/a	n/a	\$ —	
14A	FE #3 - Cab Allowance	n/a	n/a	n/a	\$ —	
14A	VM #62 - Use Holeless Hydro	n/a	n/a	n/a		
14	Protection of Cabs	—	sf	\$ —	\$ —	Transfer to Division 1
14	Composite Crew	—	wks	\$ —	\$ —	Transfer to Division 1
14	Overtime - No LD's	336	crew hrs	\$ [***]	\$ [***]	3 crews for 1 month
14	RFI #86 - Diamond Plate for Elevator Floor	1	ls	\$ [***]	\$ [***]	Hard Bid Alternate
14	Final Cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
Total Conveying System					\$ [***]	
15 MECHANICAL						
	PLUMBING PIPING				\$ [***]	
	GENERAL CONDITIONS	n/a	n/a	n/a		
15A	MECHANICAL & PLUMBING Award	n/a	n/a	n/a	\$ [***]	ARL #15
15A	Secondary Roof Drain Overflow	n/a	n/a	n/a		
15A	SANITARY PIPING	n/a	n/a	n/a		
15A	VENT PIPING	n/a	n/a	n/a		
15A	LAB/ACID WASTE PIPING	n/a	n/a	n/a		
15A	DOMESTIC WATER PIPING	n/a	n/a	n/a		
15A	VACUUM PIPING	n/a	n/a	n/a		
15A	AIR PIPING	n/a	n/a	n/a		
15A	NITROGEN PIPING	n/a	n/a	n/a		
15A	INSULATION	n/a	n/a	n/a		
15A	Piping Insulation	n/a	n/a	n/a		
15A	Plumbing Fixtures and Rough-In	n/a	n/a	n/a		
15A	Industrial Water - 4" Up and Capped @ Flrs	n/a	n/a	n/a		
15A	Irrigation on Terraces	n/a	n/a	n/a		
15A	Irrigation Supply Piping	n/a	n/a	n/a		
15A	Heat Tracing	n/a	n/a	n/a		
15A	MAKE-UP WATER PIPING	n/a	n/a	n/a		
15A	Temporary Plumbing (Consumption)	n/a	n/a	n/a		
15A	Trench Drains Mechanical Rooms	n/a	n/a	n/a		
15A	Trench Drain at Bottom of Ramp	n/a	n/a	n/a		
15A	Rework Existing Water	n/a	n/a	n/a		

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
	PLUMBING EQUIPMENT				\$ —	
15A	General equipment - pumps, heaters	n/a	n/a	n/a		
15	Evacuated Tube Assemblies	n/a	n/a	n/a	\$ —	Not included in GMP
15	VM #29A Reduction In Solar Hot Water System	n/a	n/a	n/a		
	Lab waste neutralization skid	n/a	n/a	n/a		
15A	Domestic Water Booster Pump	n/a	n/a	n/a		
15A	Gas Piping	n/a	n/a	n/a		
15A	VM #28 Delete Rain Water Storage System	n/a	n/a	n/a		
15A	Rain Water Storage Tank and Piping	n/a	n/a	n/a		
	HVAC PIPING				\$ —	
	HEATING WATER PIPING, VALVES, CONN.					
15A	HWP - 4" SCH 40 CS	n/a	n/a	n/a		
15A	HWRH - 3/4"	n/a	n/a	n/a		
15A	CHILLED WATER PIPING, VALVES, CONN.	n/a	n/a	n/a		
15A	CHWP - 8" SCH 40 CS	n/a	n/a	n/a		
15A	Chiller Vent - 4" CI	n/a	n/a	n/a		
15A	CONDENSER WATER PIPING 10"	n/a	n/a	n/a		
15A	CONDENSATE DRAIN - 4" CI	n/a	n/a	n/a		
15A	HVAC PIPING DISTRIBUTION	n/a	n/a	n/a		
15A	Steam Supply - 8" SCH 40 CS	n/a	n/a	n/a		
15A	Steam Condensate - 4" SCH 40 CS	n/a	n/a	n/a		
15A	Refrigerant Piping for CRAC's	n/a	n/a	n/a		
15A	HVAC Piping Insulation	n/a	n/a	n/a		
15	Firewatch	n/a	n/a	n/a		
	HVAC AIR DISTRIBUTION				\$ [***]	
15A	Ductwork - Galvanized	n/a	n/a	n/a		
15A	2nd Floor Lab ductwork - galvanized	n/a	n/a	n/a		
15A	2nd Floor Lab disposable module HEPAs	n/a	n/a	n/a		
15A	2nd Floor Lab Supply Air-flow Devices - VAV	n/a	n/a	n/a		
15A	2nd Floor Lab exhaust air-flow devices	n/a	n/a	n/a		
15A	2nd Floor Lab fume hood exhaust air-flow device	n/a	n/a	n/a		
15A	Radial Ductwork Premium	n/a	n/a	n/a		
15A	Ductwork - Aluminum	n/a	n/a	n/a		
15A	Boiler Flue Piping	n/a	n/a	n/a		
15A	Grilles, Registers, Diffusers	n/a	n/a	n/a		
	15A COWR Unbought	n/a	n/a	n/a		
15	Stainless Steel Duct Systems - Allowance - RFI 128	1	allow	\$ [***]	\$ [***]	ALLOWANCE - Material type to be determined by IPS
15	Fire Dampers Not Shown	15	ea	\$ [***]	\$ [***]	NIC RFI # 74

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
15	Final Connections to Process Equipment	120	ea	\$ [***]	\$ [***]	
15	BAS / WON Door Interface	1	PT	\$ [***]	\$ [***]	
15	Additional Irrigation Supply Piping Not Shown	700	lf	\$ [***]	\$ [***]	
15	Additional Heat Tracing (Irrig / Ftn / Rooftop, etc.)	375	lf	\$ [***]	\$ [***]	
15	Additional Insulation (Irrig. / Ftn, etc.)	500	lf	\$ [***]	\$ [***]	
15	Carbon Steel Vents Not Sized or Finalized on Z3.02/3	1	ls	\$ [***]	\$ [***]	Hard Bid Not in 17A
15	Temporary Facilities in Cellar Level (Mechanical Only)	—	ea	\$ —	\$ —	Transfer to Division 1
15	Temporary Heat / A/C Connections - Nat. Gas, etc.	9	ea	\$ [***]	\$ [***]	
15	Temporary C.I. Or PVC for Garage Drain Piping	2	wk	\$ [***]	\$ [***]	
15	Final C.I. And Supports of Garage Drain Piping	2	wk	\$ [***]	\$ [***]	
15	WSSC Monitoring Port (at exterior grade)	1	ea	\$ [***]	\$ [***]	
15	Completion of Deaerator Piping System	150	lf	\$ [***]	\$ [***]	
15	Access Doors	50	ea	\$ [***]	\$ [***]	
15	Room Pressure Testing	200	hr	\$ [***]	\$ [***]	
15	HEPA Certification	240	hr	\$ [***]	\$ [***]	
15	Mechanical Commissioning - ALLOWANCE	1	allow	\$ [***]	\$ [***]	
15	BAS / PV Array Interface	1	PT	\$ [***]	\$ [***]	
15	Core Drilling Existing for new work (DCW, Nat. Gas, etc.)	5	ea	\$ [***]	\$ [***]	Dual wall cores/link seals
15	Duct Offsets at AES System Supports and FP Supports	150	ea	\$ [***]	\$ [***]	
15	Trapeze Hangers at AES System Supports and FP Supp.	50	ea	\$ [***]	\$ [***]	
15	Spoils Removal	10	cy	\$ [***]	\$ [***]	
15	Overtime - Off Hours Work / Shutdowns	365	crew hr	\$ [***]	\$ [***]	
15	Coordinated DWGS Total Integration For All Trades	180	ea	\$ [***]	\$ [***]	20 dwgs per sub X 9 subs X 4 hrs per page x \$[***]/hr
15	Crossover Fountain Piping Required	140	lf	\$ [***]	\$ [***]	
15	Plumbing Fixture Caulking	60	ea	\$ [***]	\$ [***]	
15	Slab Identification Prior to Coring	10	ea	\$ [***]	\$ [***]	
15	HVAC Equipment connections	25	ea	\$ [***]	\$ [***]	
15	Plumbing Equipment connections	15	ea	\$ [***]	\$ [***]	
15	RFI # 55 - Add Planter Drains / Piping	330	lf	\$ [***]	\$ [***]	
15	RFI # 57 - RHTP-2 Not Shown (HW Converter)	1	ea	\$ [***]	\$ [***]	
15	RFI # 66 - Appliance Changes, Piping, BFP/VB's	200	lf	\$ [***]	\$ [***]	4 additional appliance hookups - includes piping, valves, etc.
15	Ductwork equipment connections	10	ea	\$ [***]	\$ [***]	
15	RFI # 82 - Walkable Ceiling - Addtn'l Conduit for BAS	1,400	lf	\$ [***]	\$ [***]	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
15	Firewatch for Base Mechanical	—	wk	\$ —	\$ —	Transfer to Division 1
15	Firewatch for FF Mechanical	—	wk	\$ —	\$ —	Transfer to Division 1
15	Final Cleaning for Base Mechanical	—	hr	\$ —	\$ —	Transfer to Division 1
15	SCBA	1	ls	\$ [***]	\$ [***]	
15	Flagmen / Traffic Control for Base Mechanical	—	wk	\$ —	\$ —	Transfer to Division 1
15	Flagmen / Traffic Control for Equipment / FF	—	wk	\$ —	\$ —	Transfer to Division 1
15	Final Cleaning for FF Mechanical	—	hr	\$ —	\$ —	Transfer to Division 1
15	EF-224, EF-47A, EF-47B Not Scheduled	3	ea	\$ [***]	\$ [***]	
	15A - COWR					
15	RFI # 97 - Deaerators Spec. Completion	1	ls	\$ [***]	\$ [***]	
15	RFI # 98 - RGD's Spec. Completion	1	ls	\$ [***]	\$ [***]	
15	RFI # 99 - Breechings, Chimneys, Stacks Spec. Compl.	1	ls	\$ [***]	\$ [***]	
15	RFI # 100 - Chiller Spec. Completion	1	ls	\$ [***]	\$ [***]	
15	RFI # 152.2 - Plumbing Fixtures	1	ls	\$ [***]	\$ [***]	
15	RFI # 205 - Urinal Upgrade	4	ea	\$ [***]	\$ [***]	
15	HEPA Replacements for Entire Job	75	ea	\$ [***]	\$ [***]	
15	M/E Trailer Set-up	1	ls	\$ [***]	\$ [***]	(2 carp * 4days * \$[***]/hr + 2 days removal + Carp truck)
15	M/E Trailer Set-Up Material	1	ls	\$ [***]	\$ [***]	Steps/Platforms to trailers
15	Evacuated Tubes Alternate	1	ls	\$ [***]	\$ [***]	ARL # 15 - Accepted ALT
15A	Duct Insulation	n/a	n/a	n/a		
	HVAC EQUIPMENT				\$ —	
15A	Air Handling Units	n/a	n/a	n/a		
15A	Cooling Towers	n/a	n/a	n/a		
15A	Exhaust Fans	n/a	n/a	n/a		
15A	Chillers	n/a	n/a	n/a		
15	SCBA	n/a	n/a	n/a		
15A	Pumps (3 @ 20 HP, 15, 6 ea.)	n/a	n/a	n/a		
15A	Air Conditioning Units	n/a	n/a	n/a		
15A	Boilers	n/a	n/a	n/a		
15A	Condensate Pump - Little Giant	n/a	n/a	n/a		
15A	Computer Room Air Conditioners	n/a	n/a	n/a		
15A	Air Terminal Units	n/a	n/a	n/a		
15A	SSF-1	n/a	n/a	n/a		
15A	VFD's	n/a	n/a	n/a		
15A	Motor Starters	n/a	n/a	n/a		
15A	Disconnects	n/a	n/a	n/a		
15A	Genset Piping / Mufflers	n/a	n/a	n/a		
15A	Supplemental AC Units	n/a	n/a	n/a		
15A	Stairwell Unit Heating Assemblies	n/a	n/a	n/a		
15A	Air Door for Loading Area	n/a	n/a	n/a		
15A	Oil Minder System	n/a	n/a	n/a		
15A	HX	n/a	n/a	n/a		

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
15A	Electrical Unit Heaters for First Floor (Unocc.)	n/a	n/a	n/a		
15A	Unit Heaters	n/a	n/a	n/a		
15A	SAD's / sound-lining,	n/a	n/a	n/a		
15	Flagmen & Traffic Control	n/a	n/a	n/a		

15A	Stair Pressurization System - allow	n/a	n/a	n/a				
	CONTROLS				\$	—		
15A	Building Management System and Controls	n/a	n/a	n/a				
15A	Conduit	n/a	n/a	n/a				
15A	Point of Use UPS	n/a	n/a	n/a				
	TAB				\$	—		
15A	TESTING AND BALANCING	n/a	n/a	n/a				
	Fire Protection Piping				\$	***		
15B	Sprinkler Award	n/a	n/a	n/a	\$	***	ARL #20R1	
15B	Ordinary Hazard - Lab, FF, and M/E/P Spaces	n/a	n/a	n/a				
15B	Dry Pipe - Garage (freeze areas)	n/a	n/a	n/a				
15	Heat Tracing of Sprinkler Piping (Conn. By 16A)	100	lf	\$	***	\$	***	15B - Bid Analysis
15	Temporary Facilities in Cellar Level (Fire Prot. Only)	—	ls	\$	—	\$	—	15B - Bid Analysis - Transfer to Division 1
15	FM-200 Systems Interconnecting Conduit	4	ea	\$	***	\$	***	15B - Bid Analysis
15	Fire Marshal Time (Life Safety / Close-ins / Hydros)	200	hr	\$	***	\$	***	15B - Bid Analysis
15	Support steel above 3rd floor ceiling protection	7,500	lf	\$	***	\$	***	
15	Trapeze Hangers / Support Steel at Fourth Floor Opening	50	ea	\$	***	\$	***	15B - Bid Analysis
15	Access Doors	15	ea	\$	***	\$	***	15B - Bid Analysis
15	Wet Pipe Systems (under coverage piping, minor relocations, etc.)	450	lf	\$	***	\$	***	15B - Bid Analysis
15	Wet Pipe Systems (3rd floor above ceiling protection & aesthetic changes to PEG layout, etc.)	4,660	lf	\$	***	\$	***	
15	Dry Pipe Systems (under beam coverage - additional feeds per RFI)	1,375	lf	\$	***	\$	***	
15	Core Drilling Existing for new work (Water Supply)	2	ea	\$	***	\$	***	15B - Bid Analysis
15	Overtime - Off Hours Work / Shutdowns	300	hr	\$	***	\$	***	15B - Bid Analysis
15	Slab Identification Prior to Coring	3	ea	\$	***	\$	***	15B - Bid Analysis
15	Final Cleaning for Fire Protection	—	hr	\$	—	\$	—	15B - Bid Analysis - Transfer to Division 1
15	Montgomery County Burn Permit	2	yr	\$	***	\$	***	15B - Bid Analysis

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
15	Flagmen / Traffic Control for Fire Protection	—	wk	\$ —	\$ —	15B - Bid Analysis -
15	Material Escalation	—	%	\$ —	\$ —	Transfer to Division 1
15B	FM-200/Pre-Action System	n/a	n/a	n/a		not required
Total Mechanical					\$ [***]	
16 ELECTRICAL						
Lighting & Branch					\$ [***]	
	Interior lighting raceways and wiring					
16A	ELECTRICAL	n/a	n/a	n/a	\$ [***]	ARL #16
16A	1.5" Conduit	n/a	n/a	n/a		
16A	2" Conduit	n/a	n/a	n/a		
16A	MC Cable	n/a	n/a	n/a		
16A	Junction boxes	n/a	n/a	n/a		
16A	Install & Wire Interior Fixtures - 600V #10, #12	n/a	n/a	n/a		
16A	Install Exterior Light Fixture	n/a	n/a	n/a		
16A	F&I Light Pole Bases	n/a	n/a	n/a		
16A	F&I Exterior underground conduit & Wire	n/a	n/a	n/a		
16A	Light Fixtures - Furnish only	n/a	n/a	n/a		
16A	Lighting Control System	n/a	n/a	n/a		
Wiring Devices & Branch					\$ —	
	Convenience Outlets & Branch Wiring					
16A	1" Conduit	n/a	n/a	n/a		
16A	1.5" Conduit	n/a	n/a	n/a		
16A	2" Conduit	n/a	n/a	n/a		
16A	MC Cable	n/a	n/a	n/a		
16A	Conduit Premium	n/a	n/a	n/a		
16A	Junction boxes	n/a	n/a	n/a		
16A	Device wiring - 600V #10, #12	n/a	n/a	n/a		
16A	Devices	n/a	n/a	n/a		
Tele/Data Communications					\$ —	16G is below
16A	Vertical & Horizontal Cabling	n/a	n/a	n/a		
16A	Servers & Telephone Equipment	n/a	n/a	n/a		
16A	Empty Raceways & String	n/a	n/a	n/a		
16A	Cable tray / Basket	n/a	n/a	n/a		
16A	1" Conduit	n/a	n/a	n/a		
16A	2" Conduit	n/a	n/a	n/a		
Electrical Unbought Scope					\$ [***]	
16A	Vault Transformers	n/a	n/a	n/a		
16A	Incoming Primary Cabling	n/a	n/a	n/a		
16A	Secondary Cabling	n/a	n/a	n/a		
16A	Utility Company Back charges	n/a	n/a	n/a		
16A	4000amp, 460v Main Switchboard	n/a	n/a	n/a		

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
16A	Riser Equipment & Feeders	n/a	n/a	n/a		
16A	Panel boards	n/a	n/a	n/a		
16A	100A	n/a	n/a	n/a		
16A	200A	n/a	n/a	n/a		
16A	225A	n/a	n/a	n/a		
16A	400A	n/a	n/a	n/a		
16A	600A	n/a	n/a	n/a		
16A	800A	n/a	n/a	n/a		
16A	1600A	n/a	n/a	n/a		
16A	Transformer 30KVA	n/a	n/a	n/a		
16A	Transformer 45KVA	n/a	n/a	n/a		
16A	Transformer 75KVA	n/a	n/a	n/a		
16A	4"-6" Conduit	n/a	n/a	n/a		
16A	2"-3" Conduit	n/a	n/a	n/a		
16A	2" Conduit (Spare)	n/a	n/a	n/a		
16A	2.5" Conduit (Spare)	n/a	n/a	n/a		
16A	4" Conduit (Spare)	n/a	n/a	n/a		
16A	A/V and LAN Rough-in	n/a	n/a	n/a		
16A	Temporary Light & Power (By Owner)	n/a	n/a	n/a		
16A	- COWR - Unbought					
16	Security Distribution Conduit Required	4,300	lf	\$ [***]	\$ [***]	ARL #16
16	Data / Telecom Distribution Conduit Required	170	runs	\$ [***]	\$ [***]	
16	AV / CCTV Distribution Conduit Required	2,000	lf	\$ [***]	\$ [***]	
16	F/A Interconnecting Conduit Required	300	lf	\$ [***]	\$ [***]	
16	Irrigation Distribution Conduit Required	700	lf	\$ [***]	\$ [***]	
16	Sump Heater CKTS	3	ea	\$ [***]	\$ [***]	
16	Shades CKTS	22	ea	\$ [***]	\$ [***]	
16	Shades Low Voltage Wiring	22	ea	\$ [***]	\$ [***]	
16	Maglock CKTS (Not on Siemens Low Voltage Power)	53	ea	\$ [***]	\$ [***]	
16	Fire Dampers Not Shown (Wiring)	15	ea	\$ [***]	\$ [***]	
16	Final Connections to Process Equipment	12	ea	\$ [***]	\$ [***]	
16	WON Door Interconnecting Conduit	100	lf	\$ [***]	\$ [***]	
16	Heat Tracing CKTS (Irrig / Ftn / Rooftop, etc.)	3	ea	\$ [***]	\$ [***]	
16	Temporary Facilities in Cellar Level Electrical Only)	—	ls	\$ —	\$ —	Transfer to Division 1
16	Temporary Heat / A/C Connections - Electric, Brkrs, Disc	9	ea	\$ [***]	\$ [***]	
16	Conduit for Oil Minder Systems	200	lf	\$ [***]	\$ [***]	
16	Access Doors	30	ea	\$ [***]	\$ [***]	
16	Receptacle Conflicts	50	ea	\$ [***]	\$ [***]	
16	Electrical Equipment connections	25	ea	\$ [***]	\$ [***]	
16	CIP Feed Not Scheduled (Feed, Breaker, Conduit)	1	ea	\$ [***]	\$ [***]	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
16	Disconnects (Furnish and Install Loose)	5	ea	\$ [***]	\$ [***]	
16	Interconnecting Sectional AHU (Power and Lighting)	12	ea	\$ [***]	\$ [***]	
16	Power for Remote BAS Panels	8	ea	\$ [***]	\$ [***]	
16	Power for Remote Security Panels	7	ea	\$ [***]	\$ [***]	
16	Power for Remote XFMR Cans (BAS Controls)	4	ea	\$ [***]	\$ [***]	
16	Blank-Off Remote Annunciator (Sheetmetal Cap)	1	ea	\$ [***]	\$ [***]	
16	Electrical Commissioning - ALLOWANCE	1	allow	\$ [***]	\$ [***]	
16	Core Drilling Existing for new work (F/A, Tele/Data, etc.)	3	ea	\$ [***]	\$ [***]	
16	Spoils Removal	10	cy	\$ [***]	\$ [***]	
16	Overtime - Off Hours Work / Shutdowns	530	hr	\$ [***]	\$ [***]	
16	Crossover Fountain Wiring Required	100	lf	\$ [***]	\$ [***]	
16	Slab Identification Prior to Coring	5	ea	\$ [***]	\$ [***]	
16	Temporary Power for Specialty Equipment (Shot Blast)	32	hr	\$ [***]	\$ [***]	
16	Connect to Schindler Elevator Security (F/A)	1	ls	\$ [***]	\$ [***]	2 pts at \$[***]/ea
16	RFI # 65 - Isolator JB and Conduit Homerun (no power)	2	runs	\$ [***]	\$ [***]	
16	RFI # 65 - Electric Feeds not shown	1,120	lf	\$ [***]	\$ [***]	
16	RFI # 73 - LY0190A's Location	60	lf	\$ [***]	\$ [***]	
16	RFI # 85 - Power for Revised Door in SK	1	ckt	\$ [***]	\$ [***]	
16	Final Cleaning for Base Electrical	—	hr	\$ —	\$ —	Transfer to Division 1
16	Flagmen / Traffic Control for Base Electrical	—	wk	\$ —	\$ —	Transfer to Division 1
16	Final Cleaning for FF Electrical	—	hr	\$ —	\$ —	Transfer to Division 1
16	EF-224, EF-47A, EF-47B Not Scheduled	3	ea	\$ [***]	\$ [***]	
16A - COWR						
16	Conduit Scheduled for ENT - Run in EMT	12,000	lf	\$ [***]	\$ [***]	
16	Loose Disconnects for VAV's	37	ea	\$ [***]	\$ [***]	
16	Control and FA Connection for H/T	2	pts	\$ [***]	\$ [***]	RFI # 132
16	RFI # 210 - Elec. Feeds Rev. # 3	1	ls	\$ [***]	\$ [***]	
16	Additional PEPCO Lighting	2	ea	\$ [***]	\$ [***]	Addtn'l Pole and Bases (we have 9 total)
16	Trough Extension Due to PEPCO C/T	6	lf	\$ [***]	\$ [***]	
16A	EPO Button in Phase 1	n/a	n/a	n/a		
16A	Measurement and Verification System	n/a	n/a	n/a		
16A	VM#1 - Delete Electrical Measurement Verification	n/a	n/a	n/a		
16A	Sub-metering of future Tenant space	n/a	n/a	n/a		

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
	Emergency Generator & Distribution				\$ —	
	275kva Natural Gas Generator	n/a	n/a	n/a		
16A	880 kW Natural Gas Generation	n/a	n/a	n/a		
16A	LS Transfer Switch (200amp)	n/a	n/a	n/a		
	ATS-1					
16A	LR Transfer Switch (400amp)	n/a	n/a	n/a		
	ATS-2					
16A	Automatic Transfer Switches	n/a	n/a	n/a		
16A	ATS 4 & 5 (200 Amp)	n/a	n/a	n/a		
16A	ATS-3 (800 Amp)	n/a	n/a	n/a		
16A	UPS 60 KVA	n/a	n/a	n/a		
	Lightning Protection & Grounding				\$ —	
16A	Building Lightning Protection System	n/a	n/a	n/a		
16A	Electric Service Grounding System	n/a	n/a	n/a		
16A	Telephone Riser Grounding System	n/a	n/a	n/a		
16A	TVSS Protection System	n/a	n/a	n/a		
	Fire Alarm System				\$ —	
16A	Modification / Expand Phase 1 FACP	n/a	n/a	n/a		
16A	Smoke Control Panel	n/a	n/a	n/a		
16A	Addressable Voice Evacuation System	n/a	n/a	n/a		
16A	New Annunciator Panel	n/a	n/a	n/a		
16A	Fire Alarm System Conduit	n/a	n/a	n/a		
	Mechanical Equipment Wiring				\$ —	
16A	250 Ton Chiller Connection	n/a	n/a	n/a		
16A	20hp CHW Pump Connection	n/a	n/a	n/a		
16A	275-Ton Cooling Tower Cell Connection	n/a	n/a	n/a		
16A	Cooling Tower Sump Heater Connection	n/a	n/a	n/a		
16A	Condenser Water Heat Tracing Connection	n/a	n/a	n/a		
16A	15hp CW Pump Connection	n/a	n/a	n/a		
16A	Heat Recovery Wheel Motor Connection	n/a	n/a	n/a		
16A	Air Handler Unit Connection	n/a	n/a	n/a		
16A	Fan Powered VAV Box Connection	n/a	n/a	n/a		
16A	VAV Box Electric Reheat Coil Connection	n/a	n/a	n/a		
16A	General and MEP Exhaust Fan Connections	n/a	n/a	n/a		
16A	Misc. Unit Heaters	n/a	n/a	n/a		
16A	Steam & Hot Water Boiler Connection	n/a	n/a	n/a		
16A	Elevator Sump Pump Connection	n/a	n/a	n/a		

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
16A	Elevator Cab Light Connection	n/a	n/a	n/a		
16A	Elevator Connection	n/a	n/a	n/a		
16A	BAS Control Panel / Damper Connections	n/a	n/a	n/a		
16A	Irrigation Pump Connection	n/a	n/a	n/a		

16A	Air Compressor Connection	n/a	n/a		n/a			
16A	Vacuum Pump Connection	n/a	n/a		n/a			
16A	VFD Installation	n/a	n/a		n/a			
16A	Starter Installation/ Disconnect	n/a	n/a		n/a			
16A	5 HP HW Reheat Pump Connection	n/a	n/a		n/a			
16A	ACU/CRAC Unit Connections	n/a	n/a		n/a			
16A	Sidestream Filter Connection	n/a	n/a		n/a			
16A	Effluent pH System Connection	n/a	n/a		n/a			
16A	Sump Power Connections	n/a	n/a		n/a			
16A	Domestic HW Pump Booster Connection	n/a	n/a		n/a			
16A	Domestic Water Pump Booster Connection	n/a	n/a		n/a			
16A	Motorized Roll Up Door Connection	n/a	n/a		n/a			
16A	Motorized Lift Connection	n/a	n/a		n/a			
16A	Triplex Motor Power Connection	n/a	n/a		n/a			
16A	VM #56 - Reduce Quantity of Disconnects	n/a	n/a		n/a			
16A	FRAC HP Re-Circ Pump Power Connection	n/a	n/a		n/a			
16A	Duct Smoke Detectors Connection	n/a	n/a		n/a			
Temporary Power					\$		***	
16A	Temporary Power & Light	n/a	n/a		n/a			
16B	Power to Tower Crane - Connect/Disconnect	1	ls	\$	***	\$	***	Mona
16C	Temporary Power from Phase 1 to Shed	1	ls	\$	***	\$	***	F.B.H
16C	Submetering of Phase 1	1	ls	\$	***	\$	***	PCO #04
16	Extension of Trailer Tele/Data Wiring	1	ls	\$	***	\$	***	Additional Stations
Total Electrical					\$		***	
16G	Photovoltaic Array	1	ls	\$	***	\$	***	Includes VM #27A. Vermont Solar is not bondable and does not meet insurance req'ts.
16E	Security Controls	1	ls	\$	***	\$	***	
16F	Data / Telecom	1	ls	\$	***	\$	***	

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
17	Phase 1 Modifications for Temporary Access					
	Div 9 - Phase 1 Modifications				\$ [***]	
08B	Curtain Wall Mods				\$ [***]	Service Glass
08B	Concrete Walkway				\$ [***]	AMA - Concrete
17	Remaining Temp Mods in ARL #9				\$ [***]	
Div 16					\$ —	
16	Fire Alarm Panel	1	ls	\$ [***]	Incl Above	Included as Shown
16	Fire Alarm Annunciator Panel	1	ls	\$ [***]	Incl Above	Included as Shown
16	Smoke Control Panel	1	ls	\$ [***]	Incl Above	Included as Shown
16	Modify Phase 1 FA components	1	ls	\$ [***]	Incl Above	Included as Shown
16	Duct Smoke Detectors				\$ —	None Shown
	Total Phase 1 Modifications				\$ [***]	
22 Allowances/Addenda						
22	Bio-Wall Demo/Construction	1	allow	\$ [***]	\$ [***]	Demo, Power, HVAC, etc.
22	Light Fixtures - Furnish only	—			\$ —	Included in 16A
16G	Photovoltaic Array - Furnish and Install	—			\$ —	Included Above
22	Voice and Data - Cabling and Terminations	—			\$ —	Included Above in 16F
22	AV and TV systems - wiring, equipment, devices and screens	1	allow	\$ [***]	\$ [***]	
	Security system - wiring and devices	—			\$ —	Included Above in 16E
22	Signage - Interior and Exterior - code req'd included	1	allow	\$ [***]	\$ [***]	Also Includes RFI #150, 169
22	VM #36 - Owner to Furnish Seat Elements	—			\$ —	
22	Embeds / Bases for Site Art.	1	allow	\$ [***]	\$ [***]	
22	Exterior site - Art Elements (Electronic and Physical)	—			\$ —	By Owner: UL Certification, Setting of Art, Purchase
22	Phase 1 Entrance Vestibule Modifications	1	allow	\$ [***]	\$ [***]	S.S. Panels, Cabling Rework, Ductwork, rainleader work, Ceiling rework, etc.
22	Addendum #12 Issuance to Awarded Contracts	1	allow	\$ [***]	\$ [***]	PCO #13 - Alt B for stair towers is included
22	Addendum #13 Issuance to Awarded Contracts	1	allow	\$ [***]	\$ [***]	PCO #15
22	Addendum #14 - Mock-up	1	allow	\$ [***]	\$ [***]	PCO #16
22	Addendum #15	1	allow	\$ [***]	\$ [***]	
22	WSSC - Modification to Drawings	1	allow	\$ [***]	\$ [***]	
22	Signal Amplification System	1	allow	\$ [***]	\$ [***]	RFI # 88
22	Signal Amplification System Patching of Drywall	1	allow	\$ [***]	\$ [***]	
22	Addendum #16	1	allow	\$ [***]	\$ [***]	
22	RFI#65 - Electrical Feeds to be determined	—		\$ —	\$ —	Included in Division 16
22	ASK-001 DPS changes from IPS	—		\$ —	\$ —	Included with Addendum 16

	DESCRIPTION	QTY	UNIT	UNIT COST	GMP TOTAL	Comments
22	Fire Watch for Phase 1 FA Modifications	—		\$ —	\$ —	Included in Division 1
22	MD State sales tax increase	1	allow	\$ [***]	\$ [***]	
22	RFI 93: Change in Clg tile grid	—		\$ —	\$ —	Included in award
22	Angle for Davit	1	allow	\$ [***]	\$ [***]	
22	Scaffolding for Davit installation	1	allow	\$ [***]	\$ [***]	
22	Davits	1	allow	\$ [***]	\$ [***]	
22	Sound Testing - STC Ratings	1	allow	\$ [***]	\$ [***]	
22	Insurance Related Deductibles	1	allow	\$ [***]	\$ [***]	
22	Fire Rated wall conflicts	—		\$ —	\$ —	Included in Division 9
22	Independent Testing (Stone, Soils, Sealants, Landscaping, etc...)	1	allow	\$ [***]	\$ [***]	
22	Ceiling conflicts	—		\$ —	\$ —	Included in Division 9
22	RFI # 238 thru end	—		\$ —	\$ —	Excluded, No responses included post 5/16/08
22	Process equipment start up, install, assembly, connections, delivery, rigging, etc...				\$ —	Separate Allowance - See Exhibit D and Summary
	Total Allowances/Addenda				\$ [***]	

United Therapeutics Phases 2A
10/14/2008 revised GMP
Fill Finish Detail

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total	COMMENTS
1 GENERAL REQUIREMENTS						
2 SITEWORK						
3 CONCRETE						
03A	equipment pads	—	sf	\$	—	
3	locker bases	40	sf	\$	***	
3	dyke exterior of water room	170	lf	\$	***	
3	dyke interior of water room	130	lf	\$	***	
3	dyke exterior of mechanical floors	450	lf	\$	***	
3	dyke interior of mechanical floors	330	lf	\$	***	
3	inertia bases - pumps/fans	5	cy	\$	***	
3	misc grouting	160	hr	\$	***	
3	form pit for pit scale					
3	site final cleaning	—	hr	\$	—	Transfer to Division 1
Total Concrete					\$	***
4 MASONRY						
15A	sleeves for shaft penetrations	n/a	n/a	n/a	\$	—
Total Masonry					\$	—
5 STEEL & METALS						
	elevator pit ladders	n/a	n/a	n/a		
05A	stairs	n/a	n/a	n/a	\$	—
05A	handrail, stairs and landings/platforms	n/a	n/a	n/a	\$	—
05A	handrail, edge of opening to walkable ceiling, edge of raised mech area	n/a	n/a	n/a	\$	—
05B	rail inside glass exterior wall	n/a	n/a	n/a	\$	—
05A	steel grating	n/a	n/a	n/a	\$	—
05A	minor access platform at WFI tank - framing	n/a	n/a	n/a	\$	—
05A	ships ladder	n/a	n/a	n/a	\$	—
5	misc steel at slab penetrations	n/a	n/a	n/a		Carried in BB Div 5
5	safety floor openings / shafts	n/a	n/a	n/a	\$	—
05A	pipe bollards	n/a	n/a	n/a	\$	—
5	misc steel for equipment lifting, hoists	n/a	n/a	n/a	\$	—
17	heat exchanger supports	n/a	n/a	n/a	\$	—
13	Add'l supports for items mounted to MPS Panels	9	ea	\$	***	In Div 17
15A	steel supports for LAFs	n/a	n/a	n/a	\$	—
5	embeds for pit scale	n/a	n/a	n/a	\$	—
5	site final cleaning	—	hr	\$	—	Transfer to Division 1
5	fire watch	—	hr	\$	—	Transfer to Division 1
5	Small tank platform at WFI tank	1	ls	\$	***	
5	Small tank platform at USB tank	1	ls	\$	***	
5	material fence	80	lf	\$	***	
Total Steel & Metals					\$	***
6 WOOD & PLASTICS						
Total Wood & Plastics						
7 THERMAL & MOISTURE PROTECTION						
7	building skin openings for equipment installation	2	ea	\$	***	
7	interior caulking	26,580	sf	\$	***	
7	fire stopping / caulking	26,580	sf	\$	***	
7	site final cleaning	—	hr	\$	—	Transfer to Division 1

Total Thermal & Moisture Protection				\$	***]
8 DOORS & WINDOWS					
06A	metal doors, frames, hardware, single leaf	n/a	ea	n/a	\$ —
06A	metal doors, frames, hardware, double leaf	n/a	ea	n/a	\$ —
13A	panel system door, single leaf	n/a	ea	n/a	\$ —
13A	panel system door, double leaf	n/a	ea	n/a	\$ —
13	interlocks / maglocks	n/a	ea	n/a	\$ —
13	door position switches on panel system door leaves	n/a	ea	n/a	\$ —
16E	card key / security	n/a	ea	n/a	\$ —
13A	panel system window	n/a	ea	n/a	\$ —

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total	COMMENTS
6	site final cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
Total Doors & Windows					\$ —	
9 FINISHES						
	Walls				\$ [***]	
13A	panel system walls	n/a	ea	n/a	\$ —	
13A	misc openings in panels (or premium for airwall)	n/a	ea	n/a		
13	panel system access doors for condensate coolers	n/a	ea	n/a		
09A	drywall partitions	n/a	ea	n/a		
09A	drywall one side	n/a	ea	n/a		
09A	drywall one side - perimeter mech areas	n/a	ea	n/a		
09A	skim coat	n/a	ea	n/a		
9	blocking/backing	200	lf	\$ [***]	\$ [***]	per foot of wall - three lines
9	site final cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
9	protection of finishes	0	n/a	\$ —	\$ —	Transfer to Division 1
	Ceilings				\$ [***]	
13A	panel system ceilings	1	ls	\$ [***]	\$ [***]	13A Bid Analysis
	13A - COWR Contingency					
13	additional recessed utility panels openings	5	ea	\$ [***]	\$ [***]	
13	Access Doors	20	ea	\$ [***]	\$ [***]	
13	panel-built pipe chases to enclose exposed pipe	6	ea	\$ [***]	\$ [***]	
13	permanent fall protection at ceiling perimeter	150	lf	\$ [***]	\$ [***]	
13	13A - COWR Unbought Scope					
13	Revisions per ASK-001 3/5/2008				\$ [***]	
13	Low wall return at wrapping area 326	160	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around terminal sterilizer	100	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around component washer	160	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around component sterilizer	50	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around vial washer & tunnel	100	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around lyo	20	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around BFS	100	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around face of cold room 318	50	sf	\$ [***]	\$ [***]	
13	Bulkhead/wall panels around face of cold room 349	50	sf	\$ [***]	\$ [***]	
13	face trim for LAFs to mate with ceiling panels	6	ea	\$ [***]	\$ [***]	
13	LAF softwalls	90	lf	\$ [***]	\$ [***]	
13	Additional power/conduit for interlocks	10	ea	\$ [***]	\$ [***]	
13	HEPA housing mounting brackets	71	ea	\$ [***]	\$ [***]	
13	SS Corner guards (low cost, not custom)	48	ea	\$ [***]	\$ [***]	
13	Additional laminate for walls shown painted	600	sf	\$ [***]	\$ [***]	
13	GWB wall prep/priming for plastic	5,880	sf	\$ [***]	\$ [***]	
13	Curb/support for floor-standing control panels standing in MPS wall chase	100	sf	\$ [***]	\$ [***]	
13	Door position switches	68	leaves	\$ [***]	\$ [***]	
13	Cleanroom caulking of details by mechanical, electrical, sprinkler...	160	hrs	\$ [***]	\$ [***]	
13	Fall protection for leading edge during equipment installation/partial ceiling period	100	lf	\$ [***]	\$ [***]	

13	Overtime - Off Hours Work / Equipment Coordination 5x10x8x30 (premium only)	400	hrs	\$	***]	\$	***]
13	Final Cleaning	—	hrs	\$	—	\$	— Transfer to Division 1
13	Flagmen / Traffic Control	—	hrs	\$	—	\$	— Transfer to Division 1
13	Protection of Walls/Doors	—	sf	\$	—	\$	—
13A	HEPA/light openings in panels	n/a	ea		n/a		
13A	isolator openings in ceiling panels	n/a	ea		n/a		
13A	LAF openings in ceiling panels	n/a	ea		n/a		
15B	panel ceiling sprinkler head assembly	n/a	ea		n/a		
	cleanroom grid	n/a	ea		n/a		
	drywall ceiling	n/a	ea		n/a		
09A	ACT / grid ceiling	n/a	ea		n/a		
	Paint					\$	—
09G	paint “ceiling” / underside of structure	n/a	ea		n/a		
09G	paint structure columns, beams, etc	n/a	ea		n/a		
09G	paint stairs, railings, platforms	n/a	ea		n/a		
09G	epoxy paint (water based) - ceilings	n/a	ea		n/a		
09G	epoxy paint (water based) - walls	n/a	ea		n/a		

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total	COMMENTS
09G	block filler	n/a	ea	n/a		
09G	paint - block walls	n/a	ea	n/a		
09G	VM #8 - Cleanable Surface & Stairs - Block filler & Laytex Paint	n/a	ea	n/a		
09G	paint - perimeter mech areas	n/a	ea	n/a		
09G	paint exposed piping, mech, sprinkler	n/a	ea	n/a		
	Wall covering				\$ —	
13A	plastic sheet face for drywall - mtl/comp staging	n/a	ea	n/a		
09G	primer for above	n/a	ea	n/a		
	Flooring				\$ —	
09C	floor preparation	n/a	ea	n/a		
09C	epoxy flooring	n/a	ea	n/a		
9	temporary floor protection	—	sf	\$ —	\$ —	
09D	VCT	n/a	ea	n/a		
09D	vinyl base	n/a	ea	n/a		
09G	concrete sealer/paint	n/a	ea	n/a		
	Total Finishes				\$ [***]	
10 SPECIALTIES						
06A	lockers, stainless steel	n/a	ea	n/a		
06A	fire extinguishers, ss cabinet	n/a	ea	n/a		
06A	changing room mirrors	n/a	ea	n/a		
10	interior signage	59	ea	\$ [***]	\$ [***]	
05B	gowning benches	n/a	ea	n/a	\$ —	See 05B COWR base building
10	SS supply cabinet	1	ea	\$ [***]	\$ [***]	
10	SS tables	2	ea	\$ [***]	\$ [***]	
05B	stainless sani rail	n/a	ea	n/a		
10	ss corner guards	4	ea	\$ [***]	\$ [***]	
10	Changing room stalls	2	ea	\$ [***]	\$ [***]	
10	site final cleaning	—	hr	\$ —	\$ —	Transfer to Division 1
	Total Specialties				\$ [***]	
11 EQUIPMENT						
15A	LAF 1	n/a	ea	n/a	\$ —	All Equipment in FFEA - See Exhibit D
15A	LAF 2	n/a	ea	n/a	\$ —	All Equipment in FFEA - See Exhibit D
15A	LAF 3	n/a	ea	n/a	\$ —	All Equipment in FFEA - See Exhibit D
15A	LAF 4 not yet shown	n/a	ea	n/a	\$ —	All Equipment in FFEA - See Exhibit D
11	process equipment	n/a	n/a	n/a		All Equipment in FFEA - See Exhibit D
11	process equipment delivery and rigging	n/a	n/a	n/a	\$ —	All Equipment in FFEA - See Exhibit D
11	Additional Cooling/ Heating for equipment	n/a	n/a	n/a		All Equipment in FFEA - See Exhibit D
11	Landing Platform for Equipment	n/a	n/a	n/a	\$ —	All Equipment in FFEA - See Exhibit D
11	Process Equipment Set by 17B	n/a	n/a	n/a	\$ —	All Equipment in FFEA - See Exhibit D
11	Security Services	8	months	\$ [***]	\$ [***]	Assumed 8 Mos, at non occupied times, unarmed
11	process equipment installation, assembly, connections	n/a	n/a	n/a		All Equipment in FFEA - See Exhibit D
15	Mechanical Connections to Process Equipment	n/a	n/a	n/a	\$ —	All Equipment in FFEA - See Exhibit D
15	Duct Connections to Isolators	n/a	n/a	n/a	\$ —	All Equipment in FFEA - See Exhibit D
17	Process Piping Connections to	n/a	n/a	n/a	\$ —	All Equipment in FFEA -

	Equipment						See Exhibit D	
11	Installation & assembly of WT Procured Equipment Unassigned	n/a	n/a	n/a	\$	—	All Equipment in FFEA - See Exhibit D	
17	Installation & assembly of WT Procured Equipment in div 17	n/a	n/a	n/a			All Equipment in FFEA - See Exhibit D	
17C	process equipment controls	1	ls	\$	***	\$	***	CP 343 only (WFI & USP controls & instruments)
11	process equipment startup for UT Supplied Equipment	n/a	n/a	n/a				All Equipment in FFEA - See Exhibit D

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total		COMMENTS	
15	Process Equipment Start-up for Mech Systems for WT Procured Equip	n/a	n/a	n/a	\$	—	All Equipment in FFEA - See Exhibit D	
17	Process Equipment Start-up for WT Procured Equipment	n/a	n/a	n/a	\$	—	All Equipment in FFEA - See Exhibit D	
	process equipment validation	n/a	n/a	n/a			All Equipment in FFEA - See Exhibit D	
11	photography & video	8	mo	\$	[***]	\$	[***]	
15	site final cleaning	—	ls	\$	—	\$	—	Transfer to Division 1
15	flagmen	—	hr	\$	—	\$	—	Transfer to Division 1
15	traffic control	—	hr	\$	—	\$	—	Transfer to Division 1
	2nd Floor Lab Equipment not included (fume hoods, laminar flow hoods, flammable storage cabinets, autoclaves, refrigerators, incubators, free-standing shelving and cabinets)	0						All Equipment in FFEA - See Exhibit D
02C	Additional surveying for Critical equipment	48	crew hrs	\$	[***]	\$	[***]	
Total Equipment					\$	[***]		

12 FURNISHINGS

12A	casework, ss base and countertop, no wall cabinets or shelving	—	lf	\$	—	\$	—	All Equipment in FFEA - See Exhibit D
12A	ss sinks in countertop	—	ea	\$	—	\$	—	All Equipment in FFEA - See Exhibit D
12A	ss sinks freestanding with drainboard	—	ea	\$	—	\$	—	All Equipment in FFEA - See Exhibit D
Total Furnishings							\$	—

13 SPECIAL CONSTRUCTION

	coldrooms	0	ea		\$	—	All Equipment in FFEA - See Exhibit D
	fume hoods	0	ea		\$	—	All Equipment in FFEA - See Exhibit D
	security systems, card readers, cctv	0	ea		\$	—	By Owner
13	RFI # 163 - Additional Plastic Wall Partitions	1	ls	\$	***	\$	***
Total Special Construction					\$	***	

14 CONVEYING SYSTEMS

	FE #3 - elevator						Included in Base Building
14A	special elevator security	n/a	ea	n/a	\$	—	
14A	special elevator security	n/a	ea	n/a	\$	—	
14A	upgrade cab finishes for cleanability	n/a	ea	n/a	\$	—	
14	1st floor hydraulic lift	n/a	ea	n/a	\$	—	Removed from Project
14	Elevator Operator	1040	hr	\$	[***]	\$	[***]
14	site final cleaning	—	hr	\$	—	\$	Transfer to Division 1
14	watchmen/security	n/a	ea	n/a	\$	—	Included in Div 11
Total Conveying System					\$	[***]	

15 MECHANICAL

PLUMBING PIPING				\$	—
15A	sanitary waste, cast iron	n/a	lf	n/a	\$ —
15A	sanitary vent	n/a	lf	n/a	\$ —
15A	sanitary waste connections / drains	n/a	lf	n/a	\$ —
15A	trap priming	n/a	lf	n/a	\$ —
15A	process waste	n/a	lf	n/a	\$ —
15A	process waste - vent	n/a	lf	n/a	\$ —
15A	process waste and vent	n/a	lf	n/a	\$ —
15A	2nd Floor Lab process waste behind sinks	n/a	lf	n/a	\$ —
15A	process waste connection/drain	n/a	lf	n/a	\$ —
15A	trap priming	n/a	lf	n/a	\$ —
15A	clearwater waste AHU condensate	n/a	lf	n/a	\$ —
15A	clearwater waste AHU condensate	n/a	lf	n/a	\$ —
15A	clearwater waste connections	n/a	lf	n/a	\$ —
15A	quench pots for hot discharge small	n/a	lf	n/a	\$ —
15A	quench pots for hot discharge large	n/a	lf	n/a	\$ —
15A	tempered water	n/a	lf	n/a	\$ —
15A	tempered water - thermostatic valve	n/a	lf	n/a	\$ —
15A	tempered water - pump	n/a	lf	n/a	\$ —
15A	tempered water - small tank	n/a	lf	n/a	\$ —
15A	cold potable / non-potable water	n/a	lf	n/a	\$ —
15A	cold water connections	n/a	lf	n/a	\$ —

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total	COMMENTS
15A	hot potable / non-potable water	n/a	lf	n/a	\$ —	
15A	hot water connections	n/a	lf	n/a	\$ —	
15A	water heater	n/a	lf	n/a	\$ —	
15A	hot Water Circulation Pump	n/a	lf	n/a	\$ —	
15A	backflow preventors	n/a	lf	n/a	\$ —	
15A	small backflow preventors	n/a	lf	n/a	\$ —	
15A	vacuum	n/a	lf	n/a	\$ —	
15A	vacuum exhaust	n/a	lf	n/a	\$ —	
15A	BFS Vacuum System	n/a	lf	n/a	\$ —	
15A	Compressed Air, brazed copper	n/a	lf	n/a	\$ —	
17B	compressed air point of use filter station (Z2.11F)	n/a	lf	n/a		
15A	air compressor system	n/a	lf	n/a		
15A	nitrogen, brazed copper	n/a	lf	n/a		
15A	nitrogen manifold / regulator / rack assembly	n/a	lf	n/a		
17B	nitrogen point of use station (Z2.13F)	n/a	lf	n/a		
15	Firewatch	n/a	lf	n/a		Included in B.B. award
15	site / final cleaning	n/a	lf	n/a		Included in B.B. award
15	temporary plumbing (consumption)	n/a	lf	n/a	\$ —	By Owner
	PLUMBING EQUIPMENT				\$ —	
15A	shower / eyewash, lab / mech space	n/a	lf	n/a	\$ —	
15A	shower / eyewash, cleanroom	n/a	lf	n/a	\$ —	
15A	Lab waste neutralization skid	n/a	lf	n/a	\$ —	
	HVAC PIPING				\$ —	
15A	reheat, large approx 4"	n/a	lf	n/a		
15A	reheat, med approx 2 & 1 1/2"	n/a	lf	n/a		
15A	reheat, small approx 1" and smaller	n/a	lf	n/a		
15A	reheat connections	n/a	lf	n/a		
15A	chilled water, main approx 8"	n/a	lf	n/a		
15A	chilled water, large approx 4"	n/a	lf	n/a		
15A	chilled water, small approx 1 1/2"	n/a	lf	n/a		
15A	chilled water connections	n/a	lf	n/a		
15A	steam and condensate, large approx 4"	n/a	lf	n/a		
15A	steam and condensate, approx 2"	n/a	lf	n/a		
15A	steam and condensate, 1" sch 80 thrd	n/a	lf	n/a		
15A	prv for low pressure preheat	n/a	lf	n/a		
15A	steam/cond connections	n/a	lf	n/a		
15	Firewatch	n/a	lf	n/a	\$ —	Included in B.B. award
	Piping Insulation - HVAC, Plumbing, Process				\$ —	
15A	2" and smaller insulation	n/a	lf	n/a		
15A	3" and 4" insulation	n/a	lf	n/a		
15A	6" and 8" insulation	n/a	lf	n/a		
15A	cleanroom grade insulation	n/a	lf	n/a		
	HVAC AIR DISTRIBUTION				\$ —	
15A	ductwork - galvanized	n/a	lf	n/a		
15A	ductwork - stainless	n/a	lf	n/a		
15A	duct insulation	n/a	lf	n/a		
15	autoclave / canopy Hoods	n/a	lf	n/a	\$ —	
15A	disposable module HEPAs	n/a	lf	n/a		
15A	Supply Air-flow Devices - VAV w/ RHC	n/a	lf	n/a		
15A	Supply Air-flow Devices - VAV box	n/a	lf	n/a		
15A	exhaust air-flow devices	n/a	lf	n/a		
15A	autoclave/washer/fume hood exhaust air-flow devices	n/a	lf	n/a		
15A	separate reheat coils	n/a	lf	n/a		
15A	separate AMD	n/a	lf	n/a		
	HVAC EQUIPMENT				\$ —	

15A	MAU 4-1	n/a	cfm	n/a
15A	AHU 4-2	n/a	lf	n/a
15A	AHU 4-3	n/a	lf	n/a
15A	AHU 4-4	n/a	lf	n/a
15A	AHU 4-5	n/a	lf	n/a
15A	AHU 4-6	n/a	lf	n/a
15A	AHU 4-7	n/a	lf	n/a
15A	FCUs for mechanical areas	n/a	lf	n/a
15A	AHU 4-9	n/a	lf	n/a

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total	COMMENTS
15A	Duct Smoke Detectors	n/a	lf	n/a		
15A	RAF - 4 - 2	n/a	lf	n/a		
15A	RAF - 4 - 3	n/a	lf	n/a		
15A	RAF - 4 - 4	n/a	lf	n/a		
15A	RAF - 4 - 5	n/a	lf	n/a		
15A	RAF - 4 - 6	n/a	lf	n/a		
15A	RAF - 4 - 7	n/a	lf	n/a		
15A	RAF - 4 - 9	n/a	lf	n/a		
15A	EF - 4 - 2	n/a	lf	n/a		
15A	EF - 4 - 4	n/a	lf	n/a		
15A	EF - 4 - 6	n/a	lf	n/a		
15A	EF 1	n/a	lf	n/a		
15A	EF 2	n/a	lf	n/a		
15A	EF 3	n/a	lf	n/a		
15A	EF 4	n/a	lf	n/a		
15A	EF 5	n/a	lf	n/a		
15A	EF 6	n/a	lf	n/a		
15A	EF 7	n/a	lf	n/a		
15A	EF 8	n/a	lf	n/a		
15A	EF 9	n/a	lf	n/a		
15A	EF 10	n/a	lf	n/a		
15A	EF 11	n/a	lf	n/a		
15A	EF 12	n/a	lf	n/a		
15A	Sound Attenuators	n/a	lf	n/a		
15A	process chilled water system - secondary chiller / economizer heat exchanger for low load	n/a	lf	n/a		
15A	Variable Frequency Drives	n/a	lf	n/a		
15A	Misc motor Starters and Disconnects	n/a	lf	n/a		
15A	Vibration Isolation	n/a	lf	n/a		
15A	mechanical equipment rigging	n/a	lf	n/a		
15A	Core Drilling/Sawcutting	n/a	lf	n/a		
15A	spill containment, special fire protection for lyo	n/a	lf	n/a		not included at this time
15A	Coordination Drawings	n/a	lf	n/a		
15A	heat recovery system - coils, pipe, and pump	n/a	lf	n/a		none
CONTROLS					\$ —	
15A	BAS for cleanrooms	n/a	lf	n/a		
15A	BAS for cleanroom support	n/a	lf	n/a		
15A	BAS for remainder of FF	n/a	lf	n/a		
TAB					\$ —	
15A	Test & Balance	n/a	lf	n/a		
15	isolator exhaust duct leak testing	n/a	lf	n/a	\$ —	Included in B.B. award
15	Room Pressure Testing	n/a	lf	n/a	\$ —	Included in B.B. award
15	HEPA certification	n/a	lf	n/a	\$ —	Included in B.B. award
15	mechanical commissioning	n/a	lf	n/a	\$ —	Included in B.B. award
Process Piping					\$ [***]	
17B	Process Piping Award	n/a	lf	n/a	\$ [***]	17A Bid Analysis
17B	USP use points	n/a	lf	n/a	\$ —	
17B	USP valves, instruments	n/a	lf	n/a	\$ —	
	USP generation	n/a	lf	n/a	\$ —	All Equipment in FFEA - See Exhibit D
17B	WFI orbitally welded sanitary tube	n/a	lf	n/a	\$ —	
17B	WFI use points	n/a	lf	n/a	\$ —	
17B	WFI inline and sample valves	n/a	lf	n/a	\$ —	
17B	WFI coolers (assembly with HX and 4 valves)	n/a	lf	n/a	\$ —	
17B	WFI cooler controllers	n/a	lf	n/a	\$ —	
	WFI generation (still, tank, pump, loop heater HX...)	n/a	lf	n/a	\$ —	All Equipment in FFEA - See Exhibit D
17B	clean steam orbitally welded	n/a	lf	n/a	\$ —	

	sanitary tube						
17B	clean steam use point	n/a	lf	n/a	\$	—	
17B	clean steam condensate points	n/a	lf	n/a	\$	—	
17B	clean steam condensate	n/a	lf	n/a	\$	—	
17B	misc drains, rupture disk vents	n/a	lf	n/a	\$	—	
17B	clean steam regulators	n/a	lf	n/a	\$	—	
	clean steam generation	n/a	lf	n/a	\$	—	All Equipment in FFEA - See Exhibit D
17B	process transfer orbitally welded sanitary tube	n/a	lf	n/a	\$	—	
17B	process transfer line valves	n/a	lf	n/a	\$	—	

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total	COMMENTS
17B	utility panels	n/a	lf	n/a	\$ —	
17B	CIP system piping	n/a	lf	n/a	\$ —	
17B	CIP valves	n/a	lf	n/a	\$ —	
17B	CIP hoses	n/a	lf	n/a	\$ —	
17	CIP system return pumps	n/a	lf	n/a	\$ —	All Equipment in FFEA - See Exhibit D
17B	process vents to roof	n/a	lf	n/a		
17	equipment & tank trim and connections drain, vent, filter etc lines field-built (probably not included in vendor/equipment installation budget)	n/a	lf	n/a	\$ —	
17B	sample point drain funnel assemblies	n/a	lf	n/a	\$ —	
	17B - COWR Contingency					
17	Techlite insulation in clean rooms	1	ea	\$ [***]	\$ [***]	
17	additional hose length 44 hoses x 2+ ft	100	lf	\$ [***]	\$ [***]	
17	add sample valve to XV20504	1	ea	\$ [***]	\$ [***]	
17	add stainless/clean details to chilled water/drain connections at 3 POU heat exchangers	3	ea	\$ [***]	\$ [***]	
17	Potential revised/additional venting to roof	1,000	lf	\$ [***]	\$ [***]	
	17B - COWR Unbought Scope					
17	Recessed utility panels stainless assembly	3	ea	\$ [***]	\$ [***]	
17	Clean steam use point plate stainless assembly	1	ea	\$ [***]	\$ [***]	
17	Clean gas/filter use point plate stainless assembly	8	ea	\$ [***]	\$ [***]	
17	Additional clean regulators (3 scheduled, 8 shown)	5	ea	\$ [***]	\$ [***]	
17	compressed air and nitrogen drop from above ceiling 8 locations	80	lf	\$ [***]	\$ [***]	
17	misc steel stands for HXs (for 3 major process heat exchangers)	3	ea	\$ [***]	\$ [***]	
17	roofing (for vents)	20	ea	\$ [***]	\$ [***]	
17	fab shop setup - garage level 80lf x 10ft x \$[***] mtl + 2x5days x 8hrs x [***] + 5truck x [***]	1	ls	\$ [***]	\$ [***]	
17	fab shop setup - 4th level 30lf x 12ft x \$[***] mtl + 2x3days x 8hrs x [***] + 3truck x [***]	1	ls	\$ [***]	\$ [***]	
17	material/equipment security area locked cage \$[***] cage \$[***] install	1	ls	\$ [***]	\$ [***]	
17	temporary fabrication shop heat	5	mo	\$ [***]	\$ [***]	
17	temp electric for passivation boiler 100A (setup close to panel)	20	lf	\$ [***]	\$ [***]	
17	temp electric for orbital welding	80	lf	\$ [***]	\$ [***]	
17	equipment landing pad - 3rd floor platform for major equipment	5	mo	\$ [***]	\$ [***]	
17	commissioning support 2 x 4wks x 40hrs x \$[***]	320	hrs	\$ [***]	\$ [***]	
17	Overtime - Off Hours Work / Equipment Coordination 5 x 10days x 10hrs x \$[***] (differential only)	500	hrs	\$ [***]	\$ [***]	
17	Final Cleaning	—	hrs	\$ —	\$ —	Transfer to Division 1
17	GC Fee on Process Piping				\$ —	Included On Front Page
17	Flagmen / Traffic Control	—	hrs	\$ —	\$ —	Transfer to Division 1
	FIRE PROTECTION				\$ —	
15B	sprinkler, cleanrooms	n/a	lf	n/a	\$ —	
15B	sprinkler, cleanroom support areas	n/a	lf	n/a	\$ —	
15B	sprinkler, mechanical areas	n/a	lf	n/a	\$ —	

Total Mechanical			\$	***]
16 ELECTRICAL			\$	—
16A	power panels, mechanical panels, process panels, and feeders	n/a	n/a	Incl
16A	Conduit and Raceways	n/a	n/a	Incl
16A	Penetrations and Sealants	n/a	n/a	Incl
16A	Motor Starters, Motor Control Center & Mech Equip Feeds	n/a	n/a	Incl
15A	Variable Frequency Drives (mech eqpt)	n/a	n/a	
16A	motor starters (mech eqpt)	n/a	n/a	Incl
16A	disconnects (mech eqpt)	n/a	n/a	Incl
16A	Lighting Panels and wire	n/a	n/a	Incl
16A	C fixture cleanroom light (mostly 2x4)	n/a	n/a	Incl
16A	A1 fixture 2x4	n/a	n/a	Incl
16A	B1 fixture 2x4	n/a	n/a	Incl
16A	F fixture 4' 2 lamp mechanical rooms	n/a	n/a	Incl
16A	battery ballasts	n/a	n/a	Incl
16A	lamps	n/a	n/a	Incl
16A	Devices and Outlets	n/a	n/a	Incl
16A	additional construction power & light	n/a	n/a	Incl
16A	Fire Alarm Voice Evacuation System	n/a	n/a	Incl
16A	Fire Alarm Conduit	n/a	n/a	Incl
16A	Telecom Cabletray and conduit	n/a	n/a	Incl

	DESCRIPTION	GMP QUANTITY	UNIT	GMP UNIT COST	GMP Total	COMMENTS
16A	Labeling and Painting	n/a		n/a	Incl	
16A	Testing and inspection	n/a		n/a	Incl	
16	Commissioning/Testing	n/a		n/a	Incl	
16A	airlock and security door power wiring	n/a		n/a	Incl	
	Security Piping	n/a		n/a		separate budget
16A	Coordination Drawings	n/a		n/a	Incl	
16	site / final cleaning	n/a		n/a	Incl	
16	temporary light & power	n/a		n/a	Incl	
Total Electrical					\$ —	
SUBTOTAL					\$ [***]	

United Therapeutics Phase 2A
10/14/2008 rev GMP
Exhibit D-WT FFEA Detail

DESCRIPTION	QTY	UNIT	UNIT COST	WT FFEA in 10-14-08 rev GMP	UT FFEA not in 10-14-08 rev GMP	TOTAL	COMMENTS
2°C to 8°C COLD BOX				\$ [***]		\$ [***]	no purchase cost - deleted (postponed) from project
Wall panels to hide future coldbox space	100	sf	\$ [***]	\$ [***]		\$ [***]	100sf @\$[***]
Purified Water Pretreatment Skid (USP)				\$ [***]	\$ [***]	\$ [***]	purchase cost based on Siemens cost saving ALTERNATE; THIS EQUIPMENT DOES NOT MATCH THE SPECIFICATIONS
additional features not included in base price				\$ [***]	\$ [***]	\$ [***]	hardness, TOC, vent filter, addl carbon
escalation				\$ [***]	\$ [***]	\$ [***]	
documentation				\$ [***]	\$ [***]	\$ [***]	Jim's
warranty				\$ [***]	\$ [***]	\$ [***]	in purchase cost
sales tax				\$ [***]	\$ [***]	\$ [***]	
FAT				\$ [***]	\$ [***]	\$ [***]	
delivery / freight FOB jobsite				\$ [***]	\$ [***]	\$ [***]	
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor supervision/guidance during installation	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	48	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	1	crew day	\$ [***]	\$ [***]		\$ [***]	
assembly	160	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
interconnecting piping	160	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
utility terminations				\$ [***]		\$ [***]	included in process piping
special utility connections / revisions				\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing				\$ [***]		\$ [***]	in mechanical room
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification				\$ [***]	\$ [***]	\$ [***]	EDI option plus testing
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	80	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	10 days
on site training	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	2 days
SAT documents/procedure				\$ [***]		\$ [***]	in IQ/OQ
SAT execution				\$ [***]		\$ [***]	in IQ/OQ
IQ/OQ documents/procedure				\$ [***]	\$ [***]	\$ [***]	
IQ/OQ execution				\$ [***]	\$ [***]	\$ [***]	
misc costs				\$ [***]	\$ [***]	\$ [***]	Jim's
Multiple Effect WFI Still				\$ [***]	\$ [***]	\$ [***]	purchase cost based on Steris T5
additional features not included in base price				\$ [***]	\$ [***]	\$ [***]	chart recorder, discharge pressure, Pure steam option
escalation				\$ [***]	\$ [***]	\$ [***]	
documentation				\$ [***]	\$ [***]	\$ [***]	Jim's
warranty				\$ [***]	\$ [***]	\$ [***]	in purchase cost
sales tax				\$ [***]	\$ [***]	\$ [***]	

FAT				\$	***	\$	***	\$	***	
delivery / freight FOB jobsite				\$	***	\$	***	\$	***	
temporary storage / staging	5	days	\$	***	\$	***	\$	***	\$	***
vendor supervision/guidance during installation	1	ls	\$	***	\$	***	\$	***	\$	***
uncrating / prep	48	hrs	\$	***	\$	***		\$	***	
rigging	1	crew day	\$	***	\$	***		\$	***	
assembly	160	hrs	\$	***	\$	***	\$	***	\$	***
misc / materials	1	ls	\$	***	\$	***	\$	***	\$	***
utility terminations					\$	***		\$	***	included in process piping
special utility connections / revisions	20	lf	\$	***	\$	***	\$	***	\$	***
revisions to floors/walls/ceilings to coordinate with equipment trim/housing					\$	***		\$	***	in mechanical room
field/infrastructure requirements (like controls cable tray)				\$	***			\$	***	
UL inspection / certification	8	hr	\$	***	\$	***	\$	***	\$	***
temporary enclosures				\$	***	\$	***	\$	***	not quoted by Steris
temporary protection	40	hr	\$	***	\$	***		\$	***	
temporary heating/cooling/humidity control					\$	***	\$	***	\$	***
temporary utility service					\$	***	\$	***	\$	***
startup	1	ls	\$	***	\$	***	\$	***	\$	***
on site training	1	ls	\$	***	\$	***	\$	***	\$	***
SAT documents/procedure					\$	***		\$	***	covered by IQ OQ
SAT execution					\$	***		\$	***	covered by IQ OQ
IQ/OQ documents/procedure					\$	***	\$	***	\$	***
IQ/OQ execution					\$	***	\$	***	\$	***
misc costs					\$	***	\$	***	\$	***
					\$	***		\$	***	Jim's
Clean Steam Generator					\$	***	\$	***	\$	***
additional features not included in base price					\$	***	\$	***	\$	***
escalation					\$	***	\$	***	\$	***
documentation					\$	***	\$	***	\$	***
warranty					\$	***	\$	***	\$	***
sales tax					\$	***	\$	***	\$	***
										in purchase cost

DESCRIPTION	QTY	UNIT	UNIT COST	WT FFEA in 10-14-08 rev GMP	UT FFEA not in 10-14-08 rev GMP	TOTAL	COMMENTS
FAT				\$ [***]	\$ [***]	\$ [***]	
delivery / freight FOB jobsite				\$ [***]	\$ [***]	\$ [***]	
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor supervision/guidance during installation	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	48	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	1	crew day	\$ [***]	\$ [***]		\$ [***]	
assembly	160	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
utility terminations				\$ [***]		\$ [***]	included in process piping
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing				\$ [***]		\$ [***]	in mechanical room
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification	8	hr	\$ [***]	\$ [***]	\$ [***]	\$ [***]	not quoted by Steris
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	40	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
on site training	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
SAT documents/procedure				\$ [***]		\$ [***]	covered by IQ OQ
SAT execution				\$ [***]		\$ [***]	covered by IQ OQ
IQ/OQ documents/procedure				\$ [***]	\$ [***]	\$ [***]	
IQ/OQ execution				\$ [***]	\$ [***]	\$ [***]	
misc costs				\$ [***]	\$ [***]	\$ [***]	
				\$ [***]		\$ [***]	
Tank package for the 4 fixed vessels including the following:				\$ [***]	\$ [***]	\$ [***]	ITEMS THAT DO NOT MATCH THE SPECIFICATIONS: MAG DRIVE AGITATORS, NO TOP HEAD INSULATION ON SMALL TANKS.
Formulation Vessel TK2111 with agitator				\$ [***]		\$ [***]	included above
Formulation Vessel TK2241 with agitator				\$ [***]		\$ [***]	included above
2500 Gallon WFI Storage Vessel TK2041				\$ [***]		\$ [***]	included above
1500 Gallon USP Storage Vessel TK2221				\$ [***]		\$ [***]	included above
VFD panels				\$ [***]	\$ [***]	\$ [***]	to be priced in Bulletin 6
escalation				\$ [***]	\$ [***]	\$ [***]	
documentation				\$ [***]	\$ [***]	\$ [***]	in purchase cost
warrantee				\$ [***]	\$ [***]	\$ [***]	in purchase cost
sales tax				\$ [***]	\$ [***]	\$ [***]	
FAT				\$ [***]		\$ [***]	
delivery / freight FOB jobsite				\$ [***]	\$ [***]	\$ [***]	
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor supervision/guidance during installation	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	48	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	1	crew day	\$ [***]	\$ [***]		\$ [***]	
assembly	96	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
utility terminations				\$ [***]		\$ [***]	
special utility connections / revisions	—	lf	\$ —	\$ [***]		\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	60	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	added load cell stands
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification				\$ [***]		\$ [***]	
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	40	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup	1	ls	\$ —	\$ [***]		\$ [***]	
on site training	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
SAT documents/procedure				\$ [***]		\$ [***]	
SAT execution				\$ [***]		\$ [***]	
IQ/OQ documents/procedure				\$ [***]		\$ [***]	
IQ/OQ execution				\$ [***]		\$ [***]	
				\$ [***]		\$ [***]	

Autoclave/Sterilizer SS2141				\$	[***]	\$	[***]	\$	[***]	purchase price base on prometco
additional features not included in base price				\$	[***]	\$	[***]	\$	[***]	
escalation				\$	[***]	\$	[***]	\$	[***]	6 pen, stopper cycle, filter sterilization, weld docs, test ports, steam quality
documentation				\$	[***]	\$	[***]	\$	[***]	
warrantee				\$	[***]	\$	[***]	\$	[***]	in purchase cost
sales tax				\$	[***]	\$	[***]	\$	[***]	
FAT				\$	[***]	\$	[***]	\$	[***]	
delivery / freight FOB jobsite				\$	[***]	\$	[***]	\$	[***]	
temporary storage / staging				5	days	\$	[***]	\$	[***]	[***/day added for expenses
vendor supervision/guidance during installation				1	ls	\$	[***]	\$	[***]	
uncrating / prep				24	hrs	\$	[***]	\$	[***]	
rigging				1	crew day	\$	[***]	\$	[***]	
assembly				240	hrs	\$	[***]	\$	[***]	

DESCRIPTION	QTY	UNIT	UNIT COST	WT FFEA in 10-14-08 rev GMP	UT FFEA not in 10-14-08 rev GMP	TOTAL	COMMENTS
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
utility terminations				\$ [***]		\$ [***]	
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	200	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification	8	hr	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	40	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
on site training	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
SAT documents/procedure				\$ [***]		\$ [***]	covered by IQ OQ
SAT execution				\$ [***]		\$ [***]	covered by IQ OQ
IQ/OQ documents/procedure				\$ [***]	\$ [***]	\$ [***]	
IQ/OQ execution				\$ [***]	\$ [***]	\$ [***]	[***]/day, 10 days added for expenses
misc costs				\$ [***]	\$ [***]	\$ [***]	assume this covers loading carts, trolleys, parking stands, shelves
				\$ [***]		\$ [***]	
Lab AutoClave SS2161				\$ [***]	\$ [***]	\$ [***]	Steris
additional features not included in base price				\$ [***]	\$ [***]	\$ [***]	panel 3 sides for free-standing location
escalation				\$ [***]	\$ [***]	\$ [***]	
documentation				\$ [***]	\$ [***]	\$ [***]	
warranty				\$ [***]	\$ [***]	\$ [***]	in purchase cost
sales tax				\$ [***]	\$ [***]	\$ [***]	
FAT				\$ [***]	\$ [***]	\$ [***]	
delivery / freight FOB jobsite				\$ [***]	\$ [***]	\$ [***]	
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor supervision/guidance during installation	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	16	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	0.5	crew day	\$ [***]	\$ [***]		\$ [***]	
assembly	80	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
utility terminations				\$ [***]	\$ [***]	\$ [***]	
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing				\$ [***]		\$ [***]	assumes no requirements for lab area
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification				\$ [***]		\$ [***]	
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	40	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup	1	ls	\$ —	\$ [***]		\$ [***]	
on site training	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
SAT documents/procedure				\$ [***]		\$ [***]	covered by IQ OQ
SAT execution				\$ [***]		\$ [***]	covered by IQ OQ
IQ/OQ documents/procedure				\$ [***]	\$ [***]	\$ [***]	
IQ/OQ execution				\$ [***]	\$ [***]	\$ [***]	
				\$ [***]		\$ [***]	
Pharmaceutical Parts Washer WASH2171				\$ [***]	\$ [***]	\$ [***]	Belimed MODEL 860: 33"X33"X39" CHAMBER
additional features not included in base price				\$ [***]	\$ [***]	\$ [***]	see options list
escalation				\$ [***]	\$ [***]	\$ [***]	
documentation				\$ [***]	\$ [***]	\$ [***]	
warranty				\$ [***]	\$ [***]	\$ [***]	in purchase cost
sales tax				\$ [***]	\$ [***]	\$ [***]	
FAT				\$ [***]	\$ [***]	\$ [***]	riboflavin test
delivery / freight FOB jobsite				\$ [***]	\$ [***]	\$ [***]	
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor supervision/guidance during	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	

installation									
uncrating / prep	24	hrs	\$ [***]	\$ [***]		\$ [***]			
rigging	1	crew day	\$ [***]	\$ [***]		\$ [***]			
assembly	240	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]			
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]			
utility terminations				\$ [***]	\$ [***]	\$ [***]			
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]			
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	200	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]			
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]			
UL inspection / certification	8	hr	\$ [***]	\$ [***]	\$ [***]	\$ [***]			
temporary enclosures				\$ [***]		\$ [***]			
temporary protection	40	hr	\$ [***]	\$ [***]		\$ [***]			
temporary heating/cooling/humidity control				\$ [***]		\$ [***]			
temporary utility service				\$ [***]		\$ [***]			
startup	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]			

DESCRIPTION	QTY	UNIT	UNIT COST	WT FFEA in 10-14-08 rev GMP	UT FFEA not in 10-14-08 rev GMP	TOTAL	COMMENTS
on site training	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
SAT documents/procedure				\$ [***]		\$ [***]	
SAT execution				\$ [***]		\$ [***]	
IQ/OQ documents/procedure				\$ [***]	\$ [***]	\$ [***]	
IQ/OQ execution				\$ [***]		\$ [***]	
misc costs				\$ [***]	\$ [***]	\$ [***]	assume this is allowance for racks/carts
Undercounter Pharma Parts Washer WASH2181				\$ [***]	\$ [***]	\$ [***]	purchase cost based on Belimed standard undercounter THIS EQUIPMENT DOES NOT MATCH THE CURRENT SPECIFICATIONS for a GMP unit
Modifications to control WFI and DI system valves				\$ [***]	\$ [***]	\$ [***]	assumed a standard unt, not modified per pre-bulletin one control of GMP valves
additional features not included in base price				\$ [***]	\$ [***]	\$ [***]	condenser, misc racks, baskets
escalation				\$ [***]	\$ [***]	\$ [***]	
documentation				\$ [***]	\$ [***]	\$ [***]	
warrantee				\$ [***]	\$ [***]	\$ [***]	in purchase cost
sales tax				\$ [***]	\$ [***]	\$ [***]	
FAT				\$ [***]	\$ [***]	\$ [***]	
delivery / freight FOB jobsite				\$ [***]	\$ [***]	\$ [***]	
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor supervision/guidance during installation	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	8	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	0.5	crew day	\$ [***]	\$ [***]		\$ [***]	
assembly	40	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
utility terminations				\$ [***]	\$ [***]	\$ [***]	
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	current design doesn't address above-counter utilities to undercounter washer
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	80	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification	8	hr	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	8	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
on site training	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
SAT documents/procedure				\$ [***]		\$ [***]	NA???
SAT execution				\$ [***]		\$ [***]	NA???
IQ/OQ documents/procedure				\$ [***]		\$ [***]	NA???
IQ/OQ execution				\$ [***]		\$ [***]	NA???
misc costs				\$ [***]	\$ [***]	\$ [***]	
Undercounter Glass Washer WASH2191				\$ [***]	\$ [***]	\$ [***]	purchase cost based on Belimed standard undercounter
additional features not included in base price				\$ [***]	\$ [***]	\$ [***]	condenser, misc racks, baskets
escalation				\$ [***]	\$ [***]	\$ [***]	
documentation				\$ [***]	\$ [***]	\$ [***]	
warrantee				\$ [***]	\$ [***]	\$ [***]	in purchase cost
sales tax				\$ [***]	\$ [***]	\$ [***]	
FAT				\$ [***]	\$ [***]	\$ [***]	
delivery / freight FOB jobsite				\$ [***]	\$ [***]	\$ [***]	
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor supervision/guidance during installation	1	ls	\$ [***]	\$ [***]		\$ [***]	
uncrating / prep	8	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	0.5	crew day	\$ [***]	\$ [***]		\$ [***]	
assembly	40	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
utility terminations				\$ [***]	\$ [***]	\$ [***]	
special utility connections / revisions	5	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing				\$ [***]		\$ [***]	
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification	8	hr	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	8	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	

temporary utility service				\$	***]		\$	***]		
startup	1	ls	\$	***]	\$	***]	\$	***]	\$	***]
on site training	1	ls	\$	***]	\$	***]	\$	***]	\$	***]
SAT documents/procedure				\$	***]		\$	***]	NA	
SAT execution				\$	***]		\$	***]	NA	
IQ/OQ documents/procedure				\$	***]		\$	***]	NA	
IQ/OQ execution				\$	***]		\$	***]	NA	

DESCRIPTION	QTY	UNIT	UNIT COST	WT FFEA in 10-14-08 rev GMP	UT FFEA not in 10-14-08 rev GMP	TOTAL	COMMENTS
misc costs				\$ [***]	\$ [***]	\$ [***]	
						\$ [***]	
						\$ [***]	
						\$ [***]	
Clean In Place Skid (for Lyo, and Tank Wash) with:				\$ [***]		\$ [***]	all purchase costs through delivery by UT
CIP return pumps				\$ [***]		\$ [***]	all purchase costs through delivery by UT
CIP remote control panels				\$ [***]		\$ [***]	all purchase costs through delivery by UT
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	48	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	1	crew day	\$ [***]	\$ [***]		\$ [***]	
rigging / assembly	160	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor assembly				\$ [***]		\$ [***]	Most of the on-site assembly is by the equipment vendor, some reconnection of machine sections disconnected for shipping and rigging is covered by the above line "rigging / assembly"
utility terminations				\$ [***]		\$ [***]	covered elsewhere
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	120	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	2 remote panels
field/infrastructure requirements (like controls cable tray)	100		\$ [***]	\$ [***]	\$ [***]	\$ [***]	
UL inspection / certification				\$ [***]		\$ [***]	included in UT equipment purchase
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	80	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup				\$ [***]		\$ [***]	included in UT equipment purchase
on site training				\$ [***]		\$ [***]	included in UT equipment purchase
SAT documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
SAT execution				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ execution				\$ [***]		\$ [***]	included in UT equipment purchase
						\$ [***]	
Filling Line				\$ [***]		\$ [***]	all purchase costs through delivery by UT
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	96	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	2	crew day	\$ [***]	\$ [***]		\$ [***]	
rigging / assembly	160	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor assembly				\$ [***]		\$ [***]	Most of the on-site assembly is by the equipment vendor, some reconnection of machine sections disconnected for shipping and rigging is covered by the above line "rigging / assembly"
utility terminations				\$ [***]		\$ [***]	covered elsewhere
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	400	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
field/infrastructure requirements (like controls cable tray)	50	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	unknown scope
UL inspection / certification				\$ [***]		\$ [***]	included in UT equipment purchase
temporary enclosures				\$ [***]		\$ [***]	
temporary protection	160	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	
temporary utility service				\$ [***]		\$ [***]	
startup				\$ [***]		\$ [***]	included in UT equipment purchase
on site training				\$ [***]		\$ [***]	included in UT equipment purchase
SAT documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
SAT execution				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ documents/procedure				\$ [***]		\$ [***]	included in UT equipment

IQ/OQ execution			\$	***	\$	***	\$	***	purchase included in UT equipment purchase
Lyophilizer & Lyophilizer Mechanical Skid			\$	***	\$	***	\$	***	all purchase costs through delivery by UT
temporary storage / staging	5	days	\$	***	\$	***	\$	***	
uncrating / prep	96	hrs	\$	***	\$	***	\$	***	
rigging	2	crew day	\$	***	\$	***	\$	***	
rigging / assembly	160	hrs	\$	***	\$	***	\$	***	
misc / materials	1	ls	\$	***	\$	***	\$	***	
vendor assembly			\$	***			\$	***	Most of the on-site assembly is by the equipment vendor, some reconnection of machine sections disconnected for shipping and rigging is covered by the above line "rigging / assembly"
utility terminations			\$	***			\$	***	covered elsewhere
special utility connections / revisions	20	lf	\$	***	\$	***	\$	***	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	100	sf	\$	***	\$	***	\$	***	minor trim
field/infrastructure requirements (like controls cable tray)	50	lf	\$	***	\$	***	\$	***	unknown scope

DESCRIPTION	QTY	UNIT	UNIT COST	WT FFEA in 10-14-08 rev GMP	UT FFEA not in 10-14-08 rev GMP	TOTAL	COMMENTS
UL inspection / certification				\$ [***]		\$ [***]	included in UT equipment purchase
temporary enclosures	1,000	sf	\$ [***]	\$ [***]		\$ [***]	
temporary protection	80	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control	4	mo	\$ [***]	\$ [***]		\$ [***]	
temporary utility service	1	ls	\$ [***]	\$ [***]		\$ [***]	
startup				\$ [***]		\$ [***]	included in UT equipment purchase
on site training				\$ [***]		\$ [***]	included in UT equipment purchase
SAT documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
SAT execution				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ execution				\$ [***]		\$ [***]	included in UT equipment purchase
						\$ [***]	
Lyophilizer loader/unloader				\$ [***]		\$ [***]	all purchase costs through delivery by UT
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	48	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	1	crew day	\$ [***]	\$ [***]		\$ [***]	
rigging / assembly	80	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor assembly				\$ [***]		\$ [***]	Most of the on-site assembly is by the equipment vendor, some reconnection of machine sections disconnected for shipping and rigging is covered by the above line "rigging / assembly"
utility terminations				\$ [***]		\$ [***]	covered elsewhere
special utility connections / revisions	10	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing				\$ [***]		\$ [***]	
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	
UL inspection / certification				\$ [***]		\$ [***]	included in UT equipment purchase
temporary enclosures				\$ [***]		\$ [***]	included in lyo
temporary protection	80	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	included in lyo
temporary utility service				\$ [***]		\$ [***]	included in lyo
startup				\$ [***]		\$ [***]	included in UT equipment purchase
on site training				\$ [***]		\$ [***]	included in UT equipment purchase
SAT documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
SAT execution				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ execution				\$ [***]		\$ [***]	included in UT equipment purchase
Isolator over Filling Line and Lyophilizer Loading				\$ [***]		\$ [***]	all purchase costs through delivery by UT
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	96	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	2	crew day	\$ [***]	\$ [***]		\$ [***]	
rigging / assembly	160	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor assembly				\$ [***]		\$ [***]	Most of the on-site assembly is by the equipment vendor, some reconnection of machine sections disconnected for shipping and rigging is covered by the above line "rigging / assembly"
utility terminations				\$ [***]		\$ [***]	covered elsewhere
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	400	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
field/infrastructure requirements (like controls cable tray)	50	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	unknown scope
UL inspection / certification				\$ [***]		\$ [***]	included in UT equipment purchase
temporary enclosures				\$ [***]		\$ [***]	assume none needed
temporary protection	80	hr	\$ [***]	\$ [***]		\$ [***]	

temporary heating/cooling/humidity control				\$	***		\$	***	none needed
temporary utility service				\$	***		\$	***	none needed
startup				\$	***		\$	***	included in UT equipment purchase
on site training				\$	***		\$	***	included in UT equipment purchase
SAT documents/procedure				\$	***		\$	***	included in UT equipment purchase
SAT execution				\$	***		\$	***	included in UT equipment purchase
IQ/OQ documents/procedure				\$	***		\$	***	included in UT equipment purchase
IQ/OQ execution				\$	***		\$	***	included in UT equipment purchase
Blow Fill Seal Machine				\$	***		\$	***	all purchase costs through delivery by UT
temporary storage / staging	5	days	\$	***	\$	***	\$	***	
uncrating / prep	96	hrs	\$	***	\$	***	\$	***	
rigging	2	crew day	\$	***	\$	***	\$	***	
rigging / assembly	160	hrs	\$	***	\$	***	\$	***	
misc / materials	1	ls	\$	***	\$	***	\$	***	
vendor assembly				\$	***		\$	***	Most of the on-site assembly is by the equipment vendor, some reconnection of machine sections disconnected for shipping and rigging is covered by the above line “rigging / assembly”

DESCRIPTION	QTY	UNIT	UNIT COST	WT FFEA in 10-14-08 rev GMP	UT FFEA not in 10-14-08 rev GMP	TOTAL	COMMENTS
utility terminations				\$ [***]		\$ [***]	covered elsewhere
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	400	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	assume none needed
UL inspection / certification				\$ [***]		\$ [***]	included in UT equipment purchase
temporary enclosures				\$ [***]		\$ [***]	assume none needed
temporary protection	80	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	none needed
temporary utility service startup				\$ [***]		\$ [***]	none needed
on site training				\$ [***]		\$ [***]	included in UT equipment purchase
SAT documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
SAT execution				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ execution				\$ [***]		\$ [***]	included in UT equipment purchase
Terminal Sterilizer				\$ [***]		\$ [***]	all purchase costs through delivery by UT
temporary storage / staging	5	days	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating / prep	48	hrs	\$ [***]	\$ [***]		\$ [***]	
rigging	1	crew day	\$ [***]	\$ [***]		\$ [***]	
rigging / assembly	160	hrs	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
misc / materials	1	ls	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
vendor assembly				\$ [***]		\$ [***]	Most of the on-site assembly is by the equipment vendor, some reconnection of machine sections disconnected for shipping and rigging is covered by the above line "rigging / assembly"
utility terminations				\$ [***]		\$ [***]	covered elsewhere
special utility connections / revisions	20	lf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
revisions to floors/walls/ceilings to coordinate with equipment trim/housing	200	sf	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
field/infrastructure requirements (like controls cable tray)				\$ [***]		\$ [***]	assume none needed
UL inspection / certification				\$ [***]		\$ [***]	included in UT equipment purchase
temporary enclosures				\$ [***]		\$ [***]	assume none needed
temporary protection	80	hr	\$ [***]	\$ [***]		\$ [***]	
temporary heating/cooling/humidity control				\$ [***]		\$ [***]	none needed
temporary utility service startup				\$ [***]		\$ [***]	none needed
on site training				\$ [***]		\$ [***]	included in UT equipment purchase
SAT documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
SAT execution				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ documents/procedure				\$ [***]		\$ [***]	included in UT equipment purchase
IQ/OQ execution				\$ [***]		\$ [***]	included in UT equipment purchase
Misc equipment (like refrigerators)				\$ [***]		\$ [***]	all purchase, startup costs by UT
receiving	25	ea	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
uncrating	25	ea	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
rigging/placement	25	ea	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
assembly	25	ea	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
connections	25	ea	\$ [***]	\$ [***]	\$ [***]	\$ [***]	
Sub-Totals				\$ [***]	\$ [***]	\$ [***]	
Remaining FFEA				\$ [***]	\$ [***]	\$ [***]	
Totals				\$ [***]	\$ [***]	\$ [***]	

United Therapeutics Phase 2A
10/14/2008 rev GMP
GENERAL CONDITIONS, BB & FF, Detail

DESCRIPTION	QUANT.	CONST. DURATION	UNITS	UNIT PRICE	TOTAL	COMMENTS
General Expenses					\$ [***]	
Office Equipment Furniture	1	1	Ea.	\$ [***]	\$ [***]	Drawing Tables, Racks, etc...
Computer Systems	1	1	Ea.	\$ [***]	\$ [***]	Server: Office Set up
Computer Systems	0	0	Ea.	\$ —	\$ —	Computers/Printers w/staff
Office Supplies	1	24	Mo.	\$ [***]	\$ [***]	
Postage	1	24	Mo.	\$ [***]	\$ [***]	
Express Mail	1	24	Mo.	\$ [***]	\$ —	Incl Above
Delivery	1	24	Mo.	\$ [***]	\$ —	Incl Above
Telephones & Service Charges	1	24	Mo.	\$ [***]	\$ [***]	
Telephones & Service Charges	0	0	Mo.	\$ —	\$ —	Cell Phones: Included w/staff
Print-Plot Paper / Repro / Copier Service	1	1	Ea.	ALLOW	\$ [***]	
Job Offices for Contractor	1	23	Mo.	\$ [***]	\$ [***]	Quad Complex
Setup / De-Mob Trailers	1	1	Ea.	\$ [***]	\$ [***]	
Job Offices for Owner	0	0	Mo.	\$ —	\$ —	none included
Job Offices for Architect	0	0	Mo.	\$ —	\$ —	none included
Scheduling Consultant	1	832	Hr.	\$ [***]	\$ [***]	(1) day/week for (2) years
Travel & Expenses	0	0	Wk.	\$ —	\$ —	Included in Staff Costs
Jobsite Vehicles	0	0	Wk.	\$ —	\$ —	Included in Staff Costs
Photography & Video	0	0	Mo.	\$ —	\$ —	Included in Sub Cost
Preconstruction Damage Survey	0	0	Ea.	\$ —	\$ —	Included in Sub Cost
Surveying (2 Man Crew)	0	0	Mo.	\$ —	\$ —	Include in Sub Costs
Replacement of Meters (removed)	6	1	ea.	\$ [***]	\$ [***]	
Bagging of Meters	1	22	Mo.	\$ [***]	\$ [***]	10 @ Spring/Cameron
Staff Parking	1	24	Mo.	\$ [***]	\$ [***]	
Reimburseables	1	24	Mo.	\$ [***]	\$ [***]	
Staffing: 2008 Rates					\$ [***]	
Senior Project Manager: JJ	1	1300	Hr.	\$ [***]	\$ [***]	50% 7/28/08 - 10/30/09
Construction Manager: MD	1	2600	Hr.	\$ [***]	\$ [***]	7/28/08 - 10/30/09
Architectural/Structural/FF Manager: TB	1	2600	Hr.	\$ [***]	\$ [***]	7/28/08 - 10/30/09
Fill Finish Technical Assistance: GC	1	1300	Hr.	\$ [***]	\$ [***]	50% 7/28/08 - 10/30/09
CW & Div 2 - 5 PM: BH	1	1400	Hr.	\$ [***]	\$ [***]	7/28/08 - 3/30/09
CW & Div 2 - 5 PE: PB	1	2760	Hr.	\$ [***]	\$ [***]	7/28/08 - 11/27/09
MEP Manager: J Santamont	1	2880	Hr.	\$ [***]	\$ [***]	7/28/08 - 12/18/09
MEP Engineer: J Swain	1	2760	Hr.	\$ [***]	\$ [***]	7/28/08 - 11/27/09
Divisions 6, 7, 8, 9, 12 APM: BG	1	2600	Hr.	\$ [***]	\$ [***]	7/28/08 - 10/30/09
Divisions 6, 7, 8, 9, PE: CC	1	880	Hr.	\$ [***]	\$ [***]	7/28/08 - 11/28/08
Superintendent: WS	1	2600	Hr.	\$ [***]	\$ [***]	7/28/08 - 10/30/09
Superintendent: DD	1	2760	Hr.	\$ [***]	\$ [***]	7/28/08 - 11/27/09
Office Manager	1	2760	Hr.	\$ [***]	\$ [***]	7/28/08 - 11/27/09
Staff Billings up to 7/27/08	1	1	Ea.	\$ [***]	\$ [***]	
Division 9 & 12 PE: RK	1	2960	Hr.	\$ [***]	\$ —	To be reimbursed from cont. if \$ is remaining
SUBTOTAL GC's					\$ [***]	

United Therapeutics Phase 2A
10/14/2008 rev GMP
VE List

Item #	Description	Estimated VM Amount	Notes	Direction Req'd By
1	Integration of Coordinated Drawings	\$ ([***)	Delete requirement in specifications. Note:VE amount reduces daily!	immediately
2	Davits and Equipment Scope Reduction	\$ ([***)	Anchors Only - No monorail or Equipment	8/1/2008
3	Commissioning Assistance		Allowance amount of \$[***) - Need scope to better define.	8/1/2008
4	Stainless versus PVC Duct	\$ ([***)	credit off of allowance of \$[***) (50/50 mix of PVC coated galvanized and SS duct assumed)	7/21/2008
5	Custom Concrete Bench - Alternate designers	\$ ([***)	Local Supplier and Designer	9/1/2008
6	Mill Work - Delete M2.1, M2.2, M5.7, M5.8, M5.9, M6.4, M7.13, M7.14	\$ ([***)	Scope Reduction	7/21/2008
7	Stainless Steel Planters -	\$ —	VE not available at this time	
8	HEPA Filters @ 2nd Floor - Second Set	\$ ([***)		9/1/2008
9	Epoxy @ Stair #4	\$ ([***)	Epoxy Paint Included Only, No Troweled Included Anywhere	9/1/2008
10	Light Fixtures	\$ —	VE not available at this time	
11	Security Services	\$ ([***)	To be provided by Owner	9/1/2008
12	Conduit versus MC cable for FA / Power	\$ ([***)	ENT Utilized and MC per Spec utilized to the fullest already. Exposed areas are still EMT. Limited ENT to MC options exist.	7/21/2008
13	Utilize MC Cable for Phase 1 FA Work	\$ ([***)		8/1/2008
14	Siemens Controls	\$ ([***)	Change Controls types to match phase 1A	8/1/2008
15	Concrete Pavers at current IPE / Bluestone locations	\$ ([***)		8/1/2008
16	PV Array - Open to multiple bidders / Vendors	\$ ([***)		8/1/2008
17	PV Array - Alternate Technologies	\$ ([***)	Alternate mounting method reduces upfront cost and reduces roofing penetrations at stanchions.	8/1/2008
18	Telecomm - Open to multiple Bidders	\$ ([***)		9/1/2008
19	Delete or Reduce Attic Stock	\$ ([***)		9/1/2008
Totals		\$ ([***)		

Unither - Agreement Paragraph 5.3.2 Understanding

Sample Change Order Scenarios

a) Work performed by Construction Manager;

CONSTRUCTION MANAGER	(\$[***) Labor/(\$[***) Matl)
Direct Cost: \$	[***)
OH @ [***)%: \$	[***)
Fee @ [***)%: \$	[***)
Subtotal: \$	[***)

b) Work performed by a Subcontractor;

SUBCONTRACTOR	(\$[***) Labor/(\$[***) Matl)
Direct Cost: \$	[***)

OH @ [***] %:	\$	[***]
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Fee @ [***] %:	\$	[***]
----------------	----	-------

Subtotal:	\$	[***]
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CONSTRUCTION MANAGER	(i.e. dumpsters, temp stairs, storage etc. as justified)
----------------------	---

Actual Out of Pocket GCs:	\$	[***]
---------------------------	----	-------

O/H, Profit & Fee @ [***] %:	\$	[***]
------------------------------	----	-------

Bond	\$	[***]
------	----	-------

Total:	\$	[***]
--------	----	-------

c) Work Performed by a Sub-Subcontractor;

SUB-SUBCONTRACTOR	(\$[***] Labor/\$[***] Matl)
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Direct Cost:	\$	[***]
--------------	----	-------

OH @ [***] %:	\$	[***]
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Fee @ [***] %:	\$	[***]
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Subtotal:	\$	[***]
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SUB-CONTR.	
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O/H, Profit & Fee @ [***] %:	\$	[***]
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Subtotal:	\$	[***]
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CONSTRUCTION MANAGER	(i.e. dumpsters, temp stairs, storage etc. as justified)
----------------------	---

Actual Out of Pocket GCs:	\$	[***]
---------------------------	----	-------

O/H, Profit & Fee @ [***] %:	\$	[***]
------------------------------	----	-------

Bond	\$	[***]
------	----	-------

Total:	\$	[***]
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ANNEX 2 TO EXHIBIT G
Unither - Agreement Paragraph 5.3.2 Understanding

Sample Change Order Scenarios

a) Work performed by Construction Manager;

CONSTRUCTION MANAGER	(\$[***] Labor/\$[***] Matl)
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Direct Cost:	\$	[***]
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OH & Fee@ [***] %:	\$	[***]
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included	\$	—
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Subtotal: \$ [*]**

b) Work performed by a Subcontractor;

<u>SUBCONTRACTOR</u>	<u>(\$[***] Labor/\$[***] Matl)</u>
Direct Cost: \$	[***]
OH @ [***] %: \$	[***]
Fee @ [***] %: \$	[***]
Subtotal: \$	[***]

<u>CONSTRUCTION MANAGER</u>	<u>(i.e. dumpsters, temp stairs, storage etc. as justified)</u>
Actual Out of Pocket GCs: \$	[***]
O/H, Profit & Fee @ [***] %: \$	[***]
Bond \$	[***]
Total: \$	[***]

c) Work Performed by a Sub-Subcontractor;

<u>SUB- SUBCONTRACTOR</u>	<u>(\$[***] Labor/\$[***] Matl)</u>
Direct Cost: \$	[***]
OH @ [***] %: \$	[***]
Fee @ [***] %: \$	[***]
Subtotal: \$	[***]

<u>SUB- CONTR.</u>	
O/H, Profit & Fee @ [***] %: \$	[***]
Subtotal: \$	[***]

<u>CONSTRUCTION MANAGER</u>	<u>(i.e. dumpsters, temp stairs, storage etc. as justified)</u>
Actual Out of Pocket GCs: \$	[***]
O/H, Profit & Fee @ [***] %: \$	[***]
Bond \$	[***]
Total: \$	[***]

ATTACHMENT B

Notes Qualifications & Assumptions dated 10/14/08

NOTES, QUALIFICATIONS & ASSUMPTIONS

Base Building

1. GENERAL

- 1.1. This GMP budget is based upon the United Therapeutics Project 100% Construction Documents by Schick Goldstein Architects P.C. dated December 12, 2007, inclusive of SGA addenda #1-11. Addenda #12, 13, 14, 15 & 16 are included as allowances as described in the GMP. The attached document log lists all of the documents included within this GMP. References made to “the documents” within this GMP are understood to be the document log defined above.
- 1.2. Allowances: Once the item listed as an allowance is defined, that item will be analyzed from a schedule/cost standpoint and represented to the owner for comparison to what has been included in the GMP. The allowances identified within the GMP are not subject to shared savings.
- 1.3. Construction contingency shall be used to address contract scope of work gaps, construction manager faults, and overages of buy out in any particular contract package. Construction contingency shall not be used for owner changes, unknown conditions, or design contingency items.
- 1.4. Design contingency is excluded. Design contingency shall be used to address code issues and errors/omissions.
- 1.5. Not used.
- 1.6. Not used.
- 1.7. The project’s scheduled completion date is 11/16/09 as defined within Schedule Revision UT-04 dated 5/27/08. We have assumed that a 2 week flush period is not required to meet the requirement of LEED Construction Indoor Air Quality Management Plan EQ 3.2.
- 1.8. Not used
- 1.9. Not used
- 1.10. Not used.
- 1.11. Phase I areas will be shutdown when modifications are being completed to those areas. WT will notify Owner and coordinate area closure at least 2 weeks in advance.
- 1.12. Not used
- 1.13. Attic stock per NQA Exhibit A is included.
- 1.14. Not Used.
- 1.15. UL listing of items furnished and / or installed by others are excluded.
- 1.16. All drawings and sketches, including RFI responses, addenda, bulletins, , etc must be issued to WT as a hard copy.
- 1.17. We have included access for construction adjacent to the Montgomery County Parking Garage 21 per the 3rd Right of Entry Agreement.
- 1.18. Not used.

- 1.19. No retail fit out work is included in the GMP. To reduce offsite storage and double handling costs, WT will utilize this space for laydown/storage for the project. If fit-out of this space is awarded by the Owner prior to substantial completion of Phase 2A, impacts to the project will be assessed at that time. .
- 1.20. WT will provide 2 week notice, at minimum, prior to commencing any work in Phase 1 space. Completely removing, salvaging, protecting, and storing all furnishings, fixtures and equipment from these spaces prior to work commencing will be by others. Additionally, moving or managing the Owner's move back into these spaces or into phase 2A after substantial completion is excluded.
- 1.21. Relocation, removal or demolition of equipment, appliances, materials, wall furnishings, etc from lunch room 262/room 203 is excluded. Only point up of walls and painting is included. Utility modifications are not included, since no demo drawings of the area are provided.
- 1.22. All testing & inspections services (i.e. Concrete testing, weld inspections, material inspections) are assumed to be by owner, unless otherwise indicated.
- 1.23. Not used.
- 1.24. Not used.
- 1.25. WSSC/SDC/Impact fees are by the owner.
- 1.26. Usage charges of temporary power, water, & gas are by owner.
- 1.27. All Permit fees and expediting fees are excluded. Our subcontractors have included trade permits for their work.
- 1.28. Not used.
- 1.29. We have included LEED requirements only as specified within the contract documents. If LEED scorecard has items not in design drawings and specifications, these items have not been included. W-T will coordinate with the project team to help meet the LEED goals for the project.
- 1.30. Temporary Heating/Cooling - It is assumed that WT will temporarily connect the new gas riser to portable heating units to provide temporary heating during construction. When the new HVAC equipment is up and running, we will utilize these systems for temporary heating/cooling.
- 1.31. Temporary heating, cooling, filtered HVAC, humidity controls, temporary enclosures, and equipment protection as required during process equipment installation (for example: as may be required for early startup of the lyophilizer) is not included in the GMP. These costs must be covered by the separate equipment budget.
- 1.32. The 16G — PV Array package does not include liquidated damages
- 1.33. The following packages do not have a Payment & Performance Bond.
 - 1.33.1. 02C — Surveying,
 - 1.33.2. 16E — Security,
 - 1.33.3. 16F — Telecom/Data,
 - 1.33.4. 16G — PV Array.

1.34. The following packages have included the UT required insurance limits. No allowance has been carried for additional costs associated with meeting UT required insurances.

- 1.34.1. 02D — Landscaping,
- 1.34.2. 03A — Concrete *,
- 1.34.3. 02C — Surveying*,
- 1.34.4. 03B — Caissons*,
- 1.34.5. 04A — Masonry,
- 1.34.6. 04B — Precast Panels,
- 1.34.7. 05A — Structural/Misc. Steel,
- 1.34.8. 05B — Ornamental Metals,
- 1.34.9. 07C — Roofing,
- 1.34.10. 07E — Terracotta,
- 1.34.11. 08C — Overhead Doors,
- 1.34.12. 09A — Drywall,
- 1.34.13. 09C — Terrazzo,
- 1.34.14. 09D — Carpet/VCT/Sheet Vinyl,
- 1.34.15. 09E — Epoxy Flooring,
- 1.34.16. 09F — Ceramic Tile,
- 1.34.17. 10C — Davits,
- 1.34.18. 12A — Casework,
- 1.34.19. 13A — Clean Room,
- 1.34.20. 14A — Elevators,
- 1.34.21. 15A — Mechanical,
- 1.34.22. 15B — Sprinkler,
- 1.34.23. 16A — Electrical (within allowance),
- 1.34.24. 17A — Process Piping.

All remaining packages to carry WT standard insurance limits.

1.35. Not used.

1.36. It is agreed that WT will have access to \$[***] of construction contingency to cover additional general conditions costs which may arise. The \$[***] of this amount is only available for use by WT if savings exist at the end of the project. The use of contingency for this last \$[***] increment is subservient to all other uses of Contingency as defined within the UT/W-T Contract for project purposes.

- 1.37. All parking meter reinstallation is by Montgomery County. All fees for such are by the owner.
- 1.38. Bottled water coolers, coffee makers, printers, fax machines, recycling containers, microwaves, furniture are assumed to be owner furnished, owner installed.
- 1.39. Not used
- 1.40. 01820-1.6.A.8 — Owner training on rainwater collection system is not included since the equipment was deleted from the contract documents.
- 1.41. WT is not responsible for delays incurred to project schedule due to work performed by PEPCO, Verizon, Comcast, RCN, Montgomery County, etc. as applicable.
- 1.42. Not used.
- 1.43. Drawings issued with RFI #84 are assumed to be superceded by drawings issued in SGA Addendum #12.
- 1.44. An allowance of \$[***] has been included in the GMP for modifications within phase 1 that are not indicated in the contract documents.
- 1.45. Additional acoustical requirements/acoustic control devices indicated by Shen, Milson & Wilke's analysis and Vanderweil's memo dated 12/21/07, that are above and beyond the documents have not been included. STC testing of in place construction to ensure compliance to specific levels referenced in the contract documents is not included beyond what is required by specifications section 15950. Testing per specification section 16231 is excluded.
- 1.46. Start-up and testing requirements for equipment per each equipment specification is included in the GMP. Overall building and system commissioning is undefined at this time. We have included mechanical and electrical commissioning allowances totaling \$[***] for the scope of this work to be determined later.
- 1.47. Commissioning is not linked to substantial completion. All guarantees and warranties shall commence upon date of substantial completion.
- 1.48. Any work required for procurement and validation beyond what is specifically shown to be included within the WT FFEA per exhibit D of this GMP, is excluded.
- 1.49. Not used
- 1.50. Submittals (product data and shop drawings) are to be returned to WT within ten (10) working days of A/E receipt for submittals of divisions 1, 4, 6, 7, 8, 10, 11, 12, 13, and 17. Submittals (product data and shop drawings) are to be returned to WT within fifteen (15) working days of receipt for submittals of divisions 2, 3, 5, 9, 14, 15, and 16.
- 1.51. Responses to future RFI's will be expected to be received back by WT within three to five (3-5) working days (including consultant review time and shipping durations). Whiting-Turner reserves the right to request quicker review periods if necessary to recover lost time due to design related issues.
- 1.52. 24hr — 7 days a week service, warranty calls, guarantee, and maintenance is not included. Next business day callback will be provided. This does not include lead times for replacement parts or equipment. Next business day call back is included during warranty period, however, timeframe for remediation is handled on a case by case basis.
- 1.53. Not used

- 1.54. It is the A/E of Record's professional responsibility to confirm that named/specified products meet the specification and intent of the design.
- 1.55. 01130-1.4A — Retention of LEED-Accredited Professional for the project shall be by Others.
- 1.56. Not used.
- 1.57. No "seismic" requirements / provisions have been included.
- 1.58. Not used
- 1.59. Not used
- 1.60. The contractors listed below were awarded prior to the change in MD state sales tax from 5% to 6%. We have carried an allowance of \$[***] for additional costs associated with the sales tax increase to cover these items:
- 1.60.1. 02A — Accubid
- 1.60.2. 02B — Superior
- 1.60.3. 02C — Macris Hendricks & Glascock.
- 1.60.4. 03A — Miller & Long
- 1.60.5. 03B — Eastern Caisson
- 1.60.6. 08A — Pioneer
- 1.60.7. 14A — Schindler
- 1.60.8. 16B — Mona
- 1.60.9. 16C — F.B. Harding
- 1.61 Reference the attached Exhibit D: WT Fill Finish Equipment Allowance dated 8/27/08. The exhibit itemizes the Fill Finish Process Equipment Allowance and the scope (WT FFEA) carried within the WT 8/27/08 revised GMP
- 1.62 This GMP is based upon the notes, qualifications, & assumptions proposed in each individual ARL letter that has been submitted or approved prior to 5/27/08.
- 1.63 NQA Exhibit B, current RFI log dated 6/11/08 is attached. See notes written on log for RFIs included and excluded from the GMP. Additionally, here are further clarifications the following RFIs:
- RFI 23.1: The resolution of this RFI is included in Addendum 12. There is an allowance for Addendum 12 included in the GMP. The hardware changes per this RFI will be reconciled with the Addendum 12 Allowance.
 - RFI 45: The Process Equipment List included in this RFI has been superceded with Exhibits C and D of this GMP.
 - RFI 74: The fire damper issue was resolved in Bulletin 1. Cost changes for this issue will be addressed in Bulletin 1 PCO.
 - RFI 180: The resolution of this RFI is included in Addendum 12. There is an allowance for Addendum 12 included in the GMP. The trellis modifications per this RFI will be reconciled with the Addendum 12 Allowance.

- RFI 197.1: The Fireman's receptacles added per this RFI have not been included in this GMP. These costs will be submitted in a PCO.
- RFI 200: Insulation shown per wall type detail is included. Insulation for wall types incorrectly noted on the floor plans is not included. A detailed review of floor plans and wall types with the Architect is suggested in lieu of the global RFI answer. At the conclusion of the detailed review, the cost impact, if any, will be assessed and submitted in PCO form.
- RFI 203 and 203.1: These RFIs are unanswered. When the response is received, it will be evaluated for cost and schedule impact.
- RFI 213: There are multiple conflicts with MEP, structure, and architectural elements. Ceiling heights will have to be addressed with the resolution of these conflicts.
- RFI 233: The side stream filter costs have not been included in the GMP. These costs will be submitted in a PCO.

1.64 Bulletin #1 and any sketches/bulletins after Addendum #16 have not been included.

1.65 GMP does not include work associated with Miscellaneous invoices 11635 — Misc — 01 through 11635 — Misc — 08.

DIVISION 2

GENERAL

- 2.1 Permanent paving/stripping and concrete sidewalk/apron repair for Comcast and Montgomery County/Pepco work is included within the disturbed areas only.
- 2.2 Not used.
- 2.3 It is assumed that the existing concrete pad and handrail at the south side entrance to Phase I building shall remain per RFI #41. Pavers/stone are not included in these areas.
- 2.4 Not used.
- 2.5 Preconstruction damage survey is by the owner.

02A SITEWORK & UTILITIES

- 1. Removal and disposal of hazardous or contaminated material is excluded. (This applies to all subcontracts)
- 2. Spec 02300-3.H.2 - Cannot proof-roll with dump truck in excavation per specs due to limited size and access issues. Will utilize roller ILO dump truck to proof-roll for compaction.02300-3.2.A.
- 3. 02300-3.2.C.4 — 24-hr maintenance of dewatering pumps is not deemed necessary and has not been included.
- 4. 02300-3.2.C.8 — Additional utility fees if pumping water into sewers have not been included.
- 5. 02300-3.2.F.4.d — WT will provide lean concrete mudmat at their discretion when rain is imminent. Placing a mudmat when an excavation is left overnight is not included.
- 6. 02300-3.3.D.4.b — All alternate methods of drying wet subgrade other than tooting up with equipment are excluded. (i.e. using hydrated lime)

7. Not used.
8. Not used.
9. No additional utility meter work has been included.
10. No gas piping (meter and upstream) has been included. Work by WGL, cost borne by owner. WT will only core drill, link seal, and dig at vent area for WGL.

02B SHEETING & SHORING

1. Superior Foundation only has included \$[***] professional liability insurance.
2. Tiebacks and sheeting/shoring located in public spaces are assumed to be left in place in accordance with right of way agreement. Soldier piles on property line will be cut approximately 4' below grade and remainder left in place.

02C SURVEY

02D LANDSCAPING

1. Not used.
2. Café Terrace Tables/Seating at Plaza is excluded.
3. 02625-2.1.A — Drain lines and perforated drain lines — WT reserves the right to use an approved equal to the sole sourced mfg.
4. 02800-2.1.E/F - WT reserves the right to use an approved equal to the sole sourced mfg.
5. 02800-2.1.I.2 — Irrigation subcontractor will connect irrigation piping to water supplies in the locations shown on drawings LI2.1, LI2.2, LI2.3 (11/26/07). Backflow prevention by 15A will be installed only as shown.
6. 02800-2.1.L — WT reserves the right to use approved equals to the single source manufacturers for the irrigation system.
7. 02800-3.9.B — Adjustment, winterization, start-up of irrigation system after turnover, shall be by the owner.
8. 02910-1.3.D — WT will submit soil samples for analysis to the architect. Testing of soil samples is excluded.
9. Not used.
10. Not used.
11. Not used.
12. 02910-3.15.A.6 — Mulch is excluded. None is specified.
13. Six (6) wooden benches, two (2) trash receptacles, and two (2) bike racks have been included in the plaza area. One (1) bike rack has been included in the parking garage. All of these items are not labeled on the contract drawings.

02E SITE CONCRETE

1. The Argentinean concrete benches will have to be produced in 2m sections for shipping purposes. These benches require prepayment of preliminary design services (\$[***]), and 50% prepayment for fabrication of benches.
2. Granite curb is assumed to be around street tree planting boxes only per RFI #31.

3. All perimeter curb and gutter except as detailed above is assumed to be concrete.
4. 03200-2.1.D - Epoxy WWF is not included for concrete topping slab. Assume standard WWF per L5.1.1 (11/26/07).

02F HARDSCAPE/STONE

1. No granite cladding has been included at the existing concrete planter box on the west side of Phase I building along Cameron St. per RFI #41.
2. Radius pavers are only included at radius AA through KK. All remaining pavers are included as segmented.
3. Bio-Wall is not included. An allowance for the Bio-Wall has been included.
4. Etching "Bio-Walk of Fame" is not included.
5. Sculptural seating elements are not included. Conduit shown for infrastructure has been included as shown on E3.01 dated 11/26/07.
6. Not used.
7. 04400-2.3.F — Location and quantity of weep and vent tubes shall be determined by the subcontractor designing the granite wall panels, since no locations are shown on the drawings.
8. 04400-2.3.G — Crack suppression membrane is only being supplied in the elevator cabs per direction given by Ramon Santos of SGA.
9. Not used.
10. 04400 — Elevator Floor Stone — 3/8" thick standard granite tile, 12"x12" has been included.
11. 04065-2.2.D.2 — Stone mortar/grout color must be non-custom color.
12. Stone flooring in retail space shown on 2/A5.7 (12/5/07) is excluded. The retail space is assumed to be unfinished.

02G FOUNTAIN

1. GMP Price is based upon Fountaincraft being utilized for the fountain equipment.
2. Not used.
3. Not used.
4. Not used.
5. Not used.

DIVISION 3

03A CONCRETE

1. Not used.
2. It is assumed that the overhead power lines are removed or de-energized prior to second floor concrete work. No delays to accommodate these lines have been included.
3. Excludes all impacts (condition & location) of existing caissons.
4. 03310-1.6A - Field mockups shall be in place.

5. 03200-2.1.D - Epoxy WWF is not included for concrete topping slab. Assume standard WWF as per L.5.1.1.
6. Items included in Shemro's letter dated 9/17/07 regarding Concrete outstanding issues are excluded. If these items have been included/incorporated into the documents, they are included.
7. Not used.
8. Winter weather protection has been excluded by Miller and Long. Summer weather protection is included as a cost of work remaining.
9. Not used.
10. 03310-3.2.A — Vapor barrier is excluded. Preprufe shall be used ILO, as per Div 7.
11. Not used.
12. LEED certified wood for concrete formwork is not included.

03B CAISSONS

1. Not used.
2. Not used.

DIVISION 4

04A MASONRY

1. Masonry lintels have been assumed for the door openings throughout the building.
2. Not used.
3. Not used.
4. Colored mortar excluded (04060-2.1C F & G and as noted in Note 3/Drawing G2).
5. Weather protection has been excluded by the bidders; it has been included as a cost of work remaining.
6. Not used.

04B PRE-CAST CONCRETE

1. 03450-2.1.C — Pigment for concrete shall be same as Phase 1. Color variations may be present.
2. VE options regarding precast panels per SGA Option #2 on memo (3/10/08) is not included.

DIVISION 5

05A STEEL — STRUCTURAL & MISCELLANEOUS

1. Not used.
2. Not used.
3. 05500-2.1.A.10 — Gray iron castings, in reference to nosings have been excluded, as there are none on the project.
4. Not used.

5. Stair # 1 and Stair # 2 are cast in place per General Note 11a in 100% Design Development Project Manual.
6. Spec 05080 calls for flouropolymer resin and is not included. This should be for shop finished materials only.
7. All interior stairs and platforms in the fill finish area are assumed to be painted steel.
8. All interior handrail in the fill finish area is assumed to be painted steel.
9. WT direct hire structural/misc steel bid is a lump sum price received in a competitively bid process.
10. Not used.

05B ORNAMENTAL METALS

1. Stainless steel planters are assumed to be design build by the subcontractor.
2. Numbers #2-4 not used.
5. Mock-ups are excluded.
6. Numbers #6-8 not used.
9. 05700-1.1.A.7/2.5.F — Gazebo and trellis structures are assumed to have zinc cladding.
10. Numbers #10-11 not used.
12. 05700-1.7/2.5D — Sample installations shall be completed where feasible, and not necessarily prior to the pre-installation conference. WT shall submit samples of finish materials to the architect for approval.
13. Numbers #13-17 not used.

DIVISION 6

06A MILLWORK/DOORS-FRAMES-HARDWARE/INTERIOR GLAZING

1. Not used.
2. Plywood backing has been included behind the A/V displays at typical locations per 1/A10.1 (11/26/07). No other type of backing is included. It is not clear on the drawings what is required.
3. The 5/4" hardwood cap has been included per 1/A10.1 (11/26/07), but it does not meet LEED requirements due to the width of the cap.
4. WT reserves the right to buy specific door/security hardware from either the door subcontractor or the security subcontractor based on what is best for the project, not as listed in notes on security drawings.
5. Not used.
6. Not used.
7. Not used.
8. RFI #23.1 is not included, no response given by SGA.
9. Numbers #9-11 not used.
12. Fire extinguishers and cabinets are assumed to be fire-rated where fire-rated partitions are shown per the floor plans.

-
13. Numbers #13-15 not used.
 16. 06600-3.2.A.7 – Blocking for owner furnished equipment is excluded, unless specifically called for on the contract drawings for OFCI equipment.
 17. 06400-1.3.F – All millwork will be built to meet or exceed AWI specifications per contract documents. The millwork supplier/subcontractor does not participate in the AWI certification program.

18. 06400-1.6.A.2 – Woodwork will not be installed by the manufacturer.
19. Numbers #19-20 not used.
21. 08110-2.2.E /2.3C – Vertical bracing is included where feasible, in some instances it is not possible due to overhead ductwork conflicts.
22. 08110-2.3.B.5.b – Not included. There are no double exterior doors on the project.
23. 08115-2.4.A – Not included. Locations not shown on drawings where required.
24. 08710-1.7.D – Warranty period manual closers: 10 years is included.
25. 08710-2.24 – The manufacturer will not guarantee that there will be zero pass through of light through the automatic door bottoms. There is usually a small gap between the door/sweep & frame that will let small amount of light pass through. Specific light-tight doors and associated hardware would need to be specified to make that guarantee.
26. 08710-2.24.C/D/E – Testing is not included.
27. 08805-1.5.B – Glass & glazing will not be single sourced. Glass & glazing will be purchased under separate contracts.
28. Not used.
29. 08805-3.4 – Timing of cleaning is to be completed at WT discretion.
30. Numbers #30-35 not used.
36. 4x4 welded tube steel frames are only assumed at 1st floor lobby per details on A10.1. They are not referenced at other locations.
37. Standard wood blocking is assumed acceptable for structural supports for wall art work by the owner. No detail provided. Refer to 1/A4.11.
38. RFI #48 response is excluded. Door hardware to be as specified per door schedule A7.4 (12/5/07).
39. Hold open devices on stair gates are excluded. Spring gates shall be provided per RFI #44.
40. The low successful bidder is required to have the packages broken up into materials and labor in order to keep the award(s) under \$[***] each to obtain bonding on each package.
41. Not used.
42. Note on 1/A10.8 (1/11/08) states “Tel/Data/Power outlets to be located in millwork by Systems furniture installer”. Locations must be provided by the systems furniture vendor/owner during the millwork submittal phase.
43. Numbers #43-44 not used.

45. Openings 007A and 707A are not shown on the door schedule in Addendum # 15. We have assumed 3'0x7'0 HM doors and corresponding welded frames with standard locksets and hinges. No security/electric locks provisions are assumed.

DIVISION 7

GENERAL

1. 07810-1.9 – Coordination and sequencing of work by WT. WT will sequence work as needed to complete the work in a neat and timely manner and in compliance with the authority having jurisdiction.
2. 07810-3.4 – Costs for Independent Testing Agency have not been included.
3. 07840-1.5B – Structural requirements for firestopping have been excluded. Concrete will be used to infill large gaps and firestopping via conventional methods will be utilized in compliance with the authority having jurisdiction.
4. 07840-3.4A – Identify through penetration firestop systems with preprinted metal or plastic labels on both sides of penetrations. This is excluded.
5. 07900-1.4.D – FDA approved caulk is assumed for joints that come in contact with, or are used in areas of drug manufacturing.
6. Not used
7. WT and relevant subcontractors (i.e. curtainwall, roofing, metal panel, terracotta, etc) reserve the right to modify details on contract drawings to utilize industry standard design details at terminations, curbs, intersections, etc. of skin systems in order to maintain a weathertight system. Coordination will take place during the shopdrawing phase.
8. RFI #74 is unanswered and provisions to complete have not been included.
9. Field testing for visual mockup, providing and install of testing chamber are by others. Cost and schedule impacts due to design changes as a result of the mockup testing are not included. Materials included in the mockup will be released upon receipt of approved shopdrawings, regardless of the pending results of the mockup testing performed by the owner.
10. The aluminum extrusions will be design/build while attempting to mimic the design intent on the contract drawings but the connection details may differ from what is included on the contract drawings.
11. 07210-2.1.A – Insulation is provided in locations noted in the spec and on the contract drawings. Locations not shown on these documents to have insulation are not included. RFI #200 is unanswered and therefore not included.

07A WATERPROOFING

1. 07130-2.1.A – Low temperature materials are not a viable alternative from Grace. Costs have been included for temp heat/protection.
2. 07130 – Waterproofing details shall be as detailed on approved submittals and per manufacturer's standard details.
3. Not used.

4. 07130 – Standard 5-yr manufacturer’s warranty is included.
5. 07270-3.4.B – Allowable air barrier exposure to UV light shall be determined by manufacturer’s recommendations.
6. Not used.

07C ROOFING

1. Numbers #1-3 not used.
4. Arrays and connector is assumed to be same as system Phase I building system. No metal/zinc closure pieces are assumed between or under arrays.
5. Numbers #5-9 not used.
10. Custom colors for roofing membranes, stone mixes, soils, etc. are excluded.
11. Not used.
12. 07560-1.5.A/B – Manufacturer’s sample for green roof assembly will be provided during submittal phase. Proposal is based on TectaGreen product by TectaAmerica Company, LLC. Mockups are excluded. Roof area per SGA mockup sketches dated 1/22/08 is not a green roof area.
13. Numbers #13-14 not used.

07D METAL PANELS/LOUVERS

1. Not used.
2. Multiple caulk joints are excluded.
3. Numbers #3-27 not used.

07E TERRACOTTA PANELS

1. Numbers #1-21 not used.

DIVISION 8

08A CURTAINWALL

1. Numbers #1-58 not used.
59. Stainless steel sign boxes at retail spaces excluded. These are assumed to be provided by the owner per curtainwall shopdrawing review meeting on 1/17/08. Stainless steel support for stainless steel sign boxes are included.
60. Fritting and frosting on single side of glass only is included (08900-3.04.L).
61. Not used.
62. Aluminum framing and extrusions per 2/A6.7 and 1/A5.15 (addendum #15) around louvers are included in the Addendum #15 allowance.
63. Addendum # 15 pricing does not include any Biowall work.

64. Not used.
65. Building envelope peer review is not included in the GMP. Owner has retained services of consultant outside of GMP.

DIVISION 9

09A – EXTERIOR STUDS/SHEATHING & DRYWALL

1. Not used.
2. Not used.
3. Not used.
4. 09100-2.2.B – Metal stud framing gage shall be as indicated on per wall types designated on the contract drawings.
5. 09100-3.3.B.11 – Wood blocking has not been included for owner supplied items, with the exception of mounting the owner supplied TV's and wall hung artwork.
6. 09100-3.3.E – Shaftwall will be sealed in accordance with referenced UL listing and according to the authorities having jurisdiction.
7. 09250-3.3.A.7 – Ceiling GWB boards will not be applied before GWB ceilings and walls occur due to sequence of activities and fire marshal inspections of above ceiling work.
8. 09250-3.4.C.6 – Sealing of sides and backs of electrical boxes to completely close off openings and joints is not included.
9. Level 5 finishes are excluded. Level 4 finishes are included at painted surfaces.
10. Numbers #10-24 not used.
25. Walls that are specified as full height may conflict with ductwork above. Fire-rated walls shall be full height but other walls may need to be framed around ductwork.
26. 09510-2.3.C – Grid attachment devices shall be as recommended by the manufacturer.
27. Not used.
28. Not used - see item 1.20 under GENERAL section.
29. Not used.
30. Not used.
31. Horizontal shaftwall detail per A4.2 (11/26/07) is only included at top of stair shafts as indicated.
32. Mockups are excluded, except for the Exterior Visual Mockup and benchmarks as required by specifications.

09C TERRAZZO

1. Terrazzo pattern assumed to be as delineated per RFI #33. No other special pattern or design is included.
2. Not used.
3. Custom color glass chips/terrazzo is not included.

4. Not used.
5. Crack suppression membrane is included for 5% of area. \$[***] in cost of work of remaining has been included for 100% crack suppression membrane.
6. Not used.
7. 09440-1.5.A – Sample installation is excluded. In-place benchmark has been included.
8. Not used.

09D FLOORING (VCT/SEAMLESS VINYL/CARPET/TERRAZZO TILE)

1. It is assumed that Armstrong Medintech Sheet Vinyl and Johnsite Cap and Cove Stick are acceptable products.
2. 09650-2.2.B.4 – Architect to specify non-custom color for terrazzo tile .
3. 09650-1.3.E – WT will submitted test reports previously conducted by the manufacturer. New testing is not included.
4. 09650-2.2.A – Sheet linoleum is not included. Per spec 09652 sent via email from Jim Hirt of IPS dated 2/20/08 sheet vinyl flooring is required in these areas.
5. 09650 – All items pertaining to sheet linoleum flooring is excluded since it is not being provided .
6. 09650-3.4.E/F – Two coats of polishing is included.
7. 09680-1.6.D/3.5.A – Manufacturer’s inspections are not included.
8. 09680-1.7.B – Sample installations are excluded.
9. 01735-2.1.E – Terrazzo tile – WT will match existing terrazzo based on color product number designated by architect. New terrazzo tile will look slightly different than existing due to the fact that terrazzo tile darkens as it ages.

09E EPOXY FLOORING

1. 09310-1.5.B – Mockup is not included. In-place benchmark has been included. This is a material/quality/performance in-place sample that will be part of the finished product.
2. 09402-2.1.A – Modify to state Stonhard or equal is acceptable .

09F CERAMIC TILE

1. Shop drawings are not included; they are not required per the specifications.
2. Sample installation is not included.
3. Grout sealer is not included, not required per spec.
4. 09310-2.5.C – Metal trim – Aluminum edge trim is included per contract drawings. Stainless steel edge trim per referenced spec section is not included.

09G PAINTING & WALLCOVERINGS

1. 09720-1.9.B/3.1.B – Testing of substrates for wall coverings is not included.
2. Not used.

3. 09900-1.5.C – The following items are not shop primed and therefore will not be field painted: Metal decking (galvanized), architectural woodwork (shop painted), fire extinguishers and valve cabinets (shop painted with SS doors and trim), mechanical and electrical equipment and accessories (shop painted).
4. 09900-1.7.B – Samples are not included, benchmarks can be provided.
5. 09900-3.4.C – Painting of MEP equipment, ductwork, piping, and related accessories is not included. Painting of exposed sprinkler pipe and gas pipe is included.
6. 09900-3.4.E – Painting of back sides of access panels and removable or hinged covers to match exposed surfaces is not included.
7. 09900-3.8/09905 – Epoxy paint is included in areas as described on the finish legends and finish schedule A7.6F (1/11/08).
8. Striping of garage includes parking space lines and handicap spaces only. Painting of arrows on ramp and painting of curb at median is not included. The question was not addressed on constructability comments. Additional garage signage has not been included. Preferred Parking signs required by LEED are assumed to be by the owner.
9. Concrete sealer is included in all mechanical rooms above the cellar per email from E. Jayne dated 1/8/08.
10. Numbering of parking spaces is not included.

DIVISION 10

General

1. No corner guards, except the two (2) exterior included in 05B, are included in the base building. Corner guards for the fill finish area are included in the fill finish breakdown.

10A CURTAIN RODS/MECHOSHADOWS/BLACKOUT SHADOWS

1. Curtain rods are included per Addendum #1; curtains are not included.

10C WINDOW WASHING EQUIPMENT/ROOF ANCHORS

1. An allowance has been provided for design/build window washing equipment, davits, roof anchors, window washing monorails, and testing.

DIVISION 11

1. Signage for building and garage is included in the GMP as an allowance.
2. Numbers #2-4 not used.
5. Aluminum angle per detail 11/A7.5 (11/26/07) for signage is to be included in the signage allowance.
6. Kitchen appliances are not included.
7. A/V equipment is included within a line item allowance. (Displays, mounts, screens, projectors, video conferencing, etc.).

DIVISION 12

GENERAL

1. Exclude all furniture other than millwork listed in Division 6. Furniture whips to be turned over to electrician prior to them starting trim-out work on the floors.

12A CASEWORK

1. Only built-in case work and shelving, and fume hoods are included. All freestanding components such as lab furniture, equipment, and laminar flow hoods are not included.
2. 12356-1.4.E – Full size samples are not included.
3. 12356 – Acid storage cabinets are included. In some locations it is unclear on the contract documents which (acid, flammable, etc) is required.
4. Not used.
5. 12536 – RFI #067 – A sheetmetal utility carrier is not included. Deck mounted fixtures will be provided.
6. 12356-2.10 – Stamped or etched labeling on stainless steel cover plates at receptacles, switches, terminal posts, and other locations is not included. Labeling per spec 16140 is included and will be performed by 16A subcontractor.
7. Laminar flow hoods are by the owner.

DIVISION 13

GENERAL

1. 13100-3 Section 3.3-A and B – Field Quality Control – Owner to provide WT Phase I UL Master Label Certificate. No inspections, rework, or certification has been included for Phase I.
2. 13267-1 Section 1.4-A – Raised floor is excluded. None is shown.
3. 13267-7 Section 2.13-A – Reference to division 26 is excluded, no division 26 exists.
13700-29 Section 2.6-K.1 – Wire and Cable - All references to government work is excluded.
4. 13700-34 Section 3.4-E.1 – Testing – Siemens proprietary system shall be installed as an extension to Phase I. Standard Siemens testing has been included.
5. 13930-16 Section 3.3-C- Piping Installation – No seismic requirements have been included.
6. 13930-22 - No labeling of sprinkler piping is included. Exposed sprinkler pipe shall be painted under division 9 per MCDPS, FM standard.
7. 13967 Section: Clean-Agent Fire Extinguishing System – Spec 13967 is excluded, as spec 13267 takes precedence.
8. Numbers #8-11 not used.
12. Reserve containers of clean agent is not included.
13. Numbers #13-14 not used.
15. WT/sprinkler subcontractor neither supplies nor maintains the water supply. WT/sprinkler subcontractor recommends that the water be tested and then treated, if necessary, for

any microbiological organisms that may influence corrosion. Testing and treatment of the water supply and costs associated therewith, is the sole responsibility of the owner.

16. All areas with ceilings will be protected by quick-response concealed pendent sprinklers. In addition, the areas indicated as process will be protected by special concealed pendent sprinklers with a clean room gasket. All concealed pendent sprinklers will have factory white cover plates. All areas exposed to the structure will be protected by brass upright sprinklers.
17. Fumehoods – no fire protection has been included inside laboratory fumehoods.
18. Not used.
19. Assume no sprinkler coverage above suspended wood ceilings. (Sprinkler heads will penetrate wood ceiling panels)
20. Not used.
21. We have carried an allowance for support steel above the 3rd floor ceiling. System is currently not shown or designed and will require these additional supports.
22. An allowance has been carried for wet pipe systems if deemed necessary, not currently shown in the design. This is for protection above the 3rd floor ceiling and any aesthetic changes to the PEG layout.
23. An allowance has been carried for dry pipe systems. This is for coverage under beams and additional feeds as deemed necessary.

13B COLD ROOMS

1. The cold room is excluded. See Exhibit D for Fill Finish Equipment scope included in GMP..

14A ELEVATOR

1. Not used.
2. Elevator #3 will be a holeless dual jack hydraulic elevator in lieu of the specified overhead traction elevator as per VM #62 and ARL #10.
3. Not used.
4. Schindler will not name other parties as additional insured on their insurance policies. They will provide OCPL insurance in lieu of above.
5. 14210-23 Section 3.08-A.5 – Standard O&M manuals will be provided.
6. If there are discrepancies between Schindler's standard products and the project specifications Schindler's standard products shall prevail.
7. 14210-4 Section 1.05 – Document Verification is excluded. This is assumed by SGA at submittals.
8. 14210-8 Section 2.01-A – Summary No Visible Company Name or Logo. This is excluded – Schindler Items as per Quote (std. Cabs, etc.)
9. 14210-10 Section 2.03-H – Car Performance Airborne Noise criteria is excluded.
10. 14210-16 Section 2.08-F.1 and 2 – Car Equipment

1 .Cars 1 and 2: No allowances have been carried for elevator flooring as specified. Granite flooring has been carried in another division (9).

2. Per RFI 86/86.1, stainless steel floor in elevator #3 is provided by others. This is carried under the base building division 14.

11. 14210-22 Section 3.07-C – Acceptance Review and Tests

Furnish labor, materials, and equipment necessary for Consultant’s review. Notify Consultant a minimum of five (5) working days in advance when ready for final review of elevator or group. This statement is excluded.

12. Specification 14210-13 section 2.05 B 6&7 – Monitor system interface and providing the controller to be lockable “open” is excluded. The BAS specification does not call for wiring or graphics to accommodate this.

13. Adjusting will be in accordance with industry standard.

14. Overhead sheave beams cannot be isolated. Hoistway equipment to be standard.

15. Standard vandal resistant push buttons are included.

16. Large stainless steel frame headers have been included to achieve the transom look. 8'-0" door heights with 9" extended head jambs on cars # 1 and 2 have been included.

17. As per RFI 8, we have not included any tie ins to the phase 1 elevator / fire alarm recall. These elevators will not be interlocking.

15A MECHANICAL

1. Not used.

2. Not used.

3. Not used.

4. Not used.

5. Not used.

6. Pits are assumed to be cast in place by division 3. Pit basins and lids have not been included and are assumed not required. Roadable / gasketed hatches as per spec section 08310 will be installed to cover these pits.

7. Stainless steel duct, including Jacobs Specialty, has not been carried as per ARL #15. At that time, we figured 15,000 lbs of type 304 SS SMACNA duct with \$[***] for pickling and \$[***] for additional pressure testing. We have reduced the allowance to \$[***] due to recent meetings, as we believe the scope is not as extensive (less expensive materials and fewer runs). Hence, RFI #128 is included as defined above.

8. Not used.

9. Not used.

10. It is assumed that it is acceptable to locate VAV boxes in areas with no ceilings as shown per mechanical drawings.

11. Not used.

12. Not used.

13. 15010-5 Section 1.8-C – Coordination and Fabrication Drawings - Drawings will be signed and dated by WT and relevant subcontractors. No engineering stamps are included.

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14. 15010-5 Section 1.10-C – Submittals – Sepia copies are not included.

15. 15010-6 Section 1.10-E.1 and 3 – Submittals - WT: We will use standard WT submittal processing sheets, AIAG810 is excluded. See below submittal stamp language. Note this stamp applies to all submittals in all divisions.

RECEIVED AND REVIEWED FOR GENERAL DESIGN, ARRANGEMENT & APPEARANCE ONLY BY WHITING-TURNER CONTRACTING.

Sub No. _____

Reviewed w/Comment ☐

Date _____

Rev & Resubmit ☐

Target Date: _____

Rejected ☐

Review is only for the conformance with the design of the project and compliance with the information given in the contract documents. Contractor is responsible for: dimensions to be confirmed and corrected at the jobsite, information that pertains solely to the fabrication processes or to techniques of construction, and the coordination of the work of all trades.

By _____ Date _____
Whiting-Turner Contracting Company

16. 15010-7 Section 1.11-A –Substitutions – This statement is excluded.
17. 15010-9 Section 3.1-A.7 – Special Responsibilities
Make reasonable modifications in the work as required by normal structural interferences, pay all expenses to the General Contractor for additional openings or relocating or enlarging existing openings through concrete floors, walls, beams and roof provided for the HVAC work. WT note - Changes to the structure after approval and coordination are not included.
18. 15010-10 Section 3.1-C.2 – Special Responsibilities
Prior to interruption of essential services, obtain the Architect’s/Engineer’s approval of the method proposed for minimizing service interruption.

Change “Architect/Engineer” to Owner.
19. 15010-10 Section 3.1-D – Special Responsibilities
Instructions given to such a representative by the Architect/Engineer shall be binding on the Contractor. WT – This statement is excluded.

20. 15020-3 Section 3.2-B – Work Prior to Commissioning
Contractor may be obligated to compensate the Commissioner to test the revised product, or confirm the suitability/unsuitability of the substitution or revision. WT - This statement is excluded. See previous note #14 on substitutions.
21. Not used.
22. 15050-12 Section 3.6-A – Painting – Painting only included for gas and exposed sprinkler lines. Painting included in division 9.
23. 15075-8 Section 3.6-A – Valve-Schedule Installation
Mount valve schedule on wall in accessible location in each major equipment room.
Note – locations must be given by owner.
24. 15080-3 Section 1.5-C – Quality Assurance
Mockups - A/E Approve Rep. Sample of in Place Work
No Destructive Testing is included.
25. Insulation materials standards will be provided per RFI #P-0087, revised spec 15080.
26. 15121-1 Section 1.4-B – Submittals
Shop Drawings: Signed and sealed by a qualified professional engineer. This statement is excluded. Cut sheets will be provided.
27. 15140-2 Section 1.6-A – Project Conditions
Interruption of Existing Water Service: Shutdowns will be coordinated with the owner. No additional monies have been included to provide temporary water to the Phase 1 building.
28. 15145-15 Section 3.3-A – Labeling and Identifying
Factory attached plates are included. All other labeling is excluded.
29. 15185-7 Section 3.2-A.2 – Concrete Bases - For supported equipment, install epoxy-coated anchor bolts that extend through concrete base and anchor into structural concrete floor. WT Note: If anchor bolts are required, we shall provide standard non-epoxy bolts.
30. 15189-15 Section 3.3-A and B : Water Softener Installation
Install water softener equipment on concrete bases. Anchor mineral and brine tanks and floor-mounting accessories to substrate .

Anchoring is assumed not necessary or desired. Mineral and brine tanks are moved for rebedding / refilling and cleaning / maintenance periodically.
31. 15189-17 Section 3.5-E and F: Field Quality Control - Sample water at four-week intervals. . .Note – The duration of this activity is assumed to be from the point when system is ready until substantial completion.
32. 15194-2 Section 1.7-A.1 and 2: Fuel Gas Piping Coordination – Gas shutdown are not assumed by WT.

33. 15194-8 Section 3.11-B: Fuel Gas Piping Painting - Paint service meters, pressure regulators, and specialty valves. Color grey
W-T Note: This is assumed by WGL, WT will paint exposed gas piping in phase 2A yellow per WSSC.
34. 15410-3 Section 1.5-H and H.1 – Quality Assurance - Comply with the following applicable standards and other requirements specified for lavatory and sink faucets:

WT Note: Backflow Protection Devices for faucets, vacuum breakers, backflow prevention shall only be provided when specified or shown.
35. 15445-6 Section 3.5-E – Start-Up Service – Normal occupancy hours are assumed to end at 4pm.
36. 15471-8 Section 3.11-Part 4 – Demonstration - Piping Data Sheet SS3 and CU2 are excluded, they are not listed in the spec.
WT does not have these sheets.
37. 15481-10 Section 3.10-Part 4 – Demonstration - Piping Data Sheet SS3 and CU2 are excluded, they are not listed in the spec.
WT does not have these sheets.
38. 15485-14 Attachment 02, Attachment 03– Piping Data Sheet - Piping Data Sheet SS3 and CU2 are excluded; they are not listed in the spec. WT does not have these sheets.
39. Exclude Boiler Inspectors Requests Not Specifically Shown on Contract Docs.
40. 15513-9 Section 3.4-E.7 and 8 - Performance Tests – WT will notify Engineer as required.
41. 15550-2 Section 1.6-A.1 – Warranty
Warranty Period: [10] [15] [25] <Insert number> years from date of Substantial Completion. WT Note - Manufacturer's standard warranty included since no duration is specified.
42. 15625-4 Section 1.9-A.1 and 2 – Warranty - Extended warranties include, but are not limited to, the following: W-T: Exclude "but are not limited to".
43. 15625-22 Section 3.6-A – Demonstration - Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain chillers. WT Note – We assume no video recording provided for this training session, as no other sections require.
44. 15635-2 Section 2.2-F.1 – Products – No leak detection system is included for chilled water.
45. 15734-2 Section 1.5-D – Submittals – Standard color will be provided.
46. 15815-3 Section 1.5-E – Quality Assurance – In-place mockups are included only.

47. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Division 15 Section "Duct Accessories" for fire and smoke dampers. W-T: Only includes FD's where Shown, Per SMACNA. We have included fifteen (15) additional that will be required and are not shown. This is not inclusive of the fourth floor. We have not included any costs for fire dampers or fire-rated assemblies related to openings in the 4th floor.
48. 15815-15 Section 3.8-A – Painting of interior of metal ducts is not included.
49. Ducts for future connection to Dishwasher Hoods: Type 304, stainless-steel sheet – This is excluded. WT to provide aluminum duct per M2.02.
50. 15815-19 Section 3.12-F – Duct Schedule
Liners for ducts – Included providing only where denoted on drawings.
51. 15855-2 Section 1.3-B through D – Submittals
B. Samples for Initial Selection: For diffusers, registers, and grilles with factory-applied color finishes, WT will submit factory color chart for color selection. No custom colors are included.
C. Samples for Verification: For diffusers, registers, and grilles, in manufacturer's standard sizes to verify color selected W-T: This is excluded, WT will provide cut sheets for approval.
D. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from Installers of the items involved: WT - Industry standard coordinated drawings are provided.
52. Not used.
53. 15905-5 Section 3.6 - Systems Documentation – This is not included. SGA to update contract documents. WT will submit legible red-line as-builts for coordination.
54. 15910-7 Section 3.4-A, B and C – Training – Training is assumed to be at one (1) session.
55. 15950-4 Section 1.6-A and B – Project Conditions
A. Full Owner Occupancy: Owner will occupy the site and existing building during entire TAB period. Cooperate with Owner during TAB operations to minimize conflicts with Owner's operations. WT Note – This is not included. No occupancy during construction phase.
B. Partial Owner Occupancy: Owner may occupy completed areas of building before Substantial Completion. Owner to coordinate with WT so as not to adversely impact construction activities.
56. 15950-5 Section 1.8-B – Excluded. TAB, Inc. will provide their standard package.
57. 15950-18 Section 3.25 – Assumed by Montgomery County Fire Marshall Standards.
58. 15955-3 Section 3.3-B – Work to Resolve Deficiencies – WT has included no experimental work.

- 59. Not used.
- 60. 15980-2 Section 1.2-G.3.b – Description of Work – Division 16 specifications shall dictate MC cable usage.
- 61. 15980-2 Section 1.2-G.6 – Description of Work – This shall be provided under Division 16.
- 62. 15980-40 Section 3.10-A, D, F and G – Warranty – Maintenance is not included.

W-T: 24 Hour Callback

- 1. On-line support services shall allow the local BAS subcontractor to dial out over telephone lines to monitor and control the facility's building automation system. This remote connection to the facility shall be within 2 hours of the time that the problem is reported. This coverage shall be extended to include normal business hours, after business hours, weekends and holidays. WT Note: Connection to existing building networks and UT building security shall be by the owner.
- 63. Not used.
- 64. Elevator oil minder system will be provided. No expander cables have been included to remotely locate the control module. The control module will be located in the nearest adjacent room.
- 65. WT will provide neat, legible red-lined as-built drawings to the A/E. Creating new drawings is excluded.
- 66. Coordinated drawings are included. Approval by A/E will release for fabrication. Changes in coordination drawings for aesthetics, ergonomics etc. may result in additional costs to the GMP.
- 67. The fill finish AHU's were purchased based on the 15725 specification included within the 100% CD's. Spec section 15727 was issued for construction with Bulletin # 1. Additional modifications were made in submittal review as well as Bulletins 10 & 12. The added cost to modify the AHUs for all these changes is in the \$[***] range. As agreed on 10-6-08, once the final add cost is determined with the subcontractor, we will identify and separate the Add to GMP amount for changes due to submittal modifications and Bulletins 10 & 12 from the total AHU change cost. The remaining costs are to be split 50/50, Add to GMP vs. In GMP.
- 68. RFI # 233 is not included. We have the scheduled 100 GPM filter.
- 69. RFI # 236 is not included. There is an error in the specifications (we believe a typo).
- 70. RFI # 237 is included within the allowance for the WSSC added "bubblers."
- 71. RFI #225 is not included.
- 72. RFI #235 is not included.

15B FIRE PROTECTION – See division 13 general for NQA’s.

16A ELECTRICAL

1. Wiring and terminations of 0A fixtures are by others. (PEPCO)
2. Primary and secondary cabling is by PEPCO up to the C/T.
3. Comcast, Montgomery County, RCN, and Verizon cabling is not included.
4. No painting of conduit is included.
5. Any references to NECA shall be evaluated with the NECA Checklist. Depending on the score this shall determine whether it is Col. 1, 2, or 3 work.
6. UL listing of oil minder systems are excluded. WT is purchasing and installing scheduled equipment and UL listing is assumed not required as pumps have UL508 and UL778 approval standards.
7. Fire alarm work is based on providing a Simplex Grinnell addressable fire alarm system per the fire alarm drawings. Standard fire alarm devices shall be used and all fire alarm circuits shall be two-wire (Class “B”).
8. All wiring in the slab and/or in the ground shall be installed in PVC and/or ENT conduit.
9. Not used.
10. Repairs, not resulting from WT construction activities, to existing electrical systems and fixtures are not included.
11. P.E. stamped/NICET drawings are not included. Sole-sourced Simplex drawings will be provided.
12. Not used.
13. 16010-1 Section 1.2-F.2, 3 and 4 – Summary

Paragraph record drawings - WT will turn over a set of red-line as-builts or SGA to update contract drawings as necessary. WT will transmit a CD-R of all jobsite photographs at the end of the project.

Paragraph SUBMITTALS. Submittal durations and processing time are as defined in WT schedule. This is inclusive of all consultant review and coordination.

14. 16010-2 Section 1.4-G – Contract Documents
Exact location of receptacles, light fixtures, exit signs, fire alarm devices, etc., shall be coordinated with the architectural drawings and shall not be scaled from location indicated on the electrical drawings. WT note: If not shown, the WT will install items at scaled or industry standard locations.
15. 16010-3 Section 1.5-A – CAD Files – It is assumed that CAD files will be turned over to WT/subcontractors at no additional cost after waiver is executed.
16. 16010-3 Section 1.6-D – Discrepancies in Documents – Conduits shall be installed in a workmanlike manner within the decks as permitted. Any conduits that are unable to be installed in the deck shall be surface-mounted, exposed, or concealed above accessible ceilings.

17. 16010-4 Section 1.7-B – Modifications in Layout – Conduit layout shall be as close to coordinated drawings as possible. Conduits may be exposed or concealed. Review of coordinated drawings shall verify acceptance of the proposed routing/layout.
18. 16010-4 Section 1.9-A.6 – Related Work in Other Sections
Painting, except as specified herein
W-T: No Paint of Electrical Systems Has Been Included.
19. 16010-7 Section 1.14-A – Record Drawings – Excluded. Red-line as-builts with separate photo CD-R will be provided.
20. 16010-7 Section 1.14-E.1 – Record Drawings – As-builts should be updated by SGA after turnover to the owner.
21. 16010-7 Section 1.14-F – Excluded.
22. 16010-8 Section 1.15-C – Bulletins, Manuals, and Operating Instructions – If owner determines that certain systems require additional instructions this will be provided at additional cost.
23. 16010-9 Section 1.17-C.1 Submittals – Cover sheets will be submitted as requested. Each cover sheet shall be evaluated on a case by case basis. Incompleteness or mislabeling on cover sheets shall not constitute reason for rejection.
24. 16010-10 Section 3.6-B.2 – Shop Drawing Cover Sheet – WT will submit shop drawings/submittals with standard WT submittal stamp (see 15A-13) and RGV electrical submittal sheet. Inclusion of this cover sheet shall not release the design team of any obligations. RGV shall be the code and UL verifying authority.
25. 16010-11 Section 1.17-D.2, 6 and 7 – Submittals – Excluded.
 6. Faxes shall not constitute a shop drawing and will not be reviewed as such. Proper submittals shall be made in a timely fashion.
W-T note: Strike both “not” within the aforementioned statement.
 7. General catalog cuts without identifying the proposed product will not be reviewed. ~~Options~~ Options included shall be appropriately marked on the submittal.
26. 16010-12 Section 1.17-F.1 – Submittals - W-T: Substitutions That Benefit Owner/Project may be proposed.
27. 16010-12 Section 1.17-G.1-3 – Submittals – Excluded. A/E shall approve and be responsible for deviations, substitutions, as submitted. Substitutions shall be submitted and marked as necessary.
28. 16010-13 Section 1.17-J – Submittals - W-T: Duration as Per the Schedule.
29. 16010-13 Section 1.17-K.1 – Submittals – Excluded. See specifications for required submittals.

- 30. 16010-14 Section 1.18-I – Coordination Drawings – Mylars are excluded.
- 31. 16010-14 Section 1.18-K.2 – Coordination Drawings:
Minor field adjustments shall be made and red-lined on drawings. Major changes by Architect/Engineer to coordination drawings shall be issued by Bulletin. Major changes by contractor to coordination drawings shall be proposed in writing.
- 32. 16010-19 Section 3.5-E – Selective Demolition
Shutdowns and interruptions of existing utilities will be required to complete the work. WT will establish a work plan and coordinate shutdowns with Owner. Temporary services (generator, water tank, etc..) are not included.
- 33. 16010-19 Section 3.6-B.1 – Project Close-Out Procedure
Items included on the specified Project Close-Out checklist are included. All other items are excluded.
- 34. Not used.
- 35. Not used.
- 36. 16050-2 Section 3.1-B – Execution – See item #5 above.
- 37. Measurement and verification system is excluded per Value Management.
- 38. 16075-8 Section 3.2-I – Installation – WT: Nothing to receive field painting.
- 39. 16130-7 Section 3.2-G – Installation – EMT may be exposed in areas that do not facilitate concealment.
- 40. 16130-8 Section 3.3-A.6 – Installation of Underground Conduit – This is excluded.
- 41. 16269-2 Section 1.4-C – Submittals – Coordinated drawings for VFD's are not included.
- 42. MCLA General Notes to Lighting Fixture Schedule dated 10/4/07: All notes and references from this document are excluded.
- 43. Not used.
- 44. 01510-1.4.D.2 – Re-lamping of entire building is excluded. WT will replace lamps that are burned out up to and at the time of substantial completion.
- 45. An allowance of \$[***] for UT insurance requirements has been carried.
- 46. Coordinated drawings are included. Approval by A/E will release for fabrication. Changes in coordination drawings for aesthetics, ergonomics etc. may result in additional costs to the GMP.
- 47. Not used.
- 48. RFI 197.1 is excluded. More time to evaluate and price is needed.
- 49. RFI # 203.1 are excluded. No info has been provided on the outstanding SSE issues.
- 50. RFI # 224 is excluded. Phase 1 lightning protection work is not included.
- 51. Not used.

16C TEMPORARY ELECTRIC

1. Not used.

16D PEPCO INFRASTRUCTURE / MC-COMCAST INFRASTRUCTURE

1. A change order will be written to BFJ for the amount in excess of the PEPCO work ARL allowance as shown within the line item GMP.
2. Not used.
3. Not used.
4. Not used.

16E SECURITY

1. New ACS and CCT devices will be connected to existing hardware located in Phase I building.

16F DATA & TELECOM

1. Exposed conduit for data/telecom work may occur. All conduit for this work may not fit in the slab and allow for industry standard / manufacturer approved installations.

16G PHOTOVOLTAIC ARRAY

1. The PV Array is assumed as a design build by Vermont Solar.

Fill Finish Notes/ Qualifications/ Assumptions

GENERAL NOTES

1. The following notes are specific to the fill/finish portion of the project. The base building shell notes are also applicable.
2. Not used.
3. Not used.
4. Impacts due to late deliveries of owner-furnished equipment are excluded.
5. Standard construction cleaning and wipe-down cleaning is included inside the cleanrooms, however in-production-grade cleaning appropriate for particle counting or sterility testing is not included.
6. Specification 17040-1.4.A.2: Guarantees and warranties commence at substantial completion (not at acceptance of commissioning and validation)
7. WT direct hire process piping bid is a lump sum price received in a competitively bid process.
8. Not used.

FINISHES

1. Not used.
2. The epoxy floor is specified to have a 4" cove in 13036-2.2.H.1. The MPS wall base is specified to be 6". We have included matching 4" MPS wall base and 4" epoxy cove.

3. The epoxy floor does not include the expansion joint noted in detail 4 and 5 on A6.2F.
4. Not used.

EQUIPMENT

1. See GENERAL section, item 1.61.
2. Not used.
3. Not used.
4. Utilities shown in the design drawings are included in the GMP. However final connection details/locations and potential changes are not. Revised and/or additional utilities required for the specific equipment purchased are also not included in the GMP.
5. Conduit and/or cable tray as may be needed for equipment interconnections and/or controls are not included in the GMP.
6. Not used.
7. Not used.
8. No work associated with the vacuum system shown in Z2.12F is included.

MECHANICAL

1. Not used
2. HEPA filter housings are tested at the factory per the manufacturer's standard procedures. Field pressure testing of the housings is excluded. Onsite HEPA testing and certification is included.
3. The controls set point list "attachment A to 15980" is referenced in the drawings M7.04F but not included in the current document set. Any additional work specified or implied by the controls setpoint list is excluded.
4. Stainless steel atmospheric vents and drains (for example CLC starting from the dirty side of the trap) are non-documented; without borescoping, material certifications, weld maps, or passivation.
5. Clean process piping (USP, WFI, CLS, P, and CIP) is passivated. All other stainless steel pipe and tube is not passivated.
6. Additional ports or sampling assemblies, as may be used for clean steam quality sampling, have not been added to the clean steam system.
7. Vents to the roof and building face are included only as shown in the piping and ductwork plans.
8. Pipes labeled "CS" are assumed to mean pipe specification "CS-1."
9. Process pipe hanger requirements in the specifications are unclear. We confirm that we will use "sanitary" hangers that support the stainless steel tube directly (not saddle hangers and insert as noted in some specifications). In the cleanroom all exposed hanger assemblies will eliminate exposed threaded rod.
10. Material inspection, welding procedures, inspection, and documentation of process piping systems will be in accordance with Whiting-Turner's Quality Assurance Manual for Sanitary Stainless Steel Tube Systems.
11. Not used

12. Quality control will be performed by process piping personnel; true 3rd party inspection is not included.
13. Specification 17040-1.5.B and 17150-1.9.B: Only one original (not two as requested by the specifications) will be available for many process piping documents such as signed welding logs.
14. Specification 17150-3.9.E: hand tack welding using argon shielded TIG may be used on any size tubing.
15. Specification 17150-3.10: passivation and cleaning will be performed by a professional firm specializing in the work. Passivation and cleaning procedures, based on citric acid as specified, will be submitted for approval. The passivation procedure may not comply with the specific chemicals, brands, and concentrations listed in 17150.
16. Specification 17162 is excluded; there are no pipe expansion joints shown. Per meeting on 6/11/08 with IPS, it is understood that no expansion joints are needed.
17. Specification 17165 is excluded. All stainless steel process piping requiring insulation is insulated with 1 ½" thick fiberglass with ASJ. Insulation in the cleanrooms only will use techlite insulation with a PVC jacket.
18. Specification 17410 2.3.B&C: pump motors will be non-overloading at the designed operating point; they will not necessarily be non-overloading to the end of the pump curve.

ELECTRICAL

1. Phone and intercom systems are not included.
2. Not used.
3. Specification 17195 "electrical identification": if there is any conflict between this and the division 16 specifications, the division 16 specifications govern.

CONTROLS/INSTRUMENTATION

1. The instrument list 17951 shall govern over specification 17950 (sections 1.4, 2.2, 2.3, and 2.4) where there is any conflict between the manufacturer's construction details and factory calibration defined by the instrument model number, and any requirements listed in 17950.
2. Control panel CP343 will be built from a housing rated NEMA 4X (as required by 179701.4), however the completed assembly will be de-rated due to the specified chart recorders IP54 rating.
3. Two additional pressure sensors not listed in instrument list 17951 have been added to provide the WFI and USP loop return pressures called for in 17980 2.3.B.1&2.
4. Control panel CP343 has no connection to or from the USP and WFI users. There are no central control functions to coordinate utilities and users (for example to keep USP users from using the water when it is in sanitization mode, or out of acceptable quality).

Activity ID	Activity Description	OD	RD	%	ES	EF	TF	2007												2008												2009											
								M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N					
Task																																											
Design																																											
1000	50% Design Development	40	0	100	30APR07A	30APR07A		50% Design Development																																			
1030	50% Design Development Review / Comments	20	0	100	01MAY07A	25MAY07A		1030 50% Design Development Review / Comments																																			
1060	50% Design Development - Cost Estimate	20	0	100	01MAY07A	25MAY07A		1060 50% Design Development - Cost Estimate																																			
1090	100% Design Development	48	0	100	01MAY07A	01JUN07A		1090 100% Design Development																																			
1120	100% Design Development Review / Comments	20	0	100	11JUL07A	11JUL07A		1120 100% Design Development Review / Comments																																			
1150	100% Design Development - Cost Estimate	20	0	100	11JUL07A	11JUL07A		1150 100% Design Development - Cost Estimate																																			
1240	SGA Develops/Issues Bldg Permit Drawings	20	0	100	07AUG07A	21SEP07A		1240 SGA Develops/Issues Bldg Permit Drawings																																			
1270	SGA Develops/Issues 90% CD's	40	0	100	07AUG07A	17OCT07A		1270 SGA Develops/Issues 90% CD's																																			
1180	50% CD's - Site Work and Calissons	44	0	100	20AUG07A	20AUG07A		1180 50% CD's - Site Work and Calissons																																			
1210	50% CD's Review / Comments / Cost Estimate	20	0	100	20AUG07A	10SEP07A		1210 50% CD's Review / Comments / Cost Estimate																																			
1300	SGA Develops/Issues 100% CD's	23	0	100	18OCT07A	12DEC07A		1300 SGA Develops/Issues 100% CD's																																			
10160	Bid Remaining Packages	15	0	100	12DEC07A	11FEB08A		10160 Bid Remaining Packages																																			
10140	Develop GMP	25	0	100	12DEC07A	10APR08A		10140 Develop GMP																																			
10150	Approve GMP	5	5	0	01MAY08	07MAY08	2	10150 Approve GMP																																			
Permitting																																											
1200	MCPS Sediment & Erosion Control Permit Rev / App	40	0	100	06AUG07A	28NOV07A		1200 MCPS Sediment & Erosion Control Permit Rev / App																																			
1190	MCPS Site / Foundation Permit Review / Approval	40	0	100	06AUG07A	21DEC07A		1190 MCPS Site / Foundation Permit Review / Approval																																			
1310	DPWT-Traffic Control Plan	60	0	100	29AUG07A	14JAN08A		1310 DPWT-Traffic Control Plan																																			
1250	MCPS Bldg Permit Review / Approval	40	3	93	24SEP07A	05MAY08	12	1250 MCPS Bldg Permit Review / Approval																																			
1290	Montgomery County Approve Traffic Control Plan	16	0	100	25SEP07A	14JAN08A		1290 Montgomery County Approve Traffic Control Plan																																			
1260	WSSC Permit Review / Approve	20	0	100	19NOV07A	18JAN08A		1260 WSSC Permit Review / Approve																																			
1280	Revision to Foundation Permit (Waterline)	10	0	100	21DEC07A	03JAN08A		1280 Revision to Foundation Permit (Waterline)																																			
1320	MHG - Traffic Control Plan for PEPCO Work	23	0	100	07JAN08A	26FEB08A		1320 MHG - Traffic Control Plan for PEPCO Work																																			
Bid / Award																																											
2450	Bid / Award Elevator Package	40	0	100	15AUG07A	01FEB08A		2450 Bid / Award Elevator Package																																			
2010	Bid / Award Sheeting/Shoring Package	25	0	100	27AUG07A	28SEP07A		2010 Bid / Award Sheeting/Shoring Package																																			
2000	Bid / Award Site Work Package	25	0	100	27AUG07A	08OCT07A		2000 Bid / Award Site Work Package																																			
2060	Bid / Award Calissons Package	20	0	100	27AUG07A	08OCT07A		2060 Bid / Award Calissons Package																																			
2030	Bid / Award Site Piping Utilities Package	25	0	100	27AUG07A	12NOV07A		2030 Bid / Award Site Piping Utilities Package																																			
2090	Bid / Award Concrete Superstructure Package	30	0	100	17SEP07A	06DEC07A		2090 Bid / Award Concrete Superstructure Package																																			
2120	Bid / Award CW / Windows / Channel Glass Package	45	0	100	01OCT07A	07JAN08A		2120 Bid / Award CW / Windows / Channel Glass Package																																			
2040	Bid / Award Temp Elec / Grounding Package	25	0	100	02NOV07A	03DEC07A		2040 Bid / Award Temp Elec / Grounding Package																																			
2610	Award U/G MEP Package	25	0	100	12DEC07A	06MAR08A		2610 Award U/G MEP Package																																			
2470	Bid / Award Waterproofing	20	0	100	12DEC07A	10MAR08A		2470 Bid / Award Waterproofing																																			
2460	Bid / Award Site Electrical (PEPCO Work)	30	0	100	21DEC07A	15JAN08A		2460 Bid / Award Site Electrical (PEPCO Work)																																			
2600	Award Electrical Package	15	0	100	25FEB08A	04MAR08A		2600 Award Electrical Package																																			
2540	Award Mechanical Package	15	0	100	25FEB08A	06MAR08A		2540 Award Mechanical Package																																			
2570	Award Fire Sprinkler Package	15	0	100	25FEB08A	07APR08A		2570 Award Fire Sprinkler Package																																			
2180	Award Zinc Wall Panel Package	5	0	100	07APR08A	07APR08A		2180 Award Zinc Wall Panel Package																																			

Start Date27JUL07

Finish Date16NOV09

Data Date01MAY08

Print Date29MAY08 11:44

Early Bar

Progress Bar

Critical Activity

U704

The Whiting-Turner Contracting Co.

United Therapeutics - Phase 2A
UPDATE #4
ALL ACTIVITIES

Sheet 1 of 35

Date	Revision	Checked	Approved

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Start Date	27/JUL/07	Early Bar	J704	Sheet 4 of 35	Date	Revision	Checked	Approved
Finish Date	16/NOV/09	Progress Bar						
Update Date	01/MAY/08	Critical Activity						
Print Date	29/MAY/08 11:44							
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Start Date	27/JUL/07		Early Bar	J104	Sheet 6 of 35	Date	Revision	Checked	Approved	
Finish Date	16/NOV/09		Progress Bar	The Whiting-Turner Contracting Co. United Therapeutics - Phase 2A UPDATE #4 ALL ACTIVITIES						
Date Date	01/MAY/08		Critical Activity							
Run Date	28/MAY/08 11:44									
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Start Date	27/JUL/07	Early Bar	J104 The Whiting-Turner Contracting Co. United Therapeutics - Phase 2A UPDATE #4 ALL ACTIVITIES	Sheet 6 of 35				
Finish Date	16/NOV/09	Progress Bar		Date	Revision	Checked	Approved	
Date Date	01/MAY/08	Critical Activity						
Run Date	28/MAY/08 11:44							
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Start Date	27/JUL/07		Early Bar	J104	The Whiting-Turner Contracting Co.	Sheet 9 of 35			
Finish Date	16/NOV/09		Progress Bar			Date	Revision	Checked	Approved
Date Date	01/MAY/08		Critical Activity						
Run Date	28/MAY/08 11:44								
					United Therapeutics - Phase 2A				
					UPDATE #4				
					ALL ACTIVITIES				

[illegible]

Activity ID	Activity Description	OD	RD	%	ES	EF	TF
7100	Procure Mat. - Mechanical Piping	10	10	0	02SEP08	15SEP08	10/
7310	Procure Mat. - Terracotta Rainscreen System	60	60	0	02SEP08	28NOV08	33
7520	Procure Mat. - Casework	60	60	0	02SEP08	28NOV08	137
67	Procure Mat. - CW Release #3	80	80	0	02SEP08	29DEC08	2
7300	Procure Mat. - Preformed Zinc Wall Panel	100	100	0	03SEP08	29JAN09	45
7104	Procure Mat. - Lvl 7 Superstructure Rebar	10	10	0	04SEP08	17SEP08	8
8190	Procure Mat. - WT CS Gen	100	100	0	09SEP08	04FEB09	19
8200	Procure Mat. - WT Part Washer	100	100	0	09SEP08	04FEB09	19
7360	Fabricate and Deliver - Ductwork - 3rd	35	35	0	11SEP08	15OCT08	50
7610	Procure Mat. - Process Piping	10	10	0	18SEP08	29SEP08	54
7320	Procure Mat. - Precast Panel	100	100	0	18SEP08	11FEB09	58
7106	Procure Mat. - Lvl 8 Superstructure Rebar	10	10	0	18SEP08	01OCT08	20
7108	Procure Mat. - PH Superstructure Rebar	10	10	0	02OCT08	16OCT08	20
7850	Procure Mat. - Landscape	10	10	0	07OCT08	21OCT08	172
7880	Procure Mat. - Hardscape	50	50	0	07OCT08	19DEC08	132
7288	Procure Mat. - Hardscape Benches & Seating	100	100	0	07OCT08	05MAR09	82
7380	Fabricate and Deliver - Ductwork - 4th	35	35	0	17OCT08	20NOV08	90
7390	Fabricate and Deliver - Ductwork - 5th	25	25	0	08NOV08	02DEC08	16
7490	Procure Mat. - Finishes	20	20	0	21NOV08	19DEC08	188
7410	Fabricate and Deliver - Ductwork - 6th	26	26	0	03DEC08	26DEC08	23
7420	Fabricate and Deliver - Ductwork - 7th	27	27	0	09DEC08	03JAN09	31
7450	Fabricate and Deliver - Ductwork - PH	25	25	0	23DEC08	16JAN09	55
7240	Procure Mat. - Architectural Stairs	80	80	0	12MAR09	02JUL09	14
Sitework							
12000	Investigate/Resolve Temp/Perm Power Issues	93	0	100	13APR07A	22AUG07A	
1800	Design Approval of PEPCO Work - Including ROW	177	1	99	13APR07A	01MAY08	0
11000	Test Pits for Gas & Water Utilities	1	0	100	13JUN07A	13JUN07A	
20900	UT Directs WT - Layout Test Pits - Ex. Caissons	1	0	100	15JUN07A	15JUN07A	
20920	UT / MC Finalize ROE Docs for Test Pits	10	10	0	16JUN07A	15MAY08	322
11500	WT Submits Price to UT to Demo House	1	0	100	26JUN07A	26JUN07A	
11520	UT Approves Demo of House	40	0	100	27JUN07A	09NOV07A	
11020	On-site Mtg to Discuss Utility Relocation	1	0	100	24JUL07A	24JUL07A	
11080	Vanderweil Design Water Service in Ex. Meter Rm	30	0	100	25JUL07A	01NOV07A	
11030	On-site Mtg w/WGL to Discuss Gas Util Relocation	1	0	100	02AUG07A	02AUG07A	
11100	2Civil Engineer Receives HIS Report	1	0	100	21AUG07A	21AUG07A	
12020	PEPCO Proc / Schedules 1.5KVA Xlmir Change-out	40	0	100	25AUG07A	08JAN08A	
11540	Permitting / Utility Disconnect (by Utilities)	40	0	100	02OCT07A	12NOV07A	
11560	Demo House	10	0	100	17NOV07A	21NOV07A	
10130	MCPS Pre-Con SEC Meeting	1	0	100	19NOV07A	19NOV07A	
11580	WT Trailer Mobilization	10	0	100	26NOV07A	21DEC07A	
12060	WT Releases Order for 800A Breaker	19	0	100	30NOV07A	19DEC07A	

Start Date 27/JUL/07
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J104

The Whiting-Turner Contracting Co.

United Therapeutics - Phase 2A
UPDATE #4
ALL ACTIVITIES

Sheet 11 of 25

Date	Revision	Checked	Approved

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Start Date	27JUL07		Early Bar	J104	Sheet 11 of 35					
Finish Date	16NOV09		Progress Bar	The Whiting-Turner Contracting Co. United Therapeutics - Phase 2A UPDATE #4 ALL ACTIVITIES		Date	Revision	Checked	Approved	
Date Date	01MAY08		Critical Activity							
Print Date	28MAY08 11:44									
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Activity ID	Activity Description	00	RD	%	ES	EF	TF	2007	2008	2009
								M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N		
10030	Sediment & Erosion Controls	4	0	100	07DEC07A	10DEC07A			10030	Sediment & Erosion Controls
10000	Earthwork Subcontractor Mobilization	20	0	100	07DEC07A	15JAN08A			10000	Earthwork Subcontractor Mobilization
10120	MCPS On Site SEC Meeting	1	0	100	11DEC07A	11DEC07A			10120	MCPS On Site SEC Meeting
15000	Excavate 3 to 4' - Building Footprint	10	0	100	18DEC07A	27DEC07A			15000	Excavate 3 to 4' - Building Footprint
21000	Layout Caissons (A-C) / Drill Test Holes	2	0	100	02JAN08A	03JAN08A			21000	Layout Caissons (A-C) / Drill Test Holes
11140	WSSC Int. Plumbing Permit R/A	117	0	100	02JAN08A	25FEB08A			11140	WSSC Int. Plumbing Permit R/A
21040	Caissons (A-C)	6	0	100	03JAN08A	16JAN08A			21040	Caissons (A-C)
10070	Construction Fence(Primary) & Walk Way @ Street	2	0	100	07JAN08A	10JAN08A			10070	Construction Fence(Primary) & Walk Way @ Street
10060	Rework Entry @ Existing Building	5	0	100	07JAN08A	16JAN08A			10060	Rework Entry @ Existing Building
12080	Install 800A Breaker	1	0	100	08JAN08A	08JAN08A			12080	Install 800A Breaker
12100	Temporary Elec Conduit and Shed	10	0	100	09JAN08A	05FEB08A			12100	Temporary Elec Conduit and Shed
22010	Mobilize Underpinning/Remove Dirt	2	0	100	16JAN08A	17JAN08A			22010	Mobilize Underpinning/Remove Dirt
22000	Underpinning/Remove Dirt - East Elevation	30	0	100	16JAN08A	26FEB08A			22000	Underpinning/Remove Dirt - East Elevation
12040	PEPCO Installs New Transformers	2	0	100	17JAN08A	21JAN08A			12040	PEPCO Installs New Transformers
21060	Layout / Install Caisson (C-H) North	6	0	100	17JAN08A	23JAN08A			21060	Layout / Install Caisson (C-H) North
10040	Concrete Sidewalk Along Phase 1	5	0	100	18JAN08A	21JAN08A			10040	Concrete Sidewalk Along Phase 1
21080	Layout / Install Caisson (C-H) South	5	0	100	24JAN08A	26JAN08A			21080	Layout / Install Caisson (C-H) South
20000	Drill Soldier Beams for Sheet piling (South)	4	0	100	04FEB08A	08FEB08A			20000	Drill Soldier Beams for Sheet piling (South)
20200	Drill Soldier Beams for Sheet piling (West)	4	0	100	11FEB08A	13FEB08A			20200	Drill Soldier Beams for Sheet piling (West)
20220	Drill Soldier Beams for Sheet piling (North)	4	0	100	14FEB08A	18FEB08A			20220	Drill Soldier Beams for Sheet piling (North)
21020	Drill & Install Dewatering System	0	0	100	15FEB08A	15FEB08A			21020	Drill & Install Dewatering System
20030	Excavate/Lagging to Tie-back Elevation (S)	7	0	100	18FEB08A	25FEB08A			20030	Excavate/Lagging to Tie-back Elevation (S)
20230	Excavate/Lagging to Subgrade (West)	4	0	100	19FEB08A	21FEB08A			20230	Excavate/Lagging to Subgrade (West)
20090	Excavate/Lagging to Tie-back Elevation (W)	7	0	100	20FEB08A	26FEB08A			20090	Excavate/Lagging to Tie-back Elevation (W)
20100	Excavate/Lagging to Tie-back Elevation (N)	7	0	100	20FEB08A	27FEB08A			20100	Excavate/Lagging to Tie-back Elevation (N)
20120	Drill, Grout & Test Tie-backs (North)	9	0	100	26FEB08A	14MAR08A			20120	Drill, Grout & Test Tie-backs (North)
20210	Drill, Grout & Test Tie-backs (West)	9	0	100	27FEB08A	14MAR08A			20210	Drill, Grout & Test Tie-backs (West)
20400	Drill, Grout & Test Tie-backs (South)	9	0	100	28FEB08A	14MAR08A			20400	Drill, Grout & Test Tie-backs (South)
20150	Excavate/Lagging to Subgrade (North)	4	0	100	15MAR08A	23MAR08A			20150	Excavate/Lagging to Subgrade (North)
20060	Excavate/Lagging to Subgrade (South)	4	0	100	15MAR08A	23MAR08A			20060	Excavate/Lagging to Subgrade (South)
11120	SGA Preps/Submits for Water Util Rel. Permit	3	3	0	01MAY08	05MAY08	17		11120	SGA Preps/Submits for Water Util Rel. Permit
11040	WGL Designs, Fab, Install PH2 Meters in PH1	20	20	0	01MAY08	29MAY08	258		11040	WGL Designs, Fab, Install PH2 Meters in PH1
3110	Site Electrical Work Mobilize & Procurement	5	5	0	02MAY08	09MAY08	0		3110	Site Electrical Work Mobilize & Procurement
10240	Saw Cut Asphalt West	1	1	0	12MAY08	12MAY08	0		10240	Saw Cut Asphalt West
10270	Excavate for Ductbank to Pull Box West	2	2	0	13MAY08	14MAY08	0		10270	Excavate for Ductbank to Pull Box West
10280	Install Conduit to Pull Box West	2	2	0	15MAY08	18MAY08	0		10280	Install Conduit to Pull Box West
20940	UT's Surveyor Est. Baseline for MCPG	1	1	0	16MAY08	18MAY08	322		20940	UT's Surveyor Est. Baseline for MCPG
10290	Inspect Trench to Pull Box West	1	1	0	19MAY08	19MAY08	0		10290	Inspect Trench to Pull Box West
33060	Excavate & Install New Water Line (to 5' of bldg)	1	1	0	19MAY08	19MAY08	240		33060	Excavate & Install New Water Line (to 5' of bldg)
33080	Excavate & Install New Gas Line (to 5' of bldg)	1	1	0	19MAY08	19MAY08	233		33080	Excavate & Install New Gas Line (to 5' of bldg)
33040	Excavate & Install new Sanitary Line	5	5	0	19MAY08	27MAY08	36		33040	Excavate & Install new Sanitary Line
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The Whiting-Turner Contracting Co. United Therapeutics - Phase 2A UPDATE #4 ALL ACTIVITIES										
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Start Date	27JUL07	Early Bar	U704	Sheet 14 of 35	Date	Revision	Checked	Approved
Finish Date	16NOV09	Progress Bar						
Data Date	01MAY08	Critical Activity						
Run Date	29MAY08 11:44							
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Activity ID	Activity Description	OD	RD	%	ES	EF	TF	2007	2008	2009	
								M J J A S O N D J F M A M J J A S O N D J F M A M J J A S O N			
40130	Cure Concrete @ Lvl 5	28	28	0	23SEP08	20OCT08	3			40130	Cure Concrete @ Lvl 5
40050	Remove Shoring @ Lvl 1	5	5	0	30SEP08	06OCT08	3			40050	Remove Shoring @ Lvl 1
60100	Stair #3 - Erect / Pour - Lvl 5 to Lvl 7	5	5	0	30SEP08	06OCT08	21			60100	Stair #3 - Erect / Pour - Lvl 5 to Lvl 7
60290	Stair #4 - Erect / Pour - Lvl 5 to Lvl 7	5	5	0	30SEP08	06OCT08	21			60290	Stair #4 - Erect / Pour - Lvl 5 to Lvl 7
40180	Concrete Superstructure - Lvl 6 to Lvl 7	15	15	0	30SEP08	21OCT08	0			40180	Concrete Superstructure - Lvl 6 to Lvl 7
40160	Cure Concrete @ Lvl 6	28	28	0	07OCT08	03NOV08	1			40160	Cure Concrete @ Lvl 6
40080	Remove Shoring @ Lvl 2	5	5	0	14OCT08	20OCT08	1			40080	Remove Shoring @ Lvl 2
40210	Concrete Superstructure - Lvl 7 to Roof	5	5	0	22OCT08	28OCT08	11			40210	Concrete Superstructure - Lvl 7 to Roof
60110	Stair #3 - Erect / Pour - Lvl 7 to Roof	5	5	0	22OCT08	28OCT08	12			60110	Stair #3 - Erect / Pour - Lvl 7 to Roof
60300	Stair #4 - Erect / Pour - Lvl 7 to Roof	5	5	0	22OCT08	28OCT08	12			60300	Stair #4 - Erect / Pour - Lvl 7 to Roof
45000	Structural Steel Beams / Grating - Lvl 4	15	15	0	22OCT08	17NOV08	7			45000	Structural Steel Beams / Grating - Lvl 4
40190	Cure Concrete @ Lvl 7	28	28	0	22OCT08	18NOV08	0			40190	Cure Concrete @ Lvl 7
40110	Remove Shoring @ Lvl 3	5	5	0	29OCT08	05NOV08	0			40110	Remove Shoring @ Lvl 3
40240	Concrete Superstructure - Roof to Mech PH	5	5	0	29OCT08	05NOV08	12	Concrete Superstructure - Roof to Mech PH		40240	Concrete Superstructure - Roof to Mech PH
60120	Stair #3 - Erect / Pour - Roof to PH	5	5	0	29OCT08	05NOV08	44			60120	Stair #3 - Erect / Pour - Roof to PH
60310	Stair #4 - Erect / Pour - Roof to PH	5	5	0	29OCT08	05NOV08	44			60310	Stair #4 - Erect / Pour - Roof to PH
40220	Cure Concrete @ Roof	28	28	0	29OCT08	25NOV08	19			40220	Cure Concrete @ Roof
40140	Remove Shoring @ Lvl 4	5	5	0	06NOV08	13NOV08	11			40140	Remove Shoring @ Lvl 4
40250	Cure Concrete @ PH	28	28	0	06NOV08	03DEC08	19			40250	Cure Concrete @ PH
40170	Remove Shoring @ Lvl 5	5	5	0	14NOV08	20NOV08	11			40170	Remove Shoring @ Lvl 5
45030	Structural Steel / Roof Deck - 8th Fl Roof	15	15	0	18NOV08	12DEC08	27	Structural Steel / Roof Deck - 8th Fl Roof		45030	Structural Steel / Roof Deck - 8th Fl Roof
40200	Remove Shoring @ Lvl 6	5	5	0	21NOV08	28NOV08	22			40200	Remove Shoring @ Lvl 6
40230	Remove Shoring @ Lvl 7	3	3	0	01DEC08	03DEC08	26			40230	Remove Shoring @ Lvl 7
40260	Remove Shoring @ PH	3	3	0	04DEC08	08DEC08	26			40260	Remove Shoring @ PH
Building Enclosure											
55000	Masonry Lvl Cellar East Wall	10	10	0	22SEP08	07OCT08	2			55000	Masonry Lvl Cellar East Wall
55010	Masonry Lvl 1 North & East Wall	10	10	0	08OCT08	22OCT08	2			55010	Masonry Lvl 1 North & East Wall
50000	Curtainwall - North/West Elev. Lvl 1-2	10	10	0	15OCT08	28OCT08	1			50000	Curtainwall - North/West Elev. Lvl 1-2
58300	Photovoltaic Panels - Lvl 8	36	36	0	22OCT08	23DEC08	63			58300	Photovoltaic Panels - Lvl 8
52100	Masonry Lvl 2 East Wall	10	10	0	23OCT08	07NOV08	2			52100	Masonry Lvl 2 East Wall
50030	Curtainwall - West/South Elev. Lvl 1	10	10	0	29OCT08	13NOV08	1			50030	Curtainwall - West/South Elev. Lvl 1
58000	Roof Insulation / Membrane - Lvl 5 (A to R5)	5	5	0	06NOV08	13NOV08	13	Roof Insulation / Membrane - Lvl 5 (A to R5)		58000	Roof Insulation / Membrane - Lvl 5 (A to R5)
52110	Masonry Lvl 3 East Wall	10	10	0	16NOV08	28NOV08	2			52110	Masonry Lvl 3 East Wall
50060	Curtain Wall - West/South Elev. Lvl 2	10	10	0	14NOV08	28NOV08	1			50060	Curtain Wall - West/South Elev. Lvl 2
58060	Roof Insulation / Membrane - Lvl 6 (R6 to R12.5)	5	5	0	17NOV08	25NOV08	13	Roof Insulation / Membrane - Lvl 6 (R6 to R12.5)		58060	Roof Insulation / Membrane - Lvl 6 (R6 to R12.5)
52000	Studs/Sheathing - N/W Elev. Lvl 1-4	10	10	0	17NOV08	04DEC08	24			52000	Studs/Sheathing - N/W Elev. Lvl 1-4
58120	Roof Insulation / Membrane - Lvl 7 (A to R6)	5	5	0	26NOV08	04DEC08	13	Roof Insulation / Membrane - Lvl 7 (A to R6)		58120	Roof Insulation / Membrane - Lvl 7 (A to R6)
58390	Roof Insulation / Membrane - Lvl 3	2	2	0	01DEC08	03DEC08	49			58390	Roof Insulation / Membrane - Lvl 3
50160	Str Steel for Trellis - North Lvl 6	5	5	0	01DEC08	08DEC08	108			50160	Str Steel for Trellis - North Lvl 6
50120	Curtainwall - North/West Elev. Lvl 5-6	10	10	0	01DEC08	12DEC08	29	Curtainwall - North/West Elev. Lvl 5-6		50120	Curtainwall - North/West Elev. Lvl 5-6
52130	Masonry Lvl 4 East Wall	10	10	0	01DEC08	15DEC08	2			52130	Masonry Lvl 4 East Wall

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 Early Bar
 Progress Bar
 Critical Activity

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The Whiting-Turner Contracting Co.
United Therapeutics - Phase 2A
UPDATE #4
ALL ACTIVITIES

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Activity ID	Activity Description	OD	RD	%	ES	EF	TF
A7500	/F - Markerboards & Projection Screens	7	7	0	24AUG09	01SEP09	7
A7580	/F - Doors & Hardware	5	5	0	02SEP09	09SEP09	7
A7470	/F LBY - Glass Wall Panel Walls	7	7	0	02SEP09	11SEP09	5
A7530	/F - Wall Touch-Ups	5	5	0	14SEP09	18SEP09	5
A7540	/F - Floor Punch-Out	5	5	0	21SEP09	25SEP09	5
Penthouse Floor							
A8000	PH - Layout - Survey	3	3	0	09DEC08	11DEC08	59
A8020	PH - Layout & Pour Equipment Pads	2	2	0	12DEC08	15DEC08	59
A8080	PH - Set AHU	1	1	0	18DEC08	16DEC08	113
A8090	PH - Set Misc. Mechanical Equipment	2	2	0	17DEC08	18DEC08	113
A8010	PH - Overhead Ductwork & Mechanical	10	10	0	23FEB09	06MAR09	14
A8100	PH - Set Cooling Towers	2	2	0	27FEB09	02MAR09	48
A8040	PH - Electrical Rough-In	10	10	0	02MAR09	13MAR09	14
A8060	PH - Install Door Frames	5	5	0	09MAR09	13MAR09	44
A8050	PH - Sprinkler Rough-In	10	10	0	09MAR09	20MAR09	43
A8070	PH - Interior CMU Partitions	10	10	0	16MAR09	27MAR09	44
A8150	PH - Turn Downs & Sprinkler Heads	5	5	0	23MAR09	27MAR09	43
A8180	PH - Hydro Test	1	1	0	30MAR09	30MAR09	43
A8110	PH - Set Exhaust Fans	2	2	0	31MAR09	01APR09	43
A8120	PH - Mechanical Equipment Connections	5	5	0	02APR09	08APR09	43
A8140	PH - Set Generator	5	5	0	23APR09	29APR09	57
A8130	PH - Mechanical Equipment Start-Up	1	1	0	29APR09	29APR09	33
A8180	PH - Connect Generator	3	3	0	30APR09	04MAY09	57
A8190	PH - Start-Up Generator	2	2	0	05MAY09	06MAY09	57
Elevator							
A9140	Md State Elevator Inspections	3	3	0	01MAY08	03MAY08	519
A9130	Ten Day State Required Wait Period	10	10	0	01MAY08	14MAY08	376
A9080	Set Elevator #3 Equipment	15	15	0	26FEB09	18MAR09	46
A9110	Third Party Inspect Elevators	3	3	0	04MAR09	06MAR09	255
A9100	Set Elevator #1 Equipment	10	10	0	04MAR09	17MAR09	42
A9030	Install Elevator Rails & Sills Elevator 3	15	15	0	19MAR09	08APR09	46
A9090	Set Elevator #2 Equipment	10	10	0	09APR09	22APR09	28
A9060	Install Elevator Cabs & Finishes Elevator 3	20	20	0	09APR09	06MAY09	46
A9010	Install Elevator Rails & Sills Elevator 1	15	15	0	23APR09	13MAY09	28
A9020	Install Elevator Rails & Sills Elevator 2	15	15	0	14MAY09	04JUN09	28
A9040	Install Elevator Cabs & Finishes Elevator 1	20	20	0	05JUN09	02JUL09	28
A9050	Install Elevator Cabs & Finishes Elevator 2	20	20	0	06JUL09	31JUL09	40
A9070	Inspect/Commission Elevators	4	4	0	03AUG09	06AUG09	40
Project Close-Out							
900002	Start-up Mechanical / Process / Electrical Equip.	30	30	0	17JUN09	29JUL09	29
900003	Controls Check-out	30	30	0	16JUL09	26AUG09	29

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United Therapeutics - Phase 2A
UPDATE #4
ALL ACTIVITIES

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Start Date	27JUL07	Early Bar	U704	Sheet 32 of 35	Date	Revision	Checked	Approved
Finish Date	16NOV09	Progress Bar						
Cost Date	01MAY08	Critical Activity						
Print Date	28MAY08 11:44							
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Activity ID	Activity Description	OD	RD	%	ES	EF	TF
4	Revise & Release Embeds	10	10	0	15MAY08	29MAY08	7
Material Procurements							
13	Fabrication Dwg's for CW 1	45	29	36	10APR08A	11JUN08	17
33	Procure Mat. - Channel Glass	35	35	0	17APR08A	25JUL08	88
30	Procure Mat. - Aluminum Extrusions for CW	20	20	0	01MAY08	29MAY08	46
28	Procure Mat. - Embeds for CW & Channel Glass	30	30	0	30MAY08	11JUL08	7
35	Procure Mat. - Fabricate Aluminum Extrusions	50	50	0	30MAY08	08AUG08	46
32	Procure Mat. - Doors & Hardware	30	30	0	27JUN08	08AUG08	46
Start milestone							
Foundations/Hoists/Slabs							
30160	Hoist Available	0	0	0	06NOV08		61
Elevator							
A9120	Elevator #1 Available as Hoist	0	0	0	06JUL09		26
Finish milestone							
Milestones							
10100	Watertight	0	0	0	03MAR09		1
10050	Permanent Power	0	0	0	08APR09		26
10200	Gas Ready	0	0	0	08APR09		45
10170	Sanitary Ready	0	0	0	22APR09		42
10180	Domestic Water Ready	0	0	0	24APR09		47
10450	CWS&R Ready	0	0	0	01MAY09		42
10210	USP Ready	0	0	0	03JUN09		30
10080	Conditioned Air	0	0	0	16JUN09		0
10430	WFI Ready	0	0	0	16JUL09		30
10440	Clean Steam Ready	0	0	0	06AUG09		30
Sitework							
10075	New Entrance Available	0	0	100	22JAN08A		
12120	Temporary Power Available	0	0	100	06FEB08A		
15040	Dewatering Pumps Operational	0	0	100	24MAR08A		
Foundations/Hoists/Slabs							
30075	Tower Crane Available	0	0	100	14APR08A		
Cellar							
10090	Subcontractors Demobilize from Basement	0	0	0	29JUN09		39
First Floor Fit-Out							
A1580	1F ER - Lvl 1 Ready for Permanent Power	0	0	0	08APR09		47
Second Floor Fit-Out							
A2550	2F ER - Lvl 2 Ready for Permanent Power	0	0	0	20APR09		37
Third Floor Fit-Out							
A3380	3F - Lvl 3 Ready for Permanent Power	0	0	0	08APR09		99
Fourth Floor Fit-Out							
A4370	4F - Lvl 4 Ready for Permanent Power	0	0	0	01MAY09		21

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The Whiting-Turner Contracting Co.

United Therapeutics - Phase 2A
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Activity ID	Activity Description	OD	RD	%	ES	EF	TF	2007												2008												2009											
								M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N					
Fifth Floor Fit-Out																																											
A5610	5F ER - Lvl 5 Ready for Permanent Power	0	0	0		11JUN09	0													5F ER - Lvl 5 Ready for Permanent Power A5610																							
Sixth Floor Fit-Out																																											
A6600	6F ER - Lvl 6 Ready for Permanent Power	0	0	0		01JUN09	8													6F ER - Lvl 6 Ready for Permanent Power A6600																							
Seventh Floor Fit-Out																																											
A7570	7F ER - Lvl 7 Ready for Permanent Power	0	0	0		10JUN09	1													7F ER - Lvl 7 Ready for Permanent Power A7570																							
Penthhouse Floor																																											
A8170	PH - Ready for Permanent Power	0	0	0		28APR09	33													PH - Ready for Permanent Power A8170																							
Project Close-Out																																											
999999	Final Inspections Complete	0	0	0		13NOV09	0																									Final Inspections Complete 999999											
999999	Project Completion (11/16/09)	0	0	0		16NOV09	0																									999999											
FOUNDATION LINE																																											
FDNL-010	Water Line no longer needs relocation	0	0	100		25NOV07A														FDNL-010 Water Line no longer needs relocation																							
Hammock																																											
A9150	Dedicated Phone Lines Available From UT	0	0	0		03MAR09	255													Dedicated Phone Lines Available From UT A9150																							
Sitework																																											
50040	EARTHWORK: SHEETING/SHORING	70%	0%	100	16JAN08A	25MAR08A														50040 EARTHWORK: SHEETING/SHORING																							
10230	Road Closure West	11%	11%	0	12MAY08	28MAY08	0													10230 Road Closure West																							
10310	Road Closure East	11%	11%	0	29MAY08	13JUN08	9													10310 Road Closure East																							
Foundations/Pier/Slabs																																											
50070	CONCRETE: FOUNDATION	93%	41%	56	26MAR08A	26JUN08	7													50070 CONCRETE: FOUNDATION																							
Structure																																											
50050	CONCRETE: FLOORS 2-PH	92%	92%	0	06AUG08	06NOV08	19													50050 CONCRETE: FLOORS 2-PH																							
Building Enclosure																																											
50080	SKIN	312%	312%	0	22SEP08	30JUL09	64													50080 SKIN																							
50020	CURTAINWALL	80%	80%	0	15OCT08	11FEB09	2													50020 CURTAINWALL																							
50170	ROOFING	301%	301%	0	06NOV08	02SEP09	30													50170 ROOFING																							
50110	STUDS AND SHEATHING	102%	102%	0	17NOV08	26FEB09	1													50110 STUDS AND SHEATHING																							
50010	CHANNEL GLASS	30%	30%	0	01DEC08	13JAN09	1													50010 CHANNEL GLASS																							
50140	TERRA COTTA	91%	91%	0	19DEC08	10MAR09	112													50140 TERRA COTTA																							
50130	ZINC PANELS	182%	182%	0	30JAN09	30JUL09	91													50130 ZINC PANELS																							
50190	HARDSCAPE	167%	167%	0	12MAR09	25AUG09	38													50190 HARDSCAPE																							
Fit-Out Example																																											
50310	LAB CONSTRUCTION	274%	274%	0	22SEP08	22JUN09	7													50310 LAB CONSTRUCTION																							
50230	LAB CONSTRUCTION: WALLS/CEILING	207%	207%	0	28NOV08	22JUN09	7													50230 LAB CONSTRUCTION: WALLS/CEILING																							
50320	OFFICE CONSTRUCTION	211%	211%	0	01DEC08	29JUN09	8													50320 OFFICE CONSTRUCTION																							
50260	LAB CONSTRUCTION: FINISHES	271%	271%	0	29DEC08	25SEP09	7													50260 LAB CONSTRUCTION: FINISHES																							
50220	OFFICE CONSTRUCTION: ABOVE CLG/RI	50%	50%	0	21JAN09	11MAR09	1													50220 OFFICE CONSTRUCTION: ABOVE CLG/RI																							
50200	LAB CONSTRUCTION: ABOVE CLG/RI	0%	0%	0	05MAR09	04MAR09	0													50200 LAB CONSTRUCTION: ABOVE CLG/RI																							
50240	OFFICE CONSTRUCTION: WALLS/CEILING	117%	117%	0	05MAR09	29JUN09	8													50240 OFFICE CONSTRUCTION: WALLS/CEILING																							

Start Date

27JUL07

Early Bar

Finish Date

16NOV09

Progress Bar

Data Date

01MAY08

Critical Activity

Print Date

29MAY08 11:45

U704

Sheet 34 of 35

The Whiting-Turner Contracting Co.

United Therapeutics - Phase 2A

UPDATE #4

ALL ACTIVITIES

Date

Revision

Checked

Approved

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Activity ID	Activity Description	OD	RD	%	ES	EF	TF	2007												2008												2009											
								M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N					
50290	OFFICE CONSTRUCTION: FINISHES	10/7	10/7	0	11JUN09	25SEP09	7																																				
50280	OFFICE CONSTRUCTION: FLOORS	31*	31*	0	01JUL09	31JUL09	32																																				
50250	LAB CONSTRUCTION: FLOORS	30*	30*	0	09JUL09	07AUG09	25																																				
50300	OFFICE CONSTRUCTION: TRIM	44*	44*	0	16JUL09	28AUG09	28																																				
50270	LAB CONSTRUCTION: TRIM	30*	30*	0	23JUL09	21AUG09	35																																				

Start Date

27JUL07

Early Bar

Finish Date

16NOV09

Progress Bar

Data Date

01MAY08

Critical Activity

Print Date

28MAY08 11:45

U104

The Whiting-Turner Contracting Co.

United Therapeutics - Phase 2A

UPDATE #4

ALL ACTIVITIES

Sheet 35 of 35

Date

Revision

Checked

Approved

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United Therapeutics Corporation
Ratio of Earnings to Fixed Charges
(Unaudited)

	Years Ended December 31,				
	2008	2007	2006	2005	2004
	(in thousands, except ratio)				
(Losses) earnings from continuing operations before fixed charges	<u>\$ (42,789)</u>	<u>\$ 19,859</u>	<u>\$ 28,982</u>	<u>\$ 42,893</u>	<u>\$ 13,209</u>
Fixed charges					
Interest expenses, net of capitalized interest	\$ 16	\$ 2,175	\$ 482	\$ 29	\$ 3
Capitalized interest	3,106	689	—	—	—
Portion of rentals representative of interest factor	1,161	1,885	1,172	—	—
Total fixed charges	<u>4,283</u>	<u>4,749</u>	<u>1,654</u>	<u>29</u>	<u>3</u>
Ratio of earnings to fixed charges	<u>(9.99)</u>	<u>4.18</u>	<u>17.52</u>	<u>1,479.07</u>	<u>4,403.00</u>
Excess fixed charges over earnings	<u>\$ 47,072</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ —</u>

NOTE: The Ratio of Earnings to Fixed Charges should be read in conjunction with the Consolidated Financial Statements and related Notes and Management's Discussion and Analysis of Financial Condition and Results of Operations contained in United Therapeutics Corporation's Annual Report on Form 10-K for the year ended December 31, 2008.

Exhibit 12.1

United Therapeutics Corporation Ratio of Earnings to Fixed Charges (Unaudited)

SUBSIDIARIES OF THE REGISTRANT

Lung Rx, Inc., a Delaware Corporation
Unither Telmed, Ltd, a Delaware Corporation
Unither Pharmaceuticals, Inc., a Delaware Corporation
United Therapeutics Europe, Ltd., a United Kingdom Company
Unither Therapeutik, GmbH, a German Company
Unither Pharma, Inc., a Delaware Corporation
Medicomp, Inc., a Delaware Corporation
Unither Neurosciences, Inc., a Delaware Corporation
Unither.com, Inc., a Delaware Corporation
LungRx Limited, a United Kingdom Company
Unither Biotech Inc., a Canadian Company
Unither Virology, LLC, a Delaware Corporation

QuickLinks

[Exhibit 21](#)

SUBSIDIARIES OF THE REGISTRANT

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the following Registration Statements:

- (1) Registration Statement (Form S-3 No. 333-118699) of United Therapeutics Corporation,
- (2) Registration Statement (Form S-8 No. 333-108169) pertaining to the United Therapeutics Corporation's Equity Incentive Plan,
- (3) Registration Statement (Form S-8 No. 333-56922) pertaining to the United Therapeutics Corporation's Equity Incentive Plan,
- (4) Registration Statement (Form S-8 No. 333-95419) pertaining to the United Therapeutics Corporation's Equity Incentive Plan,
- (5) Registration Statement (Form S-3 No. 333-139631) of United Therapeutics Corporation, and
- (6) Registration Statement (Form S-8 No. 333-153695) pertaining to the United Therapeutics Corporation's Share Tracking Awards Plan.

of our reports dated February 26, 2009, with respect to the consolidated financial statements and schedule of United Therapeutics Corporation and the effectiveness of United Therapeutics Corporation's internal control over financial reporting included in this Annual Report (Form 10-K) for the year ended December 31, 2008.

/s/ Ernst & Young LLP

McLean, Virginia
February 26, 2009

QuickLinks

[Exhibit 23.1](#)

[Consent of Independent Registered Public Accounting Firm](#)

**CERTIFICATION PURSUANT TO RULE 13a-14 (a)
OF THE SECURITIES EXCHANGE ACT OF 1934**

I, Martine A. Rothblatt, certify that:

1. I have reviewed this annual report on Form 10-K of United Therapeutics Corporation;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15 (e) and 15d-15 (e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15 (f) and 15d-15 (f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 26, 2009

/s/ MARTINE A. ROTHBLATT

By:
Title:

Martine A. Rothblatt, Ph.D.
Chairman and Chief Executive Officer

QuickLinks

[Exhibit 31.1](#)

CERTIFICATION PURSUANT TO RULE 13a-14 (a) OF THE SECURITIES EXCHANGE ACT OF 1934

**CERTIFICATION PURSUANT TO RULE 13a-14 (a)
OF THE SECURITIES EXCHANGE ACT OF 1934**

I, John M. Ferrari, certify that:

1. I have reviewed this annual report on Form 10-K of United Therapeutics Corporation:
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I am responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15 (e) and 15d-15 (e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15 (f) and 15d-15 (f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 26, 2009

/s/ JOHN M. FERRARI

By:
Title:

John M. Ferrari
Chief Financial Officer and Treasurer

QuickLinks

[Exhibit 31.2](#)

CERTIFICATION PURSUANT TO RULE 13a-14 (a) OF THE SECURITIES EXCHANGE ACT OF 1934

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the annual report of United Therapeutics Corporation (the "Company") on Form 10-K for the period ended December 31, 2008 as filed with the Securities and Exchange Commission (the "Report"), I, Martine A. Rothblatt, Chief Executive Officer of the Company, certify, to the best of my knowledge, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ MARTINE A. ROTHBLATT

Martine A. Rothblatt
Chairman and Chief Executive Officer
United Therapeutics Corporation
February 26, 2009

THE FOREGOING CERTIFICATION IS BEING FURNISHED SOLELY PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002 AND IS NOT BEING FILED AS PART OF THE FORM 10-K OR AS A SEPARATE DISCLOSURE DOCUMENT.

A SIGNED ORIGINAL OF THIS WRITTEN STATEMENT REQUIRED BY SECTION 906, OR OTHER DOCUMENT AUTHENTICATING, ACKNOWLEDGING, OR OTHERWISE ADOPTING THE SIGNATURE THAT APPEARS IN TYPED FORM WITHIN THE ELECTRONIC VERSION OF THIS WRITTEN STATEMENT REQUIRED BY SECTION 906, HAS BEEN PROVIDED TO UNITED THERAPEUTICS CORPORATION AND WILL BE RETAINED BY UNITED THERAPEUTICS CORPORATION AND FURNISHED TO THE SECURITIES AND EXCHANGE COMMISSION OR ITS STAFF UPON REQUEST.

QuickLinks

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY
ACT OF 2002

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the annual report of United Therapeutics Corporation (the "Company") on Form 10-K for the period ended December 31, 2008 as filed with the Securities and Exchange Commission (the "Report"), I, John M. Ferrari, Chief Financial Officer of the Company, certify, to the best of my knowledge, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that:

- (1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

/s/ JOHN M. FERRARI

John M. Ferrari
Chief Financial Officer and Treasurer
United Therapeutics Corporation
February 26, 2009

THE FOREGOING CERTIFICATION IS BEING FURNISHED SOLELY PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002 AND IS NOT BEING FILED AS PART OF THE FORM 10-K OR AS A SEPARATE DISCLOSURE DOCUMENT.

A SIGNED ORIGINAL OF THIS WRITTEN STATEMENT REQUIRED BY SECTION 906, OR OTHER DOCUMENT AUTHENTICATING, ACKNOWLEDGING, OR OTHERWISE ADOPTING THE SIGNATURE THAT APPEARS IN TYPED FORM WITHIN THE ELECTRONIC VERSION OF THIS WRITTEN STATEMENT REQUIRED BY SECTION 906, HAS BEEN PROVIDED TO UNITED THERAPEUTICS CORPORATION AND WILL BE RETAINED BY UNITED THERAPEUTICS CORPORATION AND FURNISHED TO THE SECURITIES AND EXCHANGE COMMISSION OR ITS STAFF UPON REQUEST.

QuickLinks

Exhibit 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY
ACT OF 2002