

**(PUBLIC VERSION)**

**UNITED STATES OF AMERICA  
FEDERAL TRADE COMMISSION**



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**DOCKET NO. 9300**

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**In the Matter of**

**CHICAGO BRIDGE & IRON COMPANY, N.V.**  
a foreign corporation,

**CHICAGO BRIDGE & IRON COMPANY**  
a corporation, and

**PITT-DES MOINES, INC.**  
a corporation.

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**INITIAL DECISION**

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**D. Michael Chappell**  
Administrative Law Judge

**Date: June 18, 2003**

**(PUBLIC VERSION)**

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## **I. INTRODUCTION**

### **A. Federal Trade Commission Complaint**

The Federal Trade Commission ("FTC") issued its Complaint in this matter on October 25, 2001. The Complaint charges that Chicago Bridge & Iron Company N.V., a foreign corporation, Chicago Bridge & Iron Company, a corporation (collectively, "CB&I") and Pitt-Des Moines, Inc. ("PDM"), a corporation, entered into an agreement in violation of Section 5 of the Federal Trade Commission Act ("FTC Act"), as amended. 15 U.S.C. § 45. The Complaint alleges that on or about February 7, 2001, CB&I acquired, pursuant to agreement with PDM, PDM's Water Division and Engineered Construction ("EC") Division for approximately \$84 million ("the Acquisition"). The Complaint alleges that the relevant geographic market is the United States as a whole and that the relevant product markets are large, field-erected: (1) liquefied natural gas ("LNG") storage tanks (individually, or as a component of an import terminal or a LNG peak shaving plant); (2) refrigerated liquid petroleum gas ("LPG") storage tanks; (3) liquid nitrogen, oxygen and argon ("LIN/LOX") storage tanks; and (4) thermal vacuum chambers ("TVCs").

The Complaint charges two violations. Count I alleges the effect of the Acquisition may be substantially to lessen competition or tend to create a monopoly in violation of Section 7 of the Clayton Act, as amended, 15 U.S.C. § 18, and Section 5 of the FTC Act. Count II alleges that CB&I and PDM ("Respondents"), through the Acquisition and the Acquisition agreement have engaged in unfair methods of competition in or affecting commerce in violation of Section 5 of the FTC Act.

### **B. Respondents' Answers**

Following the issuance of the Complaint, the parties filed three joint motions seeking extensions of time for Respondents to file the Answer to the Complaint. In each motion, the parties represented an extension was needed in order for the parties to pursue settlement of this action. CB&I and PDM each filed an Answer on February 4, 2002. Respondents denied most of the allegations of the Complaint. CB&I admitted that on February 7, 2001, CB&I completed its acquisition of certain assets of PDM related to its Water Division and Engineered Construction Division. Respondents asserted that the Acquisition has caused a repositioning, which has given an incentive to previously dormant competitors to invest in this business to attempt to replace PDM as a bidder in the relevant markets.

### **C. Procedural History**

On August 29, 2000, CB&I and PDM entered into a letter of intent for CB&I to acquire PDM's Engineered Construction and Water Divisions. Respondents made their filings under the Hart-Scott-Rodino Act ("HSR"), 15 U.S.C. § 18a, on September 12, 2000. The initial waiting period under HSR expired on October 12, 2000.

The FTC did not seek a preliminary injunction in a U.S. district court, pursuant to Section 13(b) of the FTC Act, 15 U.S.C. § 53(b), to halt CB&I's impending acquisition. On February 7, 2001, CB&I completed its acquisition of certain assets of PDM's Water Division and Engineered Construction Division.

On October 25, 2001, the FTC issued its Complaint. After extensive pretrial discovery, the administrative trial in this case commenced on November 12, 2002. By Order signed on June 18, 2002 by the previous Administrative Law Judge in this litigation, Respondents' motion for a 60 day extension was granted, extending the deadline for filing the Initial Decision to December 25, 2002. By Order issued December 17, 2002, because the trial in this matter was then still proceeding, an additional 60 day extension was granted, extending the deadline for filing the Initial Decision to February 24, 2003.

The administrative trial concluded on January 16, 2003. On January 21, 2003, the parties filed a joint motion to extend the deadline for filing the Initial Decision. By Order dated January 28, 2003, extraordinary circumstances were found to exist sufficient to extend the deadline for filing the Initial Decision by an additional 60 days, to April 28, 2003. The January 28, 2003 Order also revised the post trial briefing schedule and closed the hearing record pursuant to Commission Rule 3.44(c). On April 24, 2003, in response to a request made pursuant to Commission Rule 3.51(a), the Commission issued an Order extending the time to file the Initial Decision until June 12, 2003.

#### **D. Evidence**

The Initial Decision is based on the transcript of the testimony, the exhibits properly admitted in evidence, and proposed findings of fact and conclusions of law and replies thereto filed by the parties. Citations to specific numbered Findings of Fact in this Initial Decision are designated by "F."

The parties submitted extensive post-trial briefs and reply briefs. The Initial Decision addresses only material issues of fact and law. Proposed findings of fact not included in the Initial Decision were rejected, either because they were not supported by the evidence or because they were not dispositive to the determination of the allegations of the Complaint. The Commission has held that Administrative Law Judges are not required to discuss the testimony of each witness or all exhibits that are presented during the administrative adjudication. *In re Amrep Corp.*, 102 F.T.C. 1362, 1670 (1983). Administrative adjudicators are "not required to make subordinate findings on every collateral contention advanced, but only upon those issues of fact, law, or discretion which are 'material.'" *Minneapolis & St. Louis Ry. Co. v. United States*, 361 U.S. 173, 193-94 (1959).

On March 7, 2003, Respondents filed a motion to strike, seeking an order striking certain exhibits that were never admitted into evidence and striking a number of Complaint Counsel's Proposed Findings of Fact ("CCPFF") from the record. Complaint Counsel filed its opposition

to the motion to strike on March 13, 2003. By separate Order issued June 12, 2003, Respondents' motion was granted. For the reasons set forth in that Order, proposed findings of fact that fail to cite any evidence or that cite to documents, graphs, or charts not in evidence have been disregarded.

Many of the documents and parts of the oral testimony were received into the record *in camera*. Where an entire document or where certain trial testimony was given *in camera* treatment, but the portion of the document or the trial testimony utilized in this Initial Decision does not rise to the level necessary for *in camera* treatment, such information is disclosed in the public version of this Initial Decision, pursuant to Commission Rule 3.45(a) (the ALJ "may disclose such *in camera* material to the extent necessary for the proper disposition of the proceeding"). Material that has been given *in camera* treatment is indicated in bold font and brackets in the *in camera* version and is redacted from the public version of the Initial Decision, in accordance with 16 C.F.R. § 3.45(f).

#### **E. Summary**

As fully set forth below, Complaint Counsel has established by reliable and probative evidence that the effect of the Acquisition of PDM's EC and Water Divisions by CB&I may be to substantially lessen competition in the relevant markets. CB&I's asserted exiting assets defense fails as a matter of fact and law. Complaint Counsel has met its burden of proof on Count I and Count II of the Complaint. The appropriate remedy is divestiture.

### **II. FINDINGS OF FACT**

#### **A. Respondents**

##### **1. Chicago Bridge and Iron**

1. Respondent Chicago Bridge & Iron Company N.V. is a foreign corporation organized and existing under the laws of the Netherlands, with its principal place of business at Polarisavenue 31, 2132 JH Hoofddorp, The Netherlands. (Complaint ¶ 1; Answer ¶ 1).

2. Respondent Chicago Bridge & Iron Company ("CB&I"), a wholly owned subsidiary of Chicago Bridge & Iron Company N.V., is a corporation, as "corporation" is defined in Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44, organized and existing under the laws of the State of Delaware, with its principal place of business at 1501 North Division Street, Plainfield, Illinois 60544. (Complaint ¶ 2; Answer ¶ 2).

3. Among other products and services, CB&I is engaged in the business of designing, engineering, manufacturing and constructing field-erected LNG, LPG and LIN/LOX storage tanks and TVCs in the United States and abroad. (CX 1033 at 6; CX 212 at CBI-PL 031711).

4. In 1999, prior to the merger, CB&I had revenues of \$674 million; in 2000, revenues were \$612 million; in 2001, after the merger with PDM, revenues were approximately \$1.081 billion. (CX 1033 at 22). CB&I's acquisition of Howe Baker, Inc. (a process contractor operating in gas refining and processing) in December 2000 accounts for an increase in CB&I's revenues. (Glenn, Tr. 4086, 4403-05).

5. CB&I's acts and practices, including the acts and practices alleged in the Complaint, are in or affect commerce as "commerce" is defined in Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44. (Complaint ¶ 7; CB&I Answer at ¶ 7).

## **2. Pitt-Des Moines**

6. Pitt-Des Moines, Inc. ("PDM") was a corporation organized and existing under the laws of the Commonwealth of Pennsylvania, publicly traded on the American Stock Exchange, with its principal place of business at 1450 Lake Robbins Drive, Suite 400, the Woodlands, Texas, 77380. (CX 328 at CBI 001253-CHI; CX 21 at PDM-C 1000003; Byers, Tr. 6732). PDM's headquarters was located at 10200 Grogan's Mill Road, Suite 300, the Woodlands, Texas, 77380. (CX 661 at PDM-HOU017554).

7. In 1999, PDM had a total revenue of \$629 million and Earnings Before Interest and Taxes ("EBIT") of \$41 million. (CX 520 at TAN 1003289; Scheman, Tr. 2915-16). In 2000, PDM had a total revenue of \$659 million and EBIT of \$76 million. (CX 520 at TAN 1003289; Scheman, Tr. 2915-16). In 1999, PDM's EC and Water Divisions had total revenues of \$281 million and EBIT of \$16.1 million. (CX 525 at TAN 1000385). In 2000, PDM's EC and Water Divisions had total revenues of \$268 million and EBIT of \$0.7 million. (CX 525 at TAN 1000385).

8. Prior to the Acquisition, PDM was a diversified company with several divisions, two of which were PDM Engineered Construction (PDM EC) and PDM Water. Both divisions were acquired by CB&I. (CX 328 at CBI 001253-CHI).

9. Among other products and services, PDM was engaged in the business of designing, engineering, manufacturing and constructing field-erected LNG, LPG and LIN/LOX storage tanks and TVCs in the United States and abroad. (CX 522 at TAN 1003371; CX 850 at PDM-HOU 0129192-0129195, 0129199; CX 911 at CBI 028717-HOU -028726).

## **B. The Acquisition**

10. In August 2000, CB&I offered \$93.5 million to PDM. (CX 521 at TAN 1000328). On August 29, 2000, CB&I and PDM entered into a letter of intent for CB&I to acquire PDM's Engineered Construction and Water Divisions. (CX 21 at PDM-C 1000003).

11. CB&I's initial offer of \$93.5 million to PDM was negotiated downward to \$84 million in December of 2000 because of financial losses suffered by PDM EC in 2000. (Byers, Tr. 6789-90). CB&I's purchase price of \$84 million was eventually lowered to approximately \$76 to \$77 million because of losses in PDM's foreign subsidiary, PDM Venezuela, that did not become apparent until after the transaction was consummated. (Byers, Tr. 6793-94).

12. Respondents made their filings under the Hart-Scott-Rodino Act ("HSR") on September 12, 2000. (CX 56 at PDM-HOU 002331). The initial waiting period under HSR expired on October 12, 2000. (CX 56 at PDM-HOU 002331). The Federal Trade Commission did not seek an injunction to prevent CB&I from purchasing PDM EC and PDM Water. On February 7, 2001, CB&I acquired PDM EC and PDM Water ("the Acquisition"). (Byers, Tr. 6764-66).

13. The Complaint in this matter was filed on October 26, 2001. On November 12, 2002, the administrative trial began before D. Michael Chappell, Administrative Law Judge. (Tr. 4).

### **C. The Relevant Geographic Market**

14. The relevant geographic market is the United States. F. 15-17.

15. The parties agree that the relevant geographic market in which to analyze the merger is the United States. (Respondents' Position on Each Element of the Case, October 21, 2002, p.1). Complaint Counsel's expert, Dr. John Simpson, and Respondents' expert, Dr. Barry Harris, agree that the relevant geographic market in which to assess the impact of the Acquisition is the United States. (Simpson, Tr. 3035 (LNG); Harris, Tr. 7192 (LNG); Simpson, Tr. 3361-62 (LPG) (citing CX 116); Harris, Tr. 7280 (LPG); Simpson, Tr. 3421 (LIN/LOX); Harris, Tr. 7300-01 (LIN/LOX); Simpson, Tr. 3488 (TVC); Harris, Tr. 7324 (TVC)).

16. By definition, field-erected LNG, LPG and LIN/LOX storage tanks and TVCs must be built at customers' sites in the United States. "LNG tanks are purchased as part of a larger facility that is designed to supply natural gas to gas users in a particular area. As a consequence, the LNG tanks have to be located in a particular locality." (Simpson, Tr. 3034). "LIN/LOX/LAR tanks are purchased as part of a facility that makes liquefied gas, and those facilities are built close to a customer." (Simpson, Tr. 3420).

17. It is economically infeasible to import a field-erected storage tank from anywhere outside the United States. (Kistenmacher, Tr. 840, 881).

### **D. The Relevant Product Markets**

18. The relevant product markets in which to analyze the Acquisition are large, field-erected: (1) liquefied natural gas ("LNG") storage tanks (individually, or as a component of an

import terminal or an LNG peak shaving plant); (2) refrigerated liquid petroleum gas ("LPG") storage tanks; (3) liquid nitrogen, oxygen and argon ("LIN/LOX") storage tanks; and (4) large (over 20 feet in diameter) TVCs ("TVCs"). F. 19-45.

19. Respondents agree that the relevant product markets are field-erected LNG storage tanks, LPG storage tanks, and LIN/LOX storage tanks, and TVCs. (Respondents' Position on Each Element of the Case, October 21, 2002, p.1). Complaint Counsel's expert, Dr. John Simpson, and Respondents' expert, Dr. Barry Harris, agree on the relevant product markets, except that Dr. Harris believes that spheres should not be included in the LIN/LOX market. (Harris, Tr. 7301-02, 7192-95, 7280, 7324). (Simpson, Tr. 2989 (LNG); Harris, Tr. 7192 (LNG); Simpson, Tr. 3356-57 (LPG); Harris, Tr. 7280 (LPG); Simpson, Tr. 3416-17 (LIN/LOX); Harris, Tr. 7300 (LIN/LOX); Simpson, Tr. 3483 (TVC); Harris, Tr. 7324 (TVC)).

### **1. LNG tanks and facilities**

20. Liquefied natural gas ("LNG") is natural gas that has been converted to a liquid by cooling and condensing the natural gas to about -162° C (-260° F). (Glenn, Tr. 4066; CX 1259 at CBI-HWH030454). LNG is composed primarily of methane (typically at least 90%), but may also contain ethane, propane and heavier hydrocarbons. (Kistenmacher, Tr. at 889; CX 1259 at CBI-HWH030464). Neither LNG, nor its vapor, can explode by common ignition sources in an unconfined environment. (CX 1259 at CBI-HWH030469). LNG weighs approximately 45% as much as the same volume of water. (See CX 1259 at CBI-HWH030465).

#### **a. LNG tanks**

21. LNG storage tanks are a type of cryogenic tank that stores natural gas at a temperature of -260° F. (Kistenmacher, Tr. 879; CX 1074 at CBI-001243-PLA). Due to these very cold temperatures, LNG storage tanks are made of 9% nickel steel which has certain crack arresting properties when containing LNG at low temperatures, and is less brittle than carbon steel. (Kistenmacher, Tr. 881-82; CX 1074 at CBI-001245-PLA; Glenn, Tr. 4109-10).

22. The purpose of an LNG tank is to contain natural gas in liquid form. (Glenn, Tr. 4066; Price, Tr. 530). When stored at ambient temperatures (i.e. room temperature), natural gas takes a gaseous form. (CX 1259 at CBI-HWH030454). When liquefied, natural gas is far easier to store, as natural gas in gaseous form takes up 600 times the volume of its liquid equivalent. (CX 1259 at CBI-HWH030454).

23. LNG tanks typically are double-walled and often use perlite insulation between the two shells and may have some form of concrete containment for safety reasons. (Glenn, Tr. 4110; Kistenmacher, Tr. 881-82; CX 1074 at CBI-001243-PLA). The outer walls of single containment tanks are carbon steel and the inner walls are nine percent nickel steel. (CX 1074 at CBI-001243-PLA).

24. An LNG tank often has a diameter of 200 feet or more and can store millions of gallons of LNG. (Price, Tr. 524-525; Kistenmacher, Tr. 879; CX 176 at CBI-PL010926, *in camera*; CX 162 at CBI-PL006153; Puckett, Tr. 4566; J. Kelly, Tr. 6260).

**b. LNG import terminals**

25. LNG import terminals are "facilities to receive an LNG tanker, offload LNG into LNG storage tanks, take the LNG from those storage tanks over time, vaporize it, pressurize the gas, and send it out into a pipeline." (Bryngelson, Tr. 6170). The terminals include storage tanks, ship loading/unloading facilities, send-out facilities and vapor handling systems. (CX 650 at CBI/PDM-H4019758). LNG is stored in the tanks, pumped out, vaporized and injected into pipelines for transmission to end users. (CX 853 at PDM-HOU011487).

**c. LNG peak shaving plants**

26. LNG peak shaving plants store LNG to provide an emergency reserve of LNG in the event that gas customers experience a severe shortage of natural gas. (CX 650 at CBI/PDM-H4019758). LNG peak shaving plants consist of a liquefaction unit, where the gas is turned into liquid, and LNG storage tanks. (Kistenmacher, Tr. 884-85). In LNG peak shaving facilities, natural gas from a pipeline is refrigerated in the liquefaction unit and stored in liquid form in an LNG tank during the warmer months when demand and prices are low. (CX 142 at CBI 000241-HOU). As gas demand increases in colder months, the stored LNG is heated, vaporized and put back into the supply stream to meet heating demand peaks, when prices are high. (CX 142 at CBI 000241-HOU; Hall, Tr. 1775-1776).

27. LNG tanks in peak-shaving facilities are similar to, but tend to be smaller than, LNG tanks used at import terminals. (Glenn, Tr. 4070; Bryngelson, Tr. 6141-42).

28. Luke Scorsone, President of CB&I Industrial and former President of PDM-EC, could not cite a single instance in which a potential customer of an LNG tank tried to get a lower price by threatening to switch to an alternative to an LNG tank. (Scorsone, Tr. 2845).

29. The large tanks required for LNG storage are much too large to practically shop-fabricate and ship to the site. (Andrukiewicz, Tr. 6697-98). Shop-fabricated tanks cannot provide the storage levels required for LNG facilities. A shop-fabricated tank provides less than 1% of the storage that a field-erected LNG tank provides. (RX 6 at CBI-PL 031593). Shop-built tanks have size limitations and are "not a direct substitute for larger quantities of LNG." (Davis, Tr. 3184). LNG tanks designed to hold above a certain volume of LNG must be field-erected. (Blaumueller, Tr. 287). The largest shop-built tanks "would pale in comparison to field tanks." (Davis Tr. 3184-85). For example, 420 shop erected tanks would be required to replace one large LNG tank. (Price, Tr. 536-37).

## **2. LPG tanks**

30. Liquid petroleum gas (“LPG”) tanks are field-erected, refrigerated tanks that store liquefied gases such as propane, butane, propylene and butadiene at refrigerated temperatures of around -50° F. (Warren, Tr. 2275, 2306; CX 258 at CBI-H001793; CX 650 at CBI/PDM-H 4019758; CX 993 at PDM-HOU021479).

31. The LPG market does not include pressure vessels or tanks which store gases that are liquified using pressure and stored at ambient temperatures. There are two types of high pressure storage tanks used to store liquid petroleum gasses – bullets and field-erected pressure spheres. Bullets are ambient temperature, low pressure spheres or storage vessels that are usually built in a shop. Pressure spheres are ambient temperature pressure vessels supported by columns or plate skirts. (JX 37 at 19 (Newmeister, Dep.)). These two types of storage tanks are not in the LPG market because they are not economic substitutes for field-erected, refrigerated tanks (which comply with the API 620, Appendix R standard). (JX 27 at 39-39, 141-42 (N. Kelley, Dep.); Crider, Tr. 6720).

32. LPG customers are oil and petrochemical companies, such as Marathon, Enron, and Texaco; owners of LPG terminals, such as Sea-3, CMS Energy, and Intercontinental Terminals Co., that import/export LPG and transfer the LPG between ships and storage tanks via pipelines; and engineering, procurement, and construction (“EPC”) contractors, such as Fluor, who subcontract tank suppliers to build LPG tanks for larger facilities. (CX 993 at PDM-HOU-021484).

## **3. LIN/LOX tanks**

33. LIN is an industry expression for liquid nitrogen. A LIN tank is a special tank that stores liquid nitrogen at atmospheric pressure. LOX is the industry expression for liquid oxygen. A LOX tank stores liquid oxygen. (Kamrath Tr. 1982-83); V. Kelley Tr. 4596). LAR is the industry expression for liquid argon and a LAR tank stores liquefied argon. (Patterson, Tr. 340-41). Tanks to hold LIN, LOX or LAR are commonly referred to as LIN/LOX tanks. (Patterson, Tr. 340-41).

34. LIN/LOX tanks are field-erected cryogenic tanks that store various liquid gas products at cryogenic temperatures, typically at -300°F or lower. (CX 650 at CBI/PDM-H4019758). LIN/LOX tanks typically hold 400,000 to 1,000,000 gallons and cost \$500,000 to \$1 million each. (CX 170 at CBI-PL009650).

35. The LIN/LOX market does not include spheres, which are constructed in a different manner, serve different functions, and are not a substitute for LIN/LOX tanks. (Harris, Tr. 7301-02).

36. LIN/LOX tanks typically include an inner and outer shell of steel material. (JX 37 at 13 (Newmeister, Dep.)). The inner tank is made of stainless steel to withstand cryogenic temperatures without becoming brittle and cracking. (Kistenmacher, Tr. 835). Between the two shells is perlite insulation. (Kistenmacher, Tr. 833-834). LIN/LOX tanks have dome roofs, safety relief valves and nozzles that connect to piping and other equipment. They are built to withstand wind and seismic conditions. (Kistenmacher, Tr. 864).

#### 4. Thermal Vacuum Chambers

37. A thermal vacuum chamber ("TVC") is a large metal enclosure used to simulate the vacuum of space for the purpose of testing satellites and satellite components prior to launch. (Gill, Tr. 179-83; Neary, Tr. 1423-24). A TVC simulates the atmospheric and thermal conditions found in space. (Gill, Tr. 183; Proulx, Tr. 1722-23; Thompson, Tr. 2039-40; Higgins, Tr. 1264).

38. During a test, air is pumped out of the enclosure and, within the enclosure, liquid or gaseous nitrogen circulates through pipes to heat or cool the interior environment. Controls allow users to adjust the temperature and vacuum conditions inside the enclosure so that satellites can be tested in a space-like environment. (Thompson, Tr. 2039-40). Temperatures simulated within the chamber can range "from minus 180 degrees C to plus 150 degrees C" and the vacuum can range from  $1 \times 10^{-6}$  torr to  $1 \times 10^{-8}$  torr. (Higgins, Tr. 1262; Scully, Tr. 1143).

39. The customers of field-erected TVCs are aerospace companies such as Boeing Satellite Systems ("Boeing"), Raytheon Systems, Spectrum Astro and TRW Space & Electronics ("TRW"); and government agencies, such as NASA. TVCs are used to test satellites purchased by the Department of Defense, NASA and commercial buyers. (Neary, Tr. 1420; Glenn, Tr. 4074-75; *see also* CX 1196 at PDM-HOU011524-011525 (list of PDM customers)).

40. "Customers are typically testing satellites costing \$50MM to \$200MM in TVCs costing \$5MM - \$20MM." (CX 212 at CBI-PL031718). The satellites sold by TRW range in value from \$750 million to \$1.5 billion, while those sold by Spectrum Astro, a smaller satellite manufacturer, range in value from \$10 million to \$55 million. (Neary, Tr. 1420-21; Thompson, Tr. 2038).

41. TVCs are the only satellite testing equipment capable of simulating the vacuum and thermal conditions of outer space. (Higgins, Tr. 1262-63). Other testing chambers are not substitutes for TVCs because they only simulate other conditions. (Scully, Tr. 1139; Proulx, Tr. 1729). Large satellite customers require that manufacturers test their satellites in TVCs. (Neary, Tr. 1424).

42. Scorsone could not recall an instance in which a potential customer of a TVC tried to get a lower price by threatening to switch to an alternative. (CX 646 at 76-77 (Scorsone, IHT)).

43. The construction of a shop-fabricated TVC is "markedly different" from the construction of a field-erected TVC. (Scully, Tr. 1101-02; Gill, Tr. 235). "In shop-built chambers, all of the equipment and capability, personnel capability, lies within the confines of the shop." (Scully, Tr. 1103). However, some shop-built TVCs still require field-erection, including for example, the small field-erected chambers being built by XL/Votaw for Raytheon Systems. (Hart, Tr. 406-07). In contrast, field-erected chambers require a crew that "virtually lives in the field for elongated periods of time. . . . It's a vastly different technology than what a shop-built chamber requires." (Scully, Tr. 1103).

44. Satellites above a certain size cannot be tested in shop-fabricated TVCs. (Scully, Tr. 1139; Neary, Tr. 1425). Consequently, shop-fabricated TVCs are not an alternative to large, field-erected TVCs for testing large satellites. (Scully, Tr. 1140).

45. Other products, such as "thermal cycling chambers" and "altitude chambers" are not functional equivalents because they cannot mimic the conditions a satellite will face in space. (Neary, Tr. 1463-64; *see* Scully, Tr. 1135-39).

## **E. Effects on Competition in the LNG Market**

### **1. Overview of the LNG market**

46. Construction of an LNG tank is "highly specialized" work. (Hall, Tr. 1831; Kistenmacher, Tr. 881; *see* Andrukiewicz, Tr. 6702 ("just in my own knowledge of LNG we're talking about a cryogenic fluid that is stored at minus 260 degrees Fahrenheit, clearly has different handling characteristics than the oil tank that may be located in my basement for heating fuel. So clearly there is a degree of specialized -- in fact, the preliminary engineering report speaks to the specialty nature of the construction of these facilities.")). When addressing his investors, Mr. Gerald Glenn, Chairman, President and CEO of CB&I, emphasized that "a lot of owners out there, if they go to build a sophisticated project, like an LNG project or an LNG tank, they don't want to take a chance on a low price and a potential second class job or shoddy welding or any of that kind of stuff. The kind of work that we do is very specialized, very sophisticated." (CX 1731 at 44).

47. There is special expertise required in constructing an LNG tank, because "you would have to use the right welding technique to weld that particular type steel," which is a "different type of welding technique from ordinary carbon steel." (Hall, Tr. 1792). LNG tanks require sophisticated engineering analysis to take into account expansion and contraction because of differences in temperatures. (Newmeister, Tr. 1566; Kistenmacher, Tr. 881).

48. The engineering of an LNG tank entails special challenges. The inner tank of an LNG tank holds cryogenic fluid at a very low temperature while the outer tank is at ambient temperature. (Kistenmacher, Tr. 842). The inner tank shrinks when it comes into contact with the cryogenic fluid and there are differential rates of shrinking between the inner and outer tank.

(Kistenmacher, Tr. 842). Consequently, an LNG tank engineer must have very specialized knowledge relating to how tank materials behave during the shrinking process; how to design piping for the tank; and how to avoid cracking of the tank components. (Kistenmacher, Tr. 842).

49. PDM EC used three fabrication facilities located in Warren, Pennsylvania, Clive, Iowa, and Provo, Utah. (Scorsone, Tr. 4892). CB&I Industrial utilizes fabrication shops in Houston, Texas and Provo, Utah. (Scorsone, Tr. 4893).

50. In assembling its labor force, CB&I uses a core team of 4-5 management employees, including a project manager and two or three key people to begin the project. (Rano, Tr. 5917-18, 5952-53). CB&I recruits local labor, workers who live less than 100 miles from the jobsite, to help construct the facility. (Rano, Tr. 5906-07).

51. To build a field-erected LNG tank requires constructing the foundation. (Rano, Tr. 5920). CB&I subcontracts the foundation work to a company with an expertise in concrete work. (Rano, Tr. 5920).

52. The field-erection process for an industrial tank involves erecting the structure in accordance with the plans and contract specifications and testing the work quality. (Scorsone, Tr. 4895-96). The construction of LNG tanks involves rigging, which is the practice of attaching cables, slings, and ropes to pieces and hoisting them into position. (Scorsone, Tr. 4897-98).

53. To weld a field-erected LNG tank, two different welding processes are used: (1) hand welding, in which the welder holds the welding cable in his hand; and (2) submerged arc welding, which involves the use of a welding machine. (Rano, Tr. 5930-31). These welding processes are not only used for LNG tanks, but also for LPG tanks, water tanks, and oil tanks. (Rano, Tr. 5931). Construction of LNG tanks requires welders trained in procedures unique to welding 9% nickel steel (a special alloy that is not widely used), that can weld together the tank's large steel pieces with a precision that eliminates leaks. (Cutts, Tr. 2379; Kistenmacher, Tr. 881-82; Fahel, Tr. 1628-29, *in camera*; Hall, Tr. 1792; JX 30 at 180-81 (Outtrim Dep.)). A CB&I due diligence report on PDM's construction practices states that "CB&I has some of the best welders in the industry . . . Over the years CB&I has felt that our welding expertise is one of our core strengths." (CX 1357 at CBI-H 4000270-271).

54. Mr. W. T. Cutts, Vice President with American Tank & Vessel, Inc. ("AT&V"), states that LNG tanks are ". . . built out of fairly sophisticated materials. You don't just weld them up any old way. And its actually automated equipment that you weld them up with. The equipment is quite expensive to develop. You can go buy it, but the stuff you buy has to be modified and tailored, and then you have to build procedures around it. So it's not like you can go buy an automobile. It's unique equipment and the procedures that go with that make it very unique. . . ." (Cutts, Tr. 2379). Peter Rano, a CB&I vice president, testified that CB&I considers its welding procedures for LNG projects to be proprietary work product which it does not want to fall into the hands of its competitors. (Rano, Tr. 6028-29).

## 2. Demand in the LNG market

55. The LNG tank market is a "worldwide market" in which a few LNG contractors compete against each other all over the world. (Eyermann, Tr. 6994; J. Kelly, Tr. 6262). Demand for LNG in the United States had been very small over the past 20 to 30 years. (Glenn, Tr. 4091; Carling, Tr. 4513; J. Kelly, Tr. 6263). However, demand for LNG facilities has increased since the 1990s, as a number of companies are developing LNG import terminals in the U.S., the Caribbean, and Mexico. (Scorsone, Tr. 4934; Jolly, Tr. 4701-02, *in camera*). See generally F. 88-143. CB&I believes demand is rising and will continue to rise over the next 10 to 20 years, due to rising gas prices. (Glenn, Tr. 4091). [

] (Outtrim, Tr. 699, *in camera*).

56. There are three basic types of LNG tanks: (1) single containment; (2) double containment; and (3) full containment. (Puckett, Tr. 4541; Bryngelson, Tr. 6170-71).

57. Single containment LNG tanks store LNG in a nine percent nickel steel inner tank that is surrounded by a low earthen dike which would contain LNG in case of a leak. (Puckett, Tr. 4541; Bryngelson, Tr. 6170-71; CX 1074 at CBI 001243-PLA). Double containment tanks have the same nine percent nickel steel inner tank as a single containment tank, but offer a concrete outer tank to contain spillage from the inner tank. (Price, Tr. 530-32; CX 1074 at CBI 001243-PLA). Full containment tanks consist of a self-supporting inner tank and the outer tank used in a double-containment tank, but also include a concrete roof, so that the inner tank is completely encapsulated in a concrete shell. (CX 1074 at CBI 001243-PLA). Full containment tanks are designed to contain both the spillage of refrigerated liquid and the vapor resulting from leakage. (CX 1074 at CBI 001243-PLA- 1244).

58. With the exception of the tank built by PDM for Enron in Puerto Rico, all LNG tanks that have been built in the United States are single containment tanks. (CX 1645; Glenn, Tr. 4110-4111; Jolly, Tr. 4701-02, 4708-09, *in camera*).

59. Customers view full and double containment tanks as safer than single-containment tanks. (Glenn, Tr. 4112-13; Hall, Tr. 1843; Scorsone, Tr. 4922).

60. An owner can site a double and full containment LNG tank on a smaller piece of property than it could for a single containment tank in order to comply with federal laws relating to vapor dispersion and thermal radiation in the event of a spill. (Scorsone, Tr. 4922). Full-containment tanks are more likely to be used "[i]f you are closer to population in more of an urban setting or close to an urban setting, full-containment typically is used just for the extra bit of safety it has." (Bryngelson, Tr. 6133).

61. Full-containment tanks are 30-100% more expensive than single-containment tanks. (RX 157 at BP 02 004; CX 124 at PDM-HOU2011156; CX 1075 at CBI-001240-PLA; CX 1161 at CBI/PDM-H4008131-133, *in camera*; JX 23a at 89 (Cutts, Dep.); Jolly, Tr. 4724-25, *in*

camera).

62. Two expansion projects in Cove Point, Maryland (“Cove Point I,” Williams Energy) and Lake Charles, Louisiana (CMS Energy) specify the use of additional single containment tanks. (Eyermann, Tr. 7053-54). Southern Natural Gas, an affiliate of El Paso, is planning on building a single containment LNG tank at Elba Island, Georgia. (Bryngelson, Tr. 6214). Memphis Light Gas & Water will likely build a single containment tank when it expands its current facility. (Hall, Tr. 1831, 1842). The tanks for Dynegy’s Hackberry facility will be full containment tanks. (Puckett, Tr. 4541-42). Cheniere Energy’s Freeport LNG tank will be double containment. (Eyermann, Tr. 6968). Williams Energy’s Cove Point II tanks will be full containment. (Scorsone, Tr. 4987-88). Yankee Gas and Calpine have not determined what types of tanks will be built. (Andrukiewicz, Tr. 6464-65; Izzo, Tr. 6522).

### **3. Market shares and concentration in the LNG market prior to Acquisition**

#### **a. Tank projects awarded**

63. There are four LNG import terminals in the United States: Everett, Massachusetts; Cove Point, Maryland; Elba Island, Georgia; and Lake Charles, Louisiana. (Glenn, Tr. 4068-69). PDM constructed the storage tanks for the Cove Point, Maryland and Lake Charles, Louisiana terminals. (CX 853 at PDM-HOU011488). CB&I constructed an LNG tank in Everett, Massachusetts and built three LNG tanks in Elba Island, Georgia. (CX 154 at CBI-PL002958, 961).

64. There are seventy five LNG peak shaving plants in the United States. (CX 125, at CBI-HOU 2017163-167). CB&I and PDM have constructed all but six of these. (CX 125, at CBI-HOU 2017163-167). The last time a firm other than CB&I or PDM built an LNG tank in the United States was in 1975, by Graver, a company that is now out of business. (CX 125 at PDM-HOU2017165; CX 1546).

65. From 1990 to the Acquisition, there have been nine LNG tank projects awarded. Of the nine awarded projects, CB&I won five projects and PDM won four. A project for [ ] and a project for Atlanta Gas Light Co. were subsequently canceled. (Simpson, Tr. 3046, 3052-54; CX 1210, *in camera*; CX 824; CX 1212, *in camera*; CX 26 at CBI-PL069530, *in camera*; RX 757).

66. LNG tank awards to CB&I are: South Carolina Pipeline Corp. (1991); Liquid Carbonic (1992); Memphis Light Gas & Water (“MLGW”) (1995); [ ]; Pine Needle LNG Co. (1995). LNG tank awards to PDM are: Citizens Gas & Coke Utility (1991); Enron (1997); Atlanta Gas Light Co. (1998); Cove Point I (2001). (Simpson, Tr. 3046, 3052-3055; CX 1210, *in camera*; CX 824; CX 1212, *in camera*; CX 26 at CBI-PL069530, *in camera*; RX 757).

67. No foreign company has ever built an LNG tank in the United States. (Jolly, Tr. 4683, *in camera*; CX 125).

**b. HHI calculations**

68. From 1990 to Acquisition, CB&I's market share, based on sales, is 45.3%. PDM's market share, based on sales is 54.7%. (See Simpson, Tr. 3055-58; CX 1646). The combined market share of the two companies is 100%. Assigning shares based on sales, Dr. Simpson testified that the premerger HHI was 5,044, the change in the HHI as a result of the Acquisition was 4,956, and the post-acquisition HHI is 10000. (Simpson, Tr. 3055 (referencing CX 1646)).

69. Dr. Simpson calculated LNG HHI based on data from 1990 to Acquisition. (Simpson, Tr. 3703). Dr. Simpson admitted that he chose 1990 as the beginning date for his HHI analysis because 1990 was the cut-off date for discovery and thus his information dated back to 1990. (Simpson, Tr. 3704-05).

70. If data dating back to 1996 instead is used to calculate HHI, CB&I had no sales over that time period and the change in the HHI based on sales in the LNG market would be zero. (Harris, Tr. 7228; Simpson, Tr. 3721-22, 3743-44).

71. The LNG tank market is a thin market, with very few data points to look at. (Harris, Tr. 7218).

**c. Bidders on projects**

72. For all but two LNG tank projects from 1990 to Acquisition (MLGW and Atlanta Gas & Co.), no company other than CB&I and PDM submitted bids. (Simpson, Tr. 3670; CX 161 at CBI-PL006114).

73. On the 1994 MLGW LNG tank, in addition to CB&I, PDM, Lotepro/Whessoe International, and Black & Veatch/Toyo Kanetsu K.K provided bids. (Hall, Tr. 1804-05).

**4. Respondents were each others' closest competitors in the LNG market**

74. Dr. Harris acknowledges that prior to the merger, United States LNG tanks were built entirely by CB&I and PDM. (Harris Tr. 7196, 7521-22). According to Dr. Harris, "until roughly 2001 I guess, the competitors in the market, . . . were almost entirely limited to CB&I and PDM." (Harris, Tr. 7220).

**a. Respondents' views**

75. An LNG/Aerospace marketing presentation, dated November 2000, states that CB&I was "PDM's competition for LNG tanks alone." (CX 116 at PDM-HOU019176).

76. PDM's 2000 Business Plan states that "CB&I is PDM EC's domestic competition for LNG tanks." (CX 94 at PDM-HOU017580).

77. PDM characterized CB&I as "PDM EC's only competitor on domestic cryogenic, LNG, LPG, Ammonia and thermal vacuum projects." (CX 107 at PDM-HOU005016).

78. In a 1997 PDM Customer Briefing, PDM determined that with "only two capable LNG tank builders in the U.S. (PDM and CB&I) our teaming with Air Products has essentially put Lotepro and other liquefaction design companies out of the LNG business in the domestic U.S." (CX 113 at PDM-HOU014838).

**b. Industry views**

79. Industry participants recognize that prior to the merger, CB&I and PDM built nearly all of the field-erected LNG tanks in the United States. (Kistenmacher, Tr. 891; Outtrim, Tr. 714-15, *in camera* ("[F]rom 1965 through '97 or so, the only two companies pretty much across the board that built LNG plants in the United States were PDM and CB&I"); Cutts, Tr. 2390 (CB&I and PDM "dominated the marketplace significantly and the interpretation by most people would have been that any large cryogenic projects in the United States would have been built by CB&I or PDM.")).

80. Robert Davis, Director of HYCO Services for Air Products, testified that "virtually all, with just very few exceptions, of the LNG tanks in this country had been built by CB&I and PDM." (Davis, Tr. 3131-32).

81. John Newmeister, Vice President of Marketing and Business Development at Matrix Services, Inc., explained that historically the suppliers of LNG tanks in the U.S. were "CB&I, PDM and possibly Graver," but with Graver's exit and CB&I's acquisition of PDM, "the list of qualified LNG tank suppliers decreased to one." (Newmeister, Tr. 2166).

82. Brian Price, Vice President of LNG Technology for Black & Veatch, who competed against CB&I and PDM for the MLGW LNG project, saw first-hand that "the two competitors with the lowest prices were CB&I and PDM." (Price, Tr. 558).

**c. Competition between Respondents lead to lower prices**

83. In 1994, MLGW sought bids for the construction of a peak-shaving plant in Capleville, Tennessee. (Hall, Tr. 1778). Mr. James Clay Hall, project engineer and manager for MLGW, believed that "essentially we had two viable companies in the United States that could compete" for the project – CB&I and PDM. (Hall, Tr. 1799-1800). Nevertheless, MLGW encouraged Black & Veatch, an engineering firm, "to team up with a foreign tank builder to compete," and also encouraged Lotepro, a German engineering firm, to compete in the bidding process. (Hall, Tr. 1799).

84. PDM was the lowest bidder for the MLGW project, but PDM's bid was rejected as non-conforming to the specifications. (Price, Tr. 560; Hall, Tr.1877-78). The prices quoted by CB&I and PDM were comparable. (Hall, Tr. 1876). CB&I provided the next lowest bid at \$10,500,000. (Price, Tr. 560; Kistenmacher, Tr. 899; CX 829 at 5). Lotepro/Whessoe International's bid for the LNG tank was \$15,000,000. (Kistenmacher, Tr. 899; CX 829 at 5). Black & Veatch/Toyo Kanetsu K.K.'s bid for the LNG tank was \$16,700,000. (Price, Tr. 648).

85. The tank was awarded to CB&I and included an [ ] (Harris, Tr. 7501; CX 906 at CVI 031076-HOU, *in camera*).

86. In 1998, Atlanta Gas Light Company ("Atlanta") sent requests for bids to CB&I, PDM/Air Products, and a third competitor, Marlborough Enterprises, for a proposed LNG peak shaving facility. According to CB&I, "[Atlanta] considered the Marlborough bid more of a courtesy proposal with the real competition between CB&I and PDM/AP." (CX 161 at CBI-PL006113). Atlanta awarded the business to PDM because it offered a lower price than CB&I [ ] and a shorter construction schedule. (CX 161 at CBI-PL006114; CX 1321 at CBI-PL 069518, *in camera*). The Atlanta project was never built. (Simpson, Tr. 3054).

87. In 2000, CB&I and PDM competed against each other to win a 750,000 barrel LNG tank for Columbia LNG to be built at Cove Point. (CX 293 at CBI/PDM-H 4008141). Prior to the Acquisition, CB&I and PDM bidding against each other constrained pricing for the Cove Point project. F. 184-85.

## **5. Competition in the LNG market from Acquisition to time of trial**

88. The parties presented evidence on numerous LNG projects announced recently. LNG projects that are outside the United States are outside the relevant geographic market. Findings relating to tank projects in the relevant market follow.

### **a. Dynegy's Hackberry Facility**

89. Dynegy is currently scheduled to build a large LNG import facility that will be located on the Calcasieu River, south of Lake Charles, Louisiana, in the town of Hackberry. (Puckett, Tr. 4539). The facility will contain three LNG full containment tanks, two docks for receiving LNG ships, pump and vaporization capacity of 1.5 billion cubic feet per day, and roughly 30 miles of pipeline to move the gas from the terminal to other interstate pipelines for delivery. (Puckett, Tr. 4539-40). When completed, the Hackberry facility will be the largest LNG regasification facility in the United States. (Puckett, Tr. 4540).

90. Dynegy estimates that the approximate dollar value for the entire project is somewhere between \$550 to \$700 million. (Puckett, Tr. 4565). Dynegy estimates that each of the three LNG tanks will cost around \$40 or \$50 million. (Puckett Tr. 4566).

91. Dynege asked four tank builders, Toyo Kanetsu K.K. ("TKK"), S.N. Technigaz ("Technigaz"), Skanska AB ("Skanska")/Whessoe International ("Whessoe"), and CB&I, to provide lump-sum turnkey bids for the construction of the Hackberry LNG tanks. (Puckett, Tr. 4552-53).

92. As part of the bid procedure, Dynege required CB&I to submit its drawings, technical information and a firm price to Black & Veatch, Dynege's consultant. (Glenn, Tr. 4130-31).

93. Black & Veatch had concerns that if a domestic tank manufacturer did not participate in the bid contest, Dynege would receive higher prices for the tanks. (Price, Tr. 622).

94. CB&I met with Dynege and indicated that it was uncomfortable providing a bid given that Black & Veatch, a major competitor, was acting as the EPC contractor, and was under contract with Skanska/Whessoe. Skanska/Whessoe was a bidder for the LNG tanks. (Glenn, Tr. 4411). CB&I did not want Skanska to obtain its bidding information or to gain access to its prices and designs. (Puckett, Tr. 4577-78). Further, given these circumstances, CB&I believed that its chances of being awarded the project were slim. (Glenn, Tr. 4411). Prior to the bid due date, CB&I indicated to Dynege that it was not going to submit a bid, however, CB&I was prepared to submit a proposal to cover the construction of the entire project on a turnkey basis. (Puckett, Tr. 4559). CB&I told Dynege that the "project as structured does not fit our corporate strategy." (CX 139 at CBI 019779-HOU).

95. Generally, "turnkey, design build projects typically return higher margins than stand-alone storage tank projects." (CX 660 at PDM-HOU 005013). Scorsone agreed that industry participants view a turnkey project to result in "higher margins." (Scorsone, Tr. 2812-13).

96. CB&I sent Dynege a letter expressing its decision not to submit a tank-only bid. (Glenn, Tr. 4133-34; RX 143). In its letter, CB&I again offered to construct the Hackberry facility on a turnkey basis. (RX 143). Dynege rejected CB&I's second attempt to propose a turnkey approach. (Puckett, Tr. 4559-60).

97. After learning of CB&I's decision not to bid, Dynege further solicited a tank-only bid by offering to let CB&I submit its bid directly to Dynege and promising not to share the information with Black & Veatch. (Puckett, Tr. 4578; Glenn, Tr. 4134-35; RX 144).

98. Dynege received bids sometime after February 1, 2002 from TKK/AT&V, Skanska/Whessoe, and Technigaz/Zachry. (Puckett, Tr. 4556). All three of the bids Dynege received met its technical expectations and were within Dynege's expected price range. (Puckett, Tr. 4557).

99. CB&I decided that if Dynege would accept and evaluate the bids itself, CB&I would submit a tank-only bid. (Glenn, Tr. 4136). CB&I communicated its decision to Dynege within two to three weeks after it received Dynege's offer. (Glenn, Tr. 4136). CB&I requested to submit a tank-only bid in March of 2002. (Glenn, Tr. 4412; Puckett, Tr. 4578).

100. Dynegy responded to CB&I's request by informing CB&I that Dynegy was satisfied with the three tank-only bids it had received and telling CB&I that it was too late in the process to accept its bid. (Puckett, Tr. 4559-60; Glenn, Tr. 4137).

101. [

] (Jolly, Tr. 4690-91, *in camera*). [

] (Jolly, Tr. 4760, *in camera*).

**b. CMS Energy, Lake Charles, Louisiana Expansion**

102. CMS Energy ("CMS") is planning to build one single-containment tank expansion to its existing Lake Charles, Louisiana facility. (J. Kelly, Tr. 6260). The CMS expansion project will involve constructing an LNG tank on a site that already contains numerous single containment LNG tanks. (Eyermann, Tr. 7053-54).

103. [

] (J. Kelly, Tr. 6284, 6292, *in camera*).

[

Kelly, Tr. 6293, *in camera*).

] (J.

104. [

] (RX 595 at CBI 060850, *in camera*). [

] (Scorsone, Tr. 5075-76, *in camera*)

[

] (RX 595 at CBI 060850, *in camera*).

105. CMS Energy has awarded the tank portion of the contract to CB&I over Skanska/Whessoe. (Glenn, Tr. 4399).

**c. El Paso/Southern LNG: Elba Island**

106. [

] (Scorsone, Tr. 5077-78, *in camera*). [

(Scorsone, Tr. 5078, *in camera*).

107. [

] (RX 640 at CBI 069126, *in camera*). [ ] (Scorsone, Tr. 5079, *in camera*).

**d. Poten & Partners**

108. CB&I is negotiating a sole-source contract to construct an LNG import terminal for Poten & Partners in the Northeastern United States. (Glenn, Tr. 4399).

**e. British Petroleum**

109. British Petroleum ("BP") is a global petrochemical company based in Britain with operations all over the world. (JX 33 at 19-20 (Sawchuk, Dep.)). BP is evaluating the possibility of constructing three new LNG import terminal facilities in the United States. (JX 33 at 9-10 (Sawchuk, Dep.)).

110. BP has decided to work with CB&I on the front end development of these projects. (Glenn, Tr. 4180). If BP is satisfied with CB&I's pricing, schedule and terms and if the projects move forward, BP has indicated that CB&I will be awarded those jobs. (Glenn, Tr. 4180).

111. Generally, a sole-source supplier can earn higher margins than if competing against other firms in a competitive bidding situation. (*See* Kamrath, Tr. 2030 ("we found that always a competitive bid resulted in a better cost for us, lower cost [than 'sole sourcing']"); Outtrim, Tr. 720-21, *in camera* (cost of sole-sourced LNG tank from CB&I was [ ] more than comparable facilities). However, using one contractor may provide an owner with greater flexibility, lower costs, and may save time when a project is under development. (Bryngelson, Tr. 6134; Scorsone, Tr. 4959).

112. In an internal memorandum discussing the status of BP's LNG re-gas terminals and storage tanks and status of work with CB&I, BP noted, "there is less competition than we would like on a regional basis. Since their acquisition of PDM, CB&I now dominate the US market." (CX 693 at BP 01 027). Having assessed the firms that could supply the LNG tanks as a subcontractor or as a main contractor, BP asked what would be the best way of going forward. BP's "key choices in the US will be: - do we form a closer relationship with CB&I in order to guarantee access to the resources we need for our US regas projects? - or do we deepen the market in the US by encouraging competition?" (CX 693 at BP 01-028).

113. In an internal memorandum assessing competition in the LNG market in August 2001, BP stated: "[s]ince the acquisition of PDM, a couple of companies have come forward to state that they can build LNG tanks in the US. . . . [However], the reality for today is that in the US, [CB&I is] the leading company in the LNG Tank business and the other competitors will need to demonstrate their capabilities in this market." (CX 691 at BP 10 032).

**f. Cove Point II**

114. Williams Energy ("Williams") has plans to add between four and six new LNG tanks to its existing Cove Point facility in Cove Point, Maryland ("Cove Point II expansion").

(Scorsone, Tr. 4987-88). These additional tanks are required to be full-containment designs because of property limitations at Cove Point. (Scorsone, Tr. 4988).

115. CB&I has submitted budgetary pricing for the Cove Point II expansion. (Scorsone, Tr. 4962; Glenn, Tr. 4148).

116. TKK, in partnership with DYWIDAG and AT&V, submitted budgetary pricing to Halliburton KBR for the Cove Point II expansion. (RX 185 at TWC 000003). Under this arrangement, TKK would execute the engineering, procurement, and select vendors/subcontractors. (RX 185 at TWC 000036). AT&V will be responsible, under TKK's direct control, for site construction and fabrication of materials done in the U.S. (RX 185 at TWC 000036). DYWIDAG will be responsible for the civil engineering aspects of the facility. (RX 185 at TWC 000035).

**g. Yankee Gas**

117. In 2001, Yankee Gas, a natural gas distribution company, initiated plans to construct an LNG peak shaving facility in Waterbury, Connecticut. (JX 21 at 17-18 (Andrukiewicz, Dep.); Andrukiewicz, Tr. 6439-40).

118. During the first quarter of 2001, Yankee Gas retained the services of CHI Engineering ("CHI"), a consulting firm, to perform a preliminary engineering and budget study. (JX 21 at 23 (Andrukiewicz, Dep.); CX 1507 at CBI 059483).

119. On April 23, 2001, CHI issued a request for prices exclusively for the LNG tank portion of the project rather than "facility turnkey pricing." (CX 1507 at CBI 059483). CHI's request was sent to CB&I, Skanska/Whessoe and Technigaz. (JX 21 at 24 (Andrukiewicz, Dep.)).

120. On May 4, 2001, CB&I wrote Chris Beschler, VP of Operations at Yankee Gas, that CB&I wanted to do the work on a turnkey basis but also expressed that CB&I would be "an excellent choice to support any project Yankee Gas Services Company may have in the LNG industry." (CX 417 at CBI 026845-HOU). Eric Frey, CB&I's representative to Yankee Gas, intended to "make every effort to restructure how the project will be bid and executed." (CX 430 at CBI 026934-HOU).

121. CB&I submitted its budgetary pricing to CHI on June 12, 2001. (RX 4 at 4). CB&I submitted rough pricing because: (1) the owner requested "broad" numbers; and (2) CB&I viewed CHI as a potential competitor. (CX 1507 at CBI 059483).

122. On October 26, 2001, Yankee Gas requested that CB&I submit a proposal for contracting for the facility directly to Yankee Gas. (CX 1507 at CBI 059484; *see also* CX 787 at CBI 065244, *in camera*) ([

]).

123. CB&I's budget estimate for the Yankee Gas project anticipates a margin of [ ]. (RX 54 at CBI 026812-HOU, *in camera*; CX 421 at CBI 026843-HOU; Scorsone, Tr. 5317, *in camera*). CB&I cited the price paid for the Cove Point LNG tank in setting the price for Yankee Gas. (CX 421 at CBI 026843-HOU [

]).

124. [

] (CX 787 at CBI 065242, *in camera*).

125. CHI sent a second request of prices for the liquefaction process. (CX 1507, at CBI 059483). CHI received pricing information from Whessoe and Technigaz. (JX 21 at 24 (Andrukiewicz, Dep.); CX 1507 at CBI 059484).

126. Skanska/Whessoe sent CHI Engineering information regarding the Waterbury facility that included: preliminary design solutions; preliminary design data sheets complete with design drawings; and pricing information. (Andrukiewicz, Tr. 6445; RX 4 at 2). Skanska/Whessoe provided pricing information as part of its submission. (Andrukiewicz, Tr. 6446).

127. [

] (Jolly, Tr.4693, *in camera*). On June 12, 2001, in response to a request from Yankee Gas' consultant CHI Engineering, the alliance submitted a preliminary pricing proposal for an LNG storage tank. (RX 4 at 3). [

] (Jolly, Tr. 4693, *in camera*). [ ] provided pricing information as part of its submission. (Andrukiewicz, Tr. 6446).

128. CHI no longer has a "contractual relationship" with Yankee Gas. (Andrukiewicz, Tr. 6460). CHI has been replaced by SEA Consultants. (*Id.* at 6445). Yankee Gas will "look to SEA to provide us with the potential builders of this facility." (*Id.* at 6452).

129. Yankee Gas has not determined whether Skanska/Whessoe or Technigaz are qualified to bid; the "pre-qualification" process has not started. (Andrukiewicz, Tr. 6451). SEA Consultants, the consultant that replaced CHI, will be responsible for evaluating the potential builders. (Andrukiewicz, Tr. 6451-52). At this stage, Yankee Gas has not "built the criteria by which we will evaluate any particular contract constructor of any component of the plant." (Andrukiewicz, Tr. 6453).

130. In the preliminary engineering report CHI submitted to Yankee Gas, CHI specifically proposed a double containment tank, with a concrete roof, in which both the inner tank and outer tank would be made of concrete. (Andrukiewicz, Tr. 6464-65). Mr. Andrukiewicz of Yankee Gas testified that Yankee Gas has "made no commitment on tank design." (Andrukiewicz, Tr. 6464-65).

131. An April 12, 2002 CB&I internal memo prepared by Eric Frey, the sales representative to Yankee Gas, states Yankee Gas was beginning to realize that concrete inner tanks were not common and not the norm and that more conventional designs using steel as the product container were equally as safe (or safer) and probably less expensive. Yankee Gas agreed to do their best to get the concrete inner tank requirement removed. (CX 1507 at CBI 059484).

132. CB&I has stated it might not bid on the Yankee Gas project if the design calls for a double concrete wall full containment LNG tank. (Scorsone, Tr. 4989-90; Glenn, Tr. 4141).

#### **h. Freeport LNG**

133. The Freeport LNG project is in the early design stages and may never be built. (Eyer mann, Tr. 7043-44). At the time of trial, Freeport LNG had not yet filed for FERC approval of the terminal. (Eyer mann, Tr. 6977).

134. Freeport LNG and its predecessor Cheniere Energy have never built an LNG facility before. (Eyer mann, Tr. 7033). Freeport LNG has not obtained any bids or selected a supplier for the LNG tanks planned for the Freeport, TX import terminal. (Eyer mann, Tr. 7029). Mr. Volker Eyer mann, LNG Technical Director of Cheniere Energy Company, has never been involved in evaluating or selecting an LNG tank supplier for a project, and has never reviewed the prices submitted by LNG tank bidders. (Eyer mann, Tr. 7025-7028).

135. CB&I sent Freeport LNG a proposal to do the front end engineering and design to the level of detail that is required for FERC and as a first phase for the operation. (Eyer mann, Tr. 7049-50). CB&I sought a sole-source arrangement; it wanted to be the complete engineer on the whole project from the start through the EPC contracting. (Eyer mann, Tr. 7069).

136. Black & Veatch sent Freeport LNG a letter which indicated that it had formed an alliance with Whessoe to build LNG tanks in the Western Hemisphere. (Eyer mann, Tr. 6992). Based on this document, Freeport LNG believes that Black & Veatch and Whessoe are "serious and trying to compete." (Eyer mann, Tr. 6992).

137. Skanska/Whessoe met with Freeport LNG in August 2002 to discuss contracting strategies and general tank designs. (Eyer mann, Tr. 6983). Skanska/Whessoe provided Freeport LNG with marketing materials. (Eyer mann, Tr. 6983). Freeport LNG believes Skanska's worldwide LNG director expressed interest in competing for the Freeport LNG project. (Eyer mann, Tr. 6981-82). Freeport LNG knows that Skanska/Whessoe has built LNG tanks in

Dabhol, India, Trinidad, and Greece, and that Whessoe did a "very good" job on the Dabhol project. (Eyermann, Tr. 6980-81). Freeport LNG believes that Skanska/Whessoe is a potential supplier of LNG tanks and plans to solicit a bid from Skanska/Whessoe for the Freeport LNG project. (Eyermann, Tr. 6993).

138. TKK/AT&V approached Freeport LNG in 2001 for the proposed LNG project in Freeport, Texas. (Eyermann, Tr. 7000-01). TKK/AT&V prepared presentations on the companies' capabilities, and discussed contracting capabilities. (Eyermann, Tr. 7000-01). Freeport LNG perceives that AT&V has quality welders which will be sufficient to perform the proposed LNG project in Freeport, Texas. (Eyermann, Tr. 7001-02). Freeport LNG also believes that TKK is a qualified tank constructor with the ability to adapt to different working conditions in different countries. (Eyermann, Tr. 7000, 7004-05). Freeport LNG plans on soliciting bids from TKK/AT&V, even though the partnership has never constructed a field-erected LNG tank in the U.S. (Eyermann, Tr. 7005).

139. Technigaz/Zachry approached Freeport LNG to present its alliance. (Eyermann, Tr. 6994). The alliance sent Freeport LNG marketing materials describing its expertise in liquefied gas facilities and Technigaz's experience building LNG tanks. (Eyermann, Tr. 6996-98). Freeport LNG believes that Technigaz is "keenly interested" in working on the Freeport LNG project. (Eyermann, Tr. 6996-98).

140. S&B contacted Freeport LNG and indicated it had combined its efforts with Daewoo to compete in the American market for LNG tanks. (Eyermann, Tr. 6976-77). Representatives from S&B and Daewoo had a meeting with Freeport LNG to discuss its capabilities, experience with current projects, and contracting strategies. (Eyermann, Tr. 6976-77; 7008). S&B and Daewoo also presented various brochures to Freeport LNG. (Eyermann, Tr. 7008). Based on these discussions, Freeport LNG requested Daewoo's LNG tank drawings to be used in connection with Freeport LNG's FERC application for its proposed LNG facility in Freeport, Texas. (Eyermann, Tr. 6976-77).

**i. Calpine, Humboldt Bay**

141. Calpine's Humboldt, California facility is "in the early stages of possible development;" there is only a 50% chance that the facility will be built. (Izzo, Tr. 6521-22). Calpine expects that new LNG tanks in the United States will be "at least double containment if not full containment," but if FERC authorizes the construction of a single containment LNG tank at Humboldt Bay, Calpine will not build a double or full containment tank. (Izzo, Tr. 6492, 6522-23).

142. Calpine has not spoken to Skanska/Whessoe, Zachry/Technigaz or AT&V/TKK about the Calpine project. (Izzo, Tr. 6524-25). Mr. Lawrence Izzo, Calpine's Senior Vice President, testified that he would have to "guess" as to whether any of these three firms will

provide a bid to Calpine, what the price will be, and how they would compare to CB&I's price. (Izzo, Tr. 6525). Izzo admits that he knows "nothing firsthand" about AT&V's capabilities, and that he has never "worked with any foreign firm on a U.S. LNG project." (Izzo, Tr. 6520, 6539). Whessoe is the only foreign firm with which Izzo has first-hand knowledge about its construction performance and prices, and this was based on Whessoe's work in India. (Izzo, Tr. 6519).

143. The only firms with which Izzo has worked with on a U.S. LNG construction project are CB&I and PDM. (Izzo, Tr. 6514-16). Further, the only firm with which Izzo has discussed the project is CB&I. (Izzo, Tr. 6524-25).

## **6. Recent entry in the LNG market**

### **a. TKK/AT&V**

144. Toyo Kanetsu K.K. ("TKK") is a Japanese company involved in the construction of low temperature and cryogenic tanks. (RX 872 at 2). TKK has completed 72 LNG storage tanks throughout the world. (RX 772 at 2-21; RX 818). TKK has built more double containment and full containment LNG tanks than any other constructor in the world. (Cutts, Tr. 2572-73). TKK's annual sales are approximately 34.9 billion Yen. (RX 872 at 24).

145. American Tank & Vessel, Inc. ("AT&V") is an engineering and construction firm that was incorporated in 1982. (RX 818). AT&V, based in Mobile, Alabama, offers complete turnkey services for, and has extensive experience in, the engineering, design, and fabrication of tanks, vessels and spheres. (RX 31 at 9; Carling, Tr. 4489). AT&V has engineering facilities in Birmingham, Alabama; Houston, Texas; George County, Mississippi; and Mobile, Alabama. (RX 31 at 1). AT&V has fabrication facilities in George County, Mississippi and Houston, Texas. (RX 31 at 1).

146. TKK has extensive LNG experience outside the U.S., but has never built an LNG tank in the United States. (Cutts, Tr. 2336). AT&V has never built an LNG tank of any kind. (Cutts, Tr. 2393-94).

147. TKK has teamed with AT&V to supply LNG tanks in the United States. (Cutts, Tr. 2437-38). Pursuant to this partnership, TKK will "carry the lead responsibility" for engineering and design of the LNG tank. (Cutts, Tr. 2327). AT&V will supply the field labor for the erection of the LNG tank and share some of the responsibility for estimating the costs of the project. (Cutts, Tr. 2327-28). TKK will train AT&V employees on how to construct LNG tanks, including the use of TKK's welding equipment. (Cutts, Tr. 2379). Cutts anticipates that the newly trained AT&V employees will need a few years of experience constructing LNG tanks before they work as efficiently as experienced CB&I employees. (Cutts Tr., 2379-80). TKK's sales force will supplement AT&V's sales force in the LNG area. (Cutts, Tr. 2570).

148. AT&V has undertaken steps to research, design, and develop procedures associated with scheduling, welding technology, and general construction sequencing for LNG tanks. (Cutts, Tr. 2440). AT&V has researched and developed techniques to weld nine percent nickel steel. (Cutts, Tr. 2464).

149. Prior to its alliance with TKK, one LNG customer, BP, expressed that it did not view AT&V as an LNG tank supplier. AT&V "will need to demonstrate [its] capabilities in this market" first. (CX 691 at BP 01 032 ).

150. TKK/AT&V provided a bid to Dynegey for its Hackberry facility which met Dynegey's technical expectations [

] F. 100-01. TKK, in partnership with DYWIDAG and AT&V, has submitted budgetary pricing to Halliburton KBR for the Cove Point II expansion. F. 116. TKK/AT&V approached Freeport LNG to present their capabilities. F. 138.

**b. Skanska/Whessoe**

151. Skanska AB ("Skanska") is one of the world's largest construction groups, and is a well-established Swedish based civil contractor that has operated internationally for more than 50 years. (RX 839 at 4; RX 870 at 25). In 2002, Engineering News Record ("ENR"), a leading industry publication, ranked Skanska as the number one contractor in the world. (RX 736 at 1). Skanska earned an annual revenue of more than \$14 billion in 2001. (RX 736 at 1). In August of 2000, Skanska acquired Whessoe International ("Whessoe"). (RX 770 at 33).

152. Whessoe is a 200 year old engineering and construction firm with a well established reputation in the international LNG business. (RX 908 at 1). Whessoe has been involved in various aspects of LNG storage for facilities throughout the world including India, Spain, Greece and Algeria. (RX 839 at 5-8).

153. Skanska/Whessoe has never built an LNG tank in the United States. (Eyermann, Tr. 6993).

154. Skanska/Whessoe is poised as a specialist EPC company combining contracting and risk management with engineering and design skills to offer its clients a complete package in the design and construction of facilities for cryogenic gas storage and handling. (RX 870 at 5). Skanska/Whessoe combines the engineering and construction skills of Skanska Construction with the design, engineering and procurement skill of Whessoe International. (RX 870 at 6). From its UK base, Skanska/Whessoe operates worldwide to design and build LNG tanks and terminals. (RX 870 at 5).

155. PDM noted Whessoe's historically poor performance in communications with consultants. In August 1999, Luke Scorsone wrote that he expected a potential customer, Unocal, to look favorably upon PDM relative to Whessoe on a project, "given that Noell Whessoe has performed poorly at Trinidad and Dabhol." (CX 115 at PDM-HOU017554).

156. Skanska/Whessoe provided a bid to Dynegey for its Hackberry facility which met Dynegey's technical expectations [

] F. 100-01. [

] F. 103, 105. Skanska/Whessoe provided pricing information and preliminary design solution for the Yankee Gas project. F. 126. Skanska/Whessoe met with Freeport LNG to discuss contracting strategies and general tank designs. F. 137. Skanska/Whessoe spoke to [ ] a number of times regarding its capabilities and desire to construct LNG tanks in the United States. (Sawchuck, Tr. 6087, *in camera*).

**c. Technigaz/Zachry**

157. French based SN Technigaz and its parent company earn an annual revenue of more than \$3 billion and employ about 20,000 people. (Jolly, Tr. 4438). Technigaz has considerable experience in the design and construction of LNG tanks worldwide. (RX 43 at ZCC000005). Technigaz is one of the world's leading suppliers of liquefied gas facilities. (RX 773 at 1-2). Technigaz offers a broad range of services including: feasibility studies and conceptual design, basic and detail engineering, project management, procurement, quality control, construction, coordination of subcontractors, supervision and technical assistance, commissioning and start-up, and operation. (RX 773 at 3).

158. Technigaz has never built an LNG tank in the U.S. (Jolly, Tr. 4719, *in camera*). Technigaz currently has eight full-containment LNG tanks under construction around the world: Spain, Egypt and India. (Jolly, Tr. 4440). Technigaz believes it is the "largest contractor today in full-containment tanks worldwide." (Jolly, Tr. 4689, *in camera*).

159. [

] (Jolly, Tr. 4757, RX 738 at FTC001537 (Jolly, Dec.), *in camera*).

[

] (RX 738 at FTC 001535

(Jolly, Dec.), *in camera*).

160. Texas-based Zachry Construction Corporation is a leading United States construction company, with sales of around \$1.7 billion and more than 14,000 employees in 2001. (RX 43 at ZC 000002). In 2001, Zachry was ranked eighteenth in the annual ranking of top construction contractors by ENR. (RX 871 at 71). Zachry placed fifteenth overall among construction firms that also sold their own design work. (RX 871 at 71).

161. Zachry is an experienced civil contractor in the United States with licensed engineers and access to local labor in the United States. (Price, Tr. 656-57). Zachry began as a civil constructor and therefore has a great deal of knowledge about concrete construction. (Fahel, Tr. 1682-83, *in camera*). Zachry has unlimited bonding capacity. (RX 45 at ZCC 000039).

162. Zachry has never constructed an LNG tank. (Fahel, Tr. 1402).

163. In June or July of 2001, Technigaz took a step toward entering the United States market for LNG tanks by entering into a Memorandum of Understanding ("Memorandum") with Zachry. (Jolly, Tr. 4685, *in camera*). A press release announcing the joint venture was issued in January of 2002. (RX 43 at ZCC000002). In the press release, the alliance held itself out as pooling Technigaz's recognized turnkey LNG project expertise and broad-based knowledge of the market with Zachry's construction capabilities and strong positions in the Americas. (RX 43 at ZCC000002).

164. Since signing the Memorandum, Technigaz/Zachry [ ] (Jolly, Tr. 4692, *in camera*; Fahel, Tr. 1650-51, 1689, *in camera*). Technigaz/Zachry provided a bid for Dynegy's Hackberry facility which met Dynegy's technical expectations [ ] F. 100-01. [ ]

[ ] F. 127.  
Technigaz/Zachry approached Freeport LNG to present its expertise in liquefied gas facilities and Technigaz's experience building LNG tanks. F. 139.

165. Mr. Jean-Pierre Jolly, Vice President of Marketing at SN Technigaz, stated that [ ] (RX 738 at FTC001536 (Jolly, Dec.); *see also* Jolly, Tr. 4753-54, *in camera*).

## 7. Barriers to entry in the LNG market

166. LNG tanks are "built out of fairly sophisticated materials. You don't just weld them up any old way . . . . The equipment is quite expensive to develop. You can go buy it, but the stuff you buy has to be modified and tailored, and then you have to build procedures around it. So it's not like you can go buy an automobile. It's unique equipment . . . ." (Cutts, Tr. 2379).

167. There are "tremendous safety considerations" regarding LNG tanks. (Price, Tr. 564-65). If LNG should leak from a tank, the vaporized LNG could lead to fires and death, and liability for losses. (Bryngelson, Tr. 6234-35; *see also* Blaumueller, Tr. 293-94).

168. To avoid catastrophes, customers seek experienced tank suppliers. "If you're going to be handling something like liquefied natural gas, you don't want some amateur putting it together. The results can be catastrophic." (Hall, Tr. 1789). Dr. Hans Kistenmacher, a vice president at Linde BOC Process Plants ("Linde"), testified that risks associated with leakage causes Lotepro to subcontract the design and construction of LNG tanks to companies that have a long track record of experience in constructing these facilities. (Kistenmacher, Tr. 903-05).

169. Companies, such as Black & Veatch and Air Products, that provide the liquefaction

systems and other components, but not the LNG tanks, do not want to partner with an inexperienced LNG tank supplier. (CX 157 at CBI-PL003348 (Black & Veatch "are looking to partner on a project with a firm which has better experience"); Davis, Tr. 3190-01 (Air Products chose to partner with PDM "because we needed to have somebody who would be competent to work with and capable of project execution, and they had demonstrated those capabilities.")).

170. There is a learning curve in building LNG tanks, because "any time you perform work for the first time you would incur experience that you can improve when you perform the same work the second or third time or subsequent times." (Fahel, Tr. 1637-38, *in camera*).

171. Builders of LNG tanks benefit from learning by doing. Samuel Leventry, CB&I's Vice President of Technology Services, testified: "Again, if you have the same people doing the same work more continuously there's going to be some efficiencies in that." (CX 497 at 68 (Leventry, Dep.); CX 392 at 4).

172. CB&I has worked many "years" to "streamline its processes" and lower its costs. (CX 392 at 3). Experience can reduce a firm's costs. A Strengths, Weaknesses, Opportunities, and Threats ("SWOT") Analysis of CB&I acknowledges that its precontract costs for LNG projects has decreased as CB&I moves up the experience curve. (CX 629 at CBI-PL033069, *in camera*).

173. Newmeister of Matrix testified that if it were to enter the LNG tank market, it would be likely to operate at a higher cost level than an experienced supplier like CB&I for some time while it learned from its mistakes. (Newmeister, Tr. 1605-06).

174. A new entrant would be disadvantaged by not having a fabrication facility. [ ] testified that the lack of a fabrication plant currently obstructs the [ ] partnership's penetration of the LNG market. ([ ], Tr. 1635-37, *in camera*). Companies that have fabrication capabilities have lower total installed cost because they would not have to incur the additional markup that's normally associated with a third party subcontractor. ([ ], Tr. 1635-37 *in camera*). [ ] considered that its pricing will be perhaps higher than others who have their own fabrication facilities. ([ ], Tr. 1635-37 *in camera*).

175. A new entrant must have a sufficiently large revenue base to enhance the tank supplier's ability to offer the financial guarantees necessary to win contracts. (CX 891 at 43, 47 (Glenn, Dep.); Izzo, Tr. 6511-12). Customers require the tank supplier "to provide a bond to the contractor . . . that guarantees the project will get finished." (Stetzler, Tr. 6385). An entrant's ability to bond a project, or bonding capacity, "has to do with your financial strength, and also the size of your company." (Stetzler, Tr. 6385).

176. LNG facility contracts often impose large liquidated damage provisions on the constructor if the project is completed late. (CX 891 at 46 (Glenn, Dep.); Izzo, Tr. 6485-86; Bryngelson, Tr. 6154-55). Customers want suppliers with a large asset base, because there is a

larger target to go after if the contractor is late in completing the project and the customer sues for liquidated damages. (Bryngelson, Tr. 6154-55; JX 27 at 69 (N. Kelley, Dep.); Izzo, Tr. 6485-86; CX 1121 at CBI-HWH 053087).

**8. Alleged post-acquisition price increases**

**a. MLGW**

177. In 2002, Memphis Light Gas & Water ("MLGW") sought budgetary prices for another LNG peak shaving tank. (Hall, Tr. 1824-1825). In January 2002, MLGW contacted CB&I's Eric Frey, a business development manager. MLGW called CB&I because MLGW has a "working relationship with CB&I", Hall has "contacts there," and MLGW believed CB&I is the ["only ones (sic)"] that can provide ["reliable"] tank pricing in the United States. (Hall, Tr. 1825-27). MLGW did not contact other LNG firms because MLGW cannot "trust" the pricing information from foreign firms. (Hall, Tr. 1827-28). Hall stated that he would need a lot of additional information from Whessoe and TKK to determine if they were viable competitors in the U.S. (Hall, Tr. 1832-33, 1846-48, 1853-54).

178. On January 15, 2002, Marty Smith, CB&I's Vice President of Global LNG Sales, instructed Frey to quote MLGW [ ] for a 300,000 barrel tank. (RX 732 at CBI 071501, *in camera*; CX 422 at CBI-E 009500, *in camera*; Scorsone, Tr. 5323, *in camera*). Smith explained that Frey's original estimate was [ ]

[ ] (CX 422 at CBI-E 009500, *in camera*.) Smith also instructed Frey [ ]

[ ] (CX 422 at CBI-E 009500, *in camera*).

179. On January 15, 2002, Frey e-mailed Smith with the proposal to quote MLGW a price that [ ] (RX 732 at CBI 071501, *in camera*).

180. Margins contained in budget prices are not representative of the actual profit margin that CB&I seeks in fixed, firm price bids. (Scorsone, Tr. 5003). Because CB&I's internal budget documentation does not contain a line item for these contingencies and uncertainties that exist when preparing budget pricing, CB&I accounts for these contingencies in the margin line calculation of the budget estimate. (Scorsone, Tr. 5002-03). Thus, although a margin line item on a budget price may be [ ], this does not mean that CB&I will seek a [ ] profit margin if, and when, a firm, fixed price bid is submitted. (Scorsone, Tr. 5003).

181. On January 16, 2002, Frey quoted MLGW a budget price of [ ], almost [ ] higher than what Frey had originally prepared. (RX 732 at CBI 071499-500, *in camera*; CX 422 at CBI-E 009500, *in camera*; Scorsone, Tr. 5323, *in camera*). [ ]

[ ] (RX 732 at CBI 071499, *in camera*). [ ]

] (CX 422 at CBI-E 009500, *in camera*).

182. The budget price CB&I provided "was not a buying offer." (Scorsone, Tr. 5250). Rather, the estimate that CB&I provided to MLGW was a SWAG -- a "scientific wild assed guess." (Hall, Tr. 1865-66). Hall testified that MLGW did not provide CB&I nearly enough information to receive an accurate price, and agreed that "volumes more" information would be required for this purpose. (Hall, Tr. 1865-66). Because MLGW was asking CB&I to "extrapolate" into the future, and because it did not provide detailed information, Hall was not expecting a number of more than plus or minus 40% accuracy. (Hall, Tr. 1866-68).

183. On July 17, 2002, Clay Hall of MLGW e-mailed Frey to comment that "we all know that CB&I/PDM is, in fact, the only qualified US based firm capable of executing the work." (CX 786 at CBI 065153). Hall added that MLGW is "concerned about where we're going to get competition for our bids in the next few years . . . because we don't see anyone out there with experience that could come into the market and compete with CB&I/PDM." (Hall, Tr. 1830).

**b. Cove Point I**

184. In 2000, CB&I and PDM competed against each other for a 750,000 barrel LNG tank for Columbia LNG ("Columbia") to be built at Cove Point. (CX 293 at CBI/PDM-H 4008141).

185. In January 2000, PDM's Mike Miles announced to PDM staff working on the Cove Point bid, including Jeff Steimer, that (a) "PDM is bidding against CB&I on this one;" and (b) PDM needed a "very competitive price to be successful." (CX 293 at CBI/PDM-H 4008141).

186. On March 29, 2000, Gary Marine of CB&I relayed minutes of a meeting that he had with a representative from Columbia. (CX 226 at CBI-PL0 44978, *in camera*). Marine wrote: "I told him I bet that by getting two bids, they saved a lot of money over whatever budget they had previously (from PDM). I told him I guessed the price came down at least [ ] million, and he said it was more like [ ] million. So PDM had given them a budget of something like [ ] million for this work." (CX 226 at CBI-PL044978, *in camera*).

187. Marine advised that CB&I should reduce its price to [

] (CX 226 at CBI-PL044979, *in camera*).

188. Columbia sold Cove Point to Williams Energy ("Williams") in June of 2000. (See CX 863 at CBI/PDM-H 4018410; Harris, Tr. 7724-25). In June of 2000, PDM's Miles reminded the team that Cove Point was a "very competitive situation," and, "in accordance with Luke's

[Scorsone's] direction," emphasized the need to get to "the lowest price possible" and to "save every dollar we can." (CX 863 at CBI/PDM-H 4018410).

189. Williams considered an increase in the size of the Cove Point tank from 750,000 barrels to 850,000 barrels and initiated a second phase of bidding for the 850,000 barrel tank. (CX 863 at CBI/PDM-H 4018410; Scorsone, Tr. 4964-66).

190. On August 29, 2000, CB&I and PDM agreed to merge. (CX 21 at PDM-C 1000003).

191. Williams' modifications of the project's specifications and increasing the tank size from 750,000 barrels to 850,000 barrels required PDM to re-design and re-price the tank. (Scorsone, Tr. 4964). The re-design took approximately 200 hours, and the follow-up estimating for the project took between 100 and 200 hours. (Scorsone, Tr. 4964).

192. CB&I did not submit a price on the 850,000 barrel tank. (Scorsone, Tr. 4965).

193. On September 8, 2000, PDM quoted Williams a budget price of [ ] for an 850,000 barrel tank and [ ] for a 750,000 barrel tank. (CX 1388 at CBI/PDM-H 4015363, *in camera*).

194. After the September 8, 2000 budget price, PDM prepared a new estimate for the 850,000 barrel tank because the "tank geometry changed." (Scorsone, Tr. 4966).

195. PDM held a bid review meeting to discuss the re-estimated cost of the 850,000 barrel tank for the Cove Point facility. (Scorsone, Tr. 4967-68). The participants at the meeting included Luke Scorsone, acting as the chair of the meeting; Steve Owens, Vice President of Operations for PDM; Jeff Steimer, the sales representative for the project; Mike Wilson, a manager of PDM's estimating group; Kurt Schneider, a manager of the engineering group; and Ron Blum, who was the head of sales. (Scorsone, Tr. 4968). As reflected on a document created for evaluating an estimate in a formal bid review meeting, the materials estimate and engineering estimate were revised at the bid review meeting. (Scorsone, Tr. 4971-73; CX-1160 at CBI/PDM-H 4007485, *in camera*). PDM's management team increased the cost estimates for the Cove Point project because there was "a very uncertain start date for this project . . . ." (Scorsone, Tr. 4978).

196. [

] (CX 1160 at CBI/PDM-H 4007486-7487, *in camera*). [

(CX 1160 at CBI/PDM-H 4007486-7487, *in camera*). ]

197. Overall, Steimer viewed the November 2 [ ] bid for Cove Point as [ ]. (CX 1160 at CBI/PDM-H 4007486, *in camera*).

198. Neither Scorsone nor the bid review group agreed with Steimer's comments with respect to the revised estimates for fabrication, field-erection, subcontracting, and project management or regarding the final bid submitted to Williams. (Scorsone, Tr. 4981-82).

199. PDM entered into sole-source negotiations with, and was granted a letter of intent by, Williams to construct the expansion of the Cove Point facility. (Scorsone, Tr. 4963). The letter of intent was ultimately transferred into a negotiated contract after PDM was acquired by CB&I in February 2001. (Scorsone, Tr. 4963).

200. The price of the Cove Point project that CB&I is constructing for Williams is currently at [ ]. (Scorsone, Tr. 5333, *in camera*). Since November 3, 2001, the price increased from [ ] to [ ] for the 850,000 barrel tank. (Scorsone, Tr. 5333-34, *in camera*). Scorsone testified that this increase occurred because: [ ] (Scorsone, Tr. 5334, *in camera*).

201. The current price of [ ] million includes a gross profit margin of [ ]. (Scorsone, Tr. 5334, *in camera*). The gross profit margin includes SG&A (sales and general administrative) costs plus profit. (Scorsone, Tr. 5335, *in camera*).

202. PDM's November 2, 2000 bid of [ ] anticipates a profit of [ ], or [ ] on the sold price. (CX 1160 at CBI/PDM-H 4007485, *in camera*).

203. Scorsone testified that CB&I was able to increase its profit due to [ ] (Scorsone, Tr. 5336, *in camera*). [ ]

[ ] (Scorsone, Tr. 5337, *in camera*). [ ]

] (Scorsone, Tr. 5337-38, *in camera*).

## 9. Sophistication of customers

204. LNG owners do not routinely purchase LNG tanks. (Bryngelson Tr. 6060-61, 6208) (the last time El Paso purchased an LNG tank was in the late 1970's or early 1980's); (Eyermann, Tr. 7033) (Freeport LNG and its predecessor Cheniere Energy have never built an LNG facility before); (J. Kelly, Tr. 6257) (the tanks at CMS's only U.S. LNG terminal were built in the late 1970's).

205. Most owners of LNG facilities are not very knowledgeable about procuring LNG tanks. (Outtrim, Tr. 705, *in camera*; see CX 1507 at CBI 059484 (Yankee Gas must hire someone to evaluate pricing because "they know very little about the LNG industry and they were banking heavily on the report from CHI); CX 138 at CBI 019913-HOU ("Dynege is not willing to take bids directly themselves since they do not have the staff, experience, and knowledge to analyze the bids and make an informed selection."); (JX 26 at 53 (J. Kelly Dep.)

206. Past pricing for LNG tanks is "not something that's well known." (Bryngelson, Tr. 6207). Because of confidentiality provisions, "experienced engineering firms such as Kellogg . . . can provide a rough benchmark, but that's about the best we can do." (Bryngelson, Tr. 6239).

207. Even with open book sole-source contracts, customers do not know how a supplier's pricing compares to that of other suppliers. Bryngelson of El Paso, which has an open book contract with CB&I for its Bahamas LNG terminal, admits to being "in the dark in terms of knowing what the costs are for LNG tanks suppliers." (Bryngelson, Tr. 6238, *see also* 6177-78).

## F. Effects on Competition in the LPG Market

### 1. Overview of the LPG market

208. Typically, LPG tanks are manufactured the same way as LNG tanks, but for storage at a lower temperature. (G. Glenn, Tr. 4073).

209. The time needed to fabricate and construct an LPG tank varies. For a small LPG tank, construction can take 8 to 10 weeks of fabrication in the shop -- from buying steel, fabricating, and preparing to send out the pieces. The tank construction process can take 16 weeks in the field. Finally, the remaining site work and piping systems occur after the tank is completed. (N. Kelley, Tr. 7109-10). In an example of a large LPG tank, 60 weeks to field-erect the tank was scheduled. (Maw, Tr. 6634).

## 2. Market shares and concentration in the LPG market prior to Acquisition

### a. Tank projects awarded

210. From 1990 to the Acquisition, CB&I and PDM built the majority of LPG tanks constructed in the United States. Of the eleven LPG tank projects awarded in the United States between 1990 and 2001, CB&I won five and PDM won four. From 1994 to the Acquisition, of the five LPG tank projects built in the United States, CB&I won zero and PDM won three. Morse Tank and AT&V each won one in 1994 and 2000, respectively. (CX 486; CX 824; CX 1210, *in camera*; CX 1212 at 7, *in camera*; CX 397, *in camera*; (CX 396 at 2, *in camera*; RX 757; Simpson, Tr. 3368, 3372-3375).

211. LPG tank awards to CB&I are: Texaco Chemical (1990); Intercontinental Terminals (1991); Mitsui & Co. (1991); Hess Oil (1992); and Koch Refining (1993). LPG tank awards to PDM are: Koch Hydrocarbons (1991); Enron (1995); Sea-3 (1996); Sea-3 (1998). (CX 486; CX 824; CX 1210, *in camera*; CX 1212 at 7, *in camera*; CX 397, *in camera*; (CX 396 at 2, *in camera*; RX 757; Simpson, Tr. 3368, 3372-3375).

212. Dr. Simpson's calculated each company's market share from 1990 through 2001. In his calculation, he included the 2001 LPG project for BASF in Port Arthur, Texas that CB&I won. (Simpson, Tr. 3375). The Port Arthur project was awarded post-acquisition. (Simpson, Tr. 3686, 3829).

213. Using data dating back to 1990 and including a post-acquisition win by CB&I, Dr. Simpson calculated the data to the advantage of Complaint Counsel to conclude that, based on sales, PDM had a 34.5 percent market share, CB&I had a 56.7 percent market share, Morse Tank had an 8.2 percent market share, and AT&V had a 0.6 percent market share. (Simpson, Tr. 3404). Using this time frame, the combined market share of the merged company is 91.2 percent. (Simpson, Tr. 3404-3405). If the post-acquisition win is excluded, the combined market share of the merged company is 90.9 percent. (See CX 486; CX 824; CX 1210, *in camera*; CX 1212 at 7, *in camera*; CX 397, *in camera*; CX 396 at 2, *in camera*; RX 757; Simpson, Tr. 3368, 3372-3375).

214. On November 30, 2001, CB&I acquired Morse Tank, the firm that had accounted for the next most substantial share of LPG sales prior to the Acquisition. (Maw, Tr. 6545). If Morse's market share is added to CB&I's market share, the combined market share of Morse, CB&I and PDM is nearly 100%. See F. 213.

215. Respondents' expert, Dr. Harris acknowledged that CB&I and its two acquisitions, PDM and Morse, account for all but one of the sales of LPG tanks in the United States from 1990 to the time of the Acquisition. (Harris, Tr. 7522).

**b. HHI calculations**

216. Complaint Counsel's expert, Dr. John Simpson, calculated the HHI index for the LPG market from 1990 to early 2001. (Simpson, Tr. 3368).

217. Dr. Simpson's HHI calculation included the 2001 LPG project for BASF in Port Arthur, Texas that CB&I won. (Simpson, Tr. 3375). The Port Arthur project was awarded post-acquisition. (Simpson, Tr. 3686, 3829).

218. Dr. Simpson calculated that, using data from 1990 to 2001, CB&I's acquisition of PDM increased LPG market concentration, as measured by the HHI, by 3911 points to a level of 8380. (Simpson, Tr. 3404-3405).

219. If data dating back to 1994 is used and the 2001 post-acquisition win by CB&I is excluded, Dr. Simpson acknowledged that CB&I had no sales over that time period and that the change in the HHI based on sales in the LPG market would be zero. (Simpson, Tr. 3746-47).

220. Competition in the LPG market is extraordinarily thin, and the market is almost nonexistent. (Harris, Tr. 7281-82). HHI calculations are not accurate in determining the concentration in the LPG market due to the extraordinarily thin market and almost nonexistent demand. (Harris, Tr. 7281-82)

221. Use of data from 1990 to Acquisition does not accurately depict market concentration because it fails to take into account that CB&I had not won a job since 1993. (Harris, Tr. 7287).

**c. Bidders on projects**

222. For the Ferndale project that was won by Morse, there were four bidders: Morse, CB&I, PDM and San Luis Tank. (Maw, Tr. 6550.)

223. For the Tallaboa project that was won by PDM in 1995, the parties did not present sufficient evidence to determine which companies bid or whether competition constrained prices on this project.

224. For both Sea-3 projects, in 1996 and 1998, CB&I and PDM were the only bidders -- with PDM winning and constructing both projects based on a lower price (roughly 4% lower). (Warren, Tr. 2298-2300, 2302-04, 2305, 2306).

225. For the Deer Park project in 2000, CB&I, AT&V, and Matrix bid on the project. PDM was not a bidder. (N. Kelley, Tr. 7083-84).

226. The value of the 2000 Deer Park project built by AT&V is a small fraction of the value of the other LPG tanks sold during this period. (Simpson, Tr. 3394-95).

227. CB&I's acquisition of PDM combines the two strongest sellers of LPG tanks in the United States. (Simpson, Tr. 3406). According to Dr. Simpson: "Prior to the acquisition . . . CB&I's pricing was constrained principally by the presence of PDM EC. When CB&I acquired PDM EC, then CB&I's pricing would be constrained by much weaker competitors and constrained at a higher price." (Simpson, Tr. 3406). Dr. Simpson testified that he believed that CB&I's acquisition of PDM would lead to higher prices for LPG tanks. (Simpson, Tr. 3406).

### **3. Respondents were each others' closest competitors in the LPG market**

228. Respondents referred to each other as a "formidable" competitor (CX 216 at CBI-PL-033886) or "major" competitor in the LPG market (CX 116 at PDM-HOU019181).

229. PDM believed CB&I was its "only competition on tanks over 100,000 bbl [barrels]." (CX 303 at CBI/PDM-H 4001285). PDM characterized CB&I as "PDM EC's only competitor on domestic cryogenic, LNG, LPG, Ammonia and thermal vacuum projects." (CX 107 at PDM-HOU005016).

230. Scorsone testified that CB&I was "PDM EC's major competitor" for LPG tanks. (Scorsone, Tr. 5157, 5173-74; CX 94 at PDM-HOU017580). Scorsone also admitted that CB&I was PDM's only competitor on domestic LPG projects. (Scorsone, Tr. 5183; CX 660 at 5).

231. Dr. Harris testified that prior to the Acquisition, neither CB&I nor PDM could increase prices of LPG tanks in the United States without risking that each would lose sales to the other. (Harris, Tr. 7539-40, 7543-44).

232. Amy Warren, Contracts Administrator for Fluor testified that, in 1998, the only competitors were PDM and CB&I. (Warren, Tr. 2307-08).

### **4. Competition in the LPG market from Acquisition to time of trial**

233. There has only been one LPG tank awarded since the Acquisition, the 2001 ABB Lummus project in Port Arthur, TX. CB&I won the Port Arthur, TX project. (Simpson, Tr. 3686, 3829; G. Glenn, Tr. 4088-89, 4156).

234. The Port Arthur project included four ambient-temperature LPG spheres, one low-temperature LPG tank for butadiene and one flat bottom conventional storage tank. The total value of the project was \$8.5 million. The LPG tank alone was \$1.5 million. (Scorsone, Tr. 5039-40).

235. On the Port Arthur project, CB&I competed against Wyatt and AT&V in bidding for the project. (N. Kelley, Tr. 7086; Scorsone, Tr. 5040). CB&I initially bid a little above a 4 percent margin. ABB Lummus came back to CB&I after the initial round of bidding and informed CB&I that it was 3rd out of 3 bidders. (Scorsone, Tr. 5040).

236. Since it was instructed to by the customer, CB&I "sharpened its pencils" and developed an innovation whereby CB&I eliminated the need for one additional support column on each sphere. This innovation lowered the cost to the project overall. (Scorsone, Tr. 5040-41).

## **5. Recent entry in the LPG market**

### **a. AT&V**

237. AT&V constructed the 2000 project for Intercontinental Terminals Co. ("ITC") in Deer Park, Texas. (JX 27 at 117 (N. Kelley Dep.)). AT&V bid on the Port Arthur project in 2001. (N. Kelley, Tr. 7086; Scorsone, Tr. 5040).

238. AT&V is much smaller than CB&I. (CX 460 at CBI-E 007235; JX 23 at Exh. 1, *in camera* (Cutts, Dep.); Simpson, Tr. 3292-3315). AT&V's annual revenues are only 2-3 percent those of CB&I. (CX 460 at CBI-E 007235; JX 23 at Ex. 1, *in camera* (Cutts, Dep.); CX 1033 at 28). CB&I employs over 200 engineers. (CX 460 at CBI-E 007235). CB&I estimates that AT&V has only a small engineering staff. (CX 460 at CBI-E 007235).

239. AT&V is limited in its field capacity. (Cutts, Tr. 2375; Simpson, Tr. 3315 (citing JX 23a at 44 (Cutts, Dep.)). Capacity constraints at AT&V recently prevented AT&V from bidding on two cryogenic tanks. (Cutts, Tr. 2375). AT&V is limited in its capacity to bond projects in the United States, which could impede AT&V's ability to bid on large projects. (Cutts, Tr. 2366, 2375). Cutts, Vice President of AT&V, admitted that AT&V cannot compete with CB&I on large scale projects. (Cutts, Tr. 2375).

240. Cutts admits that his firm faces reputational and marketing disadvantages compared to Respondents. (Cutts, Tr. 2421-22). "AT&V is not a household name for cyrogenic tanks." (Cutts, Tr. 2385). Cutts contrasts CB&I by comparing it to the "Coca-Cola" brand-name. (Cutts, Tr. 2385). PDM had brand name value also and, like CB&I, its name "could obviously break down a lot of walls and barriers." (Cutts, Tr. 2389).

### **b. Other domestic manufacturers**

241. Matrix provided a bid on the 2000 Deer Park project for ITC. (N. Kelley, Tr. 7083-84). Matrix is capable of building LPG tanks and would pursue LPG opportunities in the future. (Newmeister, Tr. 2180-82).

242. Wyatt bid on the Port Arthur project. (Scorsone, Tr. 5040).

243. Chattanooga Boiler & Tank ("Chattanooga") has the capability to construct field-erected LPG tanks. (Stetzler, Tr. 6355). Chattanooga is familiar with how to construct LPG tanks. (Stetzler, Tr. 6354-55). Chattanooga builds similar API 650 storage tanks, API 620 storage tanks, and ASME pressure vessels. These tanks are both shop and field-erected. (Stetzler, Tr. 6356-59, 6308-09; RX 181 at 1-10).

244. Dr. Simpson testified that firms such as AT&V, Matrix Services, and Wyatt Field Services would not be able to restore the pre-acquisition level of competition in the LPG market. (Simpson, Tr. 3408-09). Dr. Simpson noted that all three firms lack the building experience and the reputation that PDM possessed. (Simpson, Tr. 3409).

**c. Foreign manufacturers**

245. Foreign tank suppliers build tanks around the world and advertise in U.S. trade journals. (N. Kelley, Tr. 7091, 7126; Harris, Tr. 7288-89, 7293). However, the testimony of one purchaser of LPG tanks, was that he has never sought a bid from a foreign tank supplier because he “[d]idn’t know who to go to, I guess. Went to the local boys.” (JX 27 at 114 (N. Kelley, Dep.)). Moreover, his experience buying capital equipment is that he gets better pricing from buying equipment locally in the U.S. rather than from another country. (JX 27 at 74-75 (N. Kelley, Dep.)).

246. Respondents’ economic expert Dr. Harris testified that he had no evidence that any foreign firms have chosen to produce LPG Tanks in the U.S. (Harris, Tr. 7778-79). No foreign tank supplier has won any U.S. LPG projects. F. 210, 215.

247. [ ] testified that “[ ] could not successfully compete against CB&I for single-containment LNG or LPG tank projects” in the U.S. ([ ], Tr. 4711, *in camera*; RX 738 at ¶ 15, *in camera*). [ ] has “no plans” to compete for single containment LPG tanks. (RX 738 at ¶ 15, *in camera*).

248. TKK has never built an LPG tank in the United States. (Cutts, Tr. 2351). Moreover, TKK is not interested in bidding on LPG tank projects in the United States. (Cutts, Tr. 2431).

249. Dr. Simpson testified that foreign companies, such as TKK, Skanska-Whessoe, and Technigaz, would not be sufficient to restore the pre-acquisition level of competition in the LPG market. (Simpson, Tr. 3407).

**6. Barriers to entry in the LPG market**

250. LPG tank suppliers must have sufficient personnel to design, engineer and construct an LPG tank. (RX 682 at MCG 000059 (“Texaco will verify that bidder is not overcommitted to perform that work.”); Warren, Tr. 2295 (Before allowing a company to bid, Fluor reviews a potential LPG tank supplier’s volume to ensure the supplier is capable of managing multiple projects simultaneously, and to ensure there is not too much backlog to prevent Fluor from accessing the supplier’s resources promptly as needed); *see* CX 415 at 2).

251. LPG tank suppliers need sufficient personnel to handle adjustments to possible schedule changes. (Warren, Tr. 2296 (In order to bid on an LPG project, an LPG tank supplier

needs enough staff to handle an adjustment if it becomes necessary to shorten the schedule or recover from delays); *see* CX 415 at 2).

252. LPG customers want a manufacturer with prior experience, at least in building API 620 tanks, and with experienced personnel. (N. Kelley, Tr. 7131-32). *See also* N. Kelley, Tr. 7104-05 ("I don't want to be a guinea pig"); JX 27 at 72 (N. Kelley, Dep.) (ITC would "definitely want [an LPG tank supplier] to have had prior experience building an LPG tank before [it] would hire them to build an LPG tank . . .").

253. Matrix's vice president of marketing testified that the LPG market presents the same barriers to entry as the LNG market and would be difficult to penetrate. (Newmeister, Tr. 1609-10).

## **7. Sophistication of customers**

254. Intercontinental Terminals Company ("ITC") is the only recent LPG customer to testify in this case. ITC owns 10 field-erected low temperature tanks. (N. Kelley, Tr. 7093-94). Mr. Norman Kelley, Vice President of ITC, testified that during his 25 years at ITC he has procured LPG tanks over 23 of those 25 years. Tank procurement is Kelley's area of responsibility. (N. Kelley, Tr. 7079-80). Kelley regularly sorts confidential bids from multiple tank suppliers. (N. Kelley, Tr. 7082-83).

### **G. Effects on Competition in the LIN/LOX Market**

#### **1. Overview of the LIN/LOX market**

255. LIN/LOX tanks are double-walled tanks made of stainless steel which store liquid oxygen and nitrogen at very low, even cryogenic, temperatures which allows them to be stored in a liquid form. (Stetzler, Tr. 6312). A LIN/LOX tank consists of an outer carbon steel shell and an inner tank, most commonly made out of stainless steel. There is insulation between the two shells to keep the temperature at minus 320 degrees. (Stetzler, Tr. 6312; Kistenmacher, Tr. 833-34).

256. LIN/LOX tanks are most commonly incorporated into the infrastructure of a functioning air separation facility. There are no viable substitutes for storing liquid oxygen or nitrogen produced by such a plant. (Hilgar, Tr. 1386).

257. An air separation plant is a plant that liquefies ambient air, then distills the air into its component parts. The component parts of air are the industrial gases: oxygen, nitrogen, and argon. The liquefied gases are later cooled and stored in cryogenic storage tanks. Subsequently, the gases are delivered to the marketplace either in a gaseous form or liquid form. (Kamrath, Tr. 1980; V. Kelley, Tr. 4592; Kistenmacher, Tr. 824-25).

258. The cost to design and fabricate LIN/LOX tanks typically represents five to ten percent of the total cost of an air separation facility. (Hilgar, Tr. 1507). Construction of an air separation facility may cost \$18 million. LIN/LOX tanks used at such a facility may cost from \$1 to \$1.5 million. (Kistenmacher, Tr. 836; Hilgar, Tr. 1507-08).

259. The following construction steps are taken for building LIN/LOX tanks: First, the project is engineered and drawings are developed in connection with the procurement of materials. Second, materials including the raw steel and steel components are procured. Third, steel materials are fabricated in fabrication shops. Next, tool and equipment lists are created and everything including the fabricated materials are shipped to the construction site. The structure is then erected on the project site and tested. (Scorsone, Tr. 4885-86).

260. The engineering phase involves the performance of calculations and an analysis to determine the size and shapes of the various components to be placed in the structure. This phase entails writing the specifications for the various materials and welding processes that will be used. Drawings are created to be used by fabrication shops, construction crews, and subcontractors. (Scorsone, Tr. 4886-87).

261. CB&I does not have an engineering staff that solely works on LIN/LOX projects. CB&I uses its engineers across several product lines. Engineers who design flat-bottom tanks also have the capability to design LIN/LOX tanks. CB&I's engineers are located in Pittsburgh, Pennsylvania; Plainfield, Illinois; Houston, Texas; Canada, the Middle East, the Philippines, and Australia. (Scorsone, Tr. 4887-88).

262. The bill of materials contains a list of materials that are sent to the procurement group. The procurement group then procures these materials from a wide variety of vendors. (Scorsone, Tr. 4889-90).

263. The metal materials are fabricated in a fabrication shop by the same personnel and using the same equipment that is used to fabricate other types of tanks. (Scorsone, Tr. 4885; 4892-93).

264. The field-erection process for an industrial tank involves: (1) receiving the material from the fabrication source and the steel mills; (2) establishing a site office; (3) establishing a tool and equipment management system; (4) employing the field labor; (5) erecting the structure in accordance with the plans and contract specifications; and (6) testing the work quality. (Scorsone, Tr. 4895-96).

265. The field construction process used to field-erect a LIN/LOX tank is the same process that is used to erect any type of ambient-temperature flat-bottom tank. (Scorsone, Tr. 4885).

266. The welding processes used on a cryogenic tank are the same as the processes used for an ambient temperature tank. (Scorsone, Tr. 4899). The welding methods used for cryogenic tanks are an open art. (Scorsone, Tr. 4899).

267. CB&I does not regard LIN/LOX work as an important part of its business because it is so small. (Scorsone, Tr. 5016). The total revenue realized in the LIN/LOX market in the last two years for all construction vendors amounted to only approximately \$5 million out of \$ 2½ to \$3 billion. (Glenn, Tr. 4088). CB&I does not have any salespersons dedicated to the LIN/LOX market. (Scorsone, Tr. 5017).

268. Currently, there is overcapacity in the LIN/LOX market. Moreover, there will not be air separation plants requiring LIN/LOX tanks constructed in the next few years. (Hilgar, Tr. 1541-43). Demand for field-erected LIN/LOX tanks is not high. (Stetzler, Tr. 6382-83).

## **2. Market shares and concentration in the LIN/LOX market prior to Acquisition**

### **a. Tank projects awarded**

269. From 1990 to the Acquisition, CB&I, PDM, and Graver built nearly all the LIN/LOX/LAR tanks in the United States. From 1990 to Acquisition, 109 LIN/LOX tanks were constructed, with a total value of [ ]. CB&I and PDM had a combined market share of 72.8% of the value of LIN/LOX awards. CB&I won 25 tanks (with a total value of [ ] (33.9% of the total). PDM won 44 tanks (with a total value of [ ] (38.9% of the total.) Graver won 34 tanks (23.3% of the total value). Matrix won 4 tanks (2.6% of total value), and AT&V won 2 tanks (1.4% of the total value). (Simpson, Tr. 3422, 3429-30; CX 26, *in camera*; CX 85; CX 155; CX 183; CX 260; CX 282; CX 397, *in camera*; CX 755; CX 1025, *in camera*; CX 1170; CX 1210 at 5-6, *in camera*; CX 1212 at 6, *in camera*; CX 1321, *in camera*; CX 1458; Cutts, Tr. 2451).

270. Graver went out of business, in 2001, and is no longer a competitor in the LIN/LOX market. (CX 1546; Hilgar, Tr. 1543). Graver's assets were sold at auction. (Harris, Tr. 7312, 7313).

271. MG Industries purchased [ ] LIN/LOX tanks between 1994 and 1999. In all but perhaps one of these projects, MG Industries received bids from CB&I, PDM and Graver. (Patterson, Tr. 478-79, *in camera*).

272. Linde's policy in purchasing LIN/LOX tanks is to have at least three bidders. (Kistenmacher, Tr. 864). CB&I, PDM and Graver bid on tanks built for Linde. (Kistenmacher, Tr. 869.)

**b. HHI calculations**

273. Dr. Simpson calculated that, using data from 1990 to 2001, CB&I's acquisition of PDM increased LIN/LOX concentration, as measured by the HHI, by 2,635 points, to a level of 5,845. (Simpson, Tr. 3443).

274. Dr. Simpson's HHI calculations in the LIN/LOX market were based on sales from 1990 to the date of the Acquisition. (Simpson, Tr. 3704). Dr. Simpson admitted that he chose 1990 as the beginning date for his HHI analysis because 1990 was the cut off date for discovery and thus his information dated back to 1990. (Simpson, Tr. 3704-05).

275. In the LIN/LOX market, Dr. Simpson admitted that CB&I's spin off from Praxair, Incorporated, in 1997 was a significant competitive change, a fact which would justify beginning the HHI calculation in 1997 after the date of the sale. (Simpson, Tr. 3753).

276. Use of data from 1990 to Acquisition does not accurately depict market concentration because it fails to predict forward from the time of acquisition, fails to consider Praxair's sale of CB&I, and fails to account for recent entry. (Harris, Tr. 7311-12).

**3. Respondents were each others' closest competitors in the LIN/LOX market**

**a. Respondents' views**

277. In a July 1997 competitor report to Luke Scorsone, PDM's Bill Weber noted that "[s]ince last fall, CB&I has been the most aggressive competitor in increasing market share." (CX 108 at PDM-HOU005018).

278. In May 2000, Luke Scorsone warned the Board of PDM that "CB&I has been extremely aggressive on pricing work in North and South America. They have taken certain projects at levels which would be slightly over PDM EC's flat cost." (CX 64 at PDM-C 1002562).

279. According to an October 2000 e-mail from Bob Lewis, then CB&I's Vice President of Corporate Business Development, PDM had "[a] tendency to bid much lower than the market leaving a lot of money on the table." (CX 632 at CBI-PL 4000160). In April 1997, Rich Kooy compared CB&I and PDM's LIN/LOX prices and recognized that "[i]n North America we [CB&I] could still be very handily undercut (by as much as 10%) by PDM if they wanted to work at a lower price level." (CX 178 at CBI-PL011835).

280. In competing for LIN/LOX jobs, CB&I and PDM would in some instances, set prices that would generate "negative margins." (CX 183). In fact, CB&I lost some projects to PDM because of PDM's "very low" pricing levels. (Crain, Tr. 2592; CX 624).

281. A CB&I document states that "PDM is the driver on negative margins on these LIN/LOX tanks. We understand that PDM can readily price the LIN/LOX work at -6% margin in the Gulf Coast and Southeast . . . Unless there is a reason why PDM would be less aggressive or economical in NV, then I agree with Ron that -2% or -3% should get us on the high side of the target range." (CX 193 at CBI-PL020339).

282. Other documents of Respondents reflect the competitive pressure that PDM regularly placed on CB&I. (See CX 614 at CBI-PL039367 (for LOX tank project for Air Products in Eureka, Nevada, PDM's quoted price was "\$100,000 lower than CB&I's and Matrix's price, and almost \$200,000 lower than Graver's price"); CX 222 at CBI-PL037594 (PDM won a bid from CB&I for a pair of LIN/LOX tanks by dropping their bid on their best and final offer by \$40,000); CX 191 at CBI-PL018948 (Air Products had awarded a LOX tank to PDM, which "was the very low bidder and met all of the technical requirements.")).

#### **b. Industry views**

283. William Cutts, Vice President of American Tank & Vessel ("AT&V") agreed that, prior to the merger of CB&I and PDM, customers preferred PDM or CB&I for their LIN/LOX tank projects, "almost exclusively [desiring] one or the other or pit[ting] the two against the other." (Cutts, Tr. 2390).

284. Cleveland Fontenot, Jr., former Vice President of Procurement for Air Liquide Process and Construction ("Air Liquide"), testified that prior to the Acquisition, CB&I and PDM were the two most qualified LIN/LOX/LAR tank suppliers. Air Liquide's bid slate included, "CB&I, PDM and a little bit lower would be Matrix." (Fontenot, Tr. 2021-22). However, Air Liquide "didn't feel as comfortable" with Matrix because the "number of references they had weren't nearly what the other two suppliers [CB&I and PDM] had." (Fontenot, Tr. 2022).

285. David Kamrath, CEO of Air Liquide Process and Construction and a 30-year participant in the industrial gas business, believes that prior to the merger Air Liquide only "had PDM and CB&I" for the construction of LIN/LOX tanks. (Kamrath, Tr. 1988).

#### **c. Competition between Respondents lead to lower prices**

286. Prior to the Acquisition, Linde used PDM's prices as its "benchmark" to compare other firms' prices. (Fan, Tr. 967). Linde was able to leverage two manufacturers against each other to negotiate pricing and other concessions. (Kistenmacher, Tr. 867-8).

287. MG Industries, a producer of industrial gas products, purchased 16 LIN/LOX tanks in the last nine years. (Patterson, Tr. 338, 341). Before the merger, the same three firms bid on most of MG Industries' LIN/LOX projects: CB&I, PDM and Graver. (Patterson, Tr. 351, 355, 363, 365). On each of MG Industries' LIN/LOX projects after 1997, Mr. Michael Patterson, Director of Engineering, MG Industries, used each of the other firms as bargaining chips to obtain lower prices on LIN/LOX tanks. (Patterson, Tr. 351-365).

288. There was vigorous competition between CB&I, PDM and Graver. CB&I and PDM would vigorously undercut each other's prices, to the extent that the firms sold LIN/LOX tanks at negative margins, e.g., -23%, -12%, and -2 to -3%. (CX 136 at CBI 014195-HOU; CX 193 at CBI-PL020339; CX 600 at CBI-PL012354). (See CX 455 at CBI-E 007334, *in camera* ([

]); *id.* at CBI-E 007335, *in camera* ([

]); *id.* at CBI-E 007335, *in camera* ([

]

289. In 1997, CB&I, PDM and Graver were competitors for the Rockport, Indiana project. According to Patterson, MG Industries' negotiating tactics "lowered the price." (Patterson, Tr. 351-52). Graver was the lowest bidder for the Rockport project, but after "verbal negotiations" using PDM's and CB&I's bids as leverage, Graver "knocked a few percent off [its] price." (Patterson, Tr. 351-53).

290. CB&I, PDM, and Graver also competed for the contract to the combined Chattanooga and Johnsonville, Tennessee projects in 1997. (Patterson, Tr. 355). PDM was the lowest bidder, with both Graver and CB&I bidding 15 percent higher than PDM. (Patterson, Tr. 356-57; see CX 194 at CBI-PL023449). Patterson informed the bidders that "they were way higher than what it would take to be awarded any of those type projects," and that "if they expected to receive any orders, they would have to significantly lower their price." (Patterson, Tr. 357-58). As a result of Patterson's negotiating, the firms "lowered their price." (Patterson, Tr. 358). The Johnsonville project was later postponed, while the Chattanooga tanks were built. (Patterson, Tr. 356).

291. MG Industries combined the LIN/LOX tanks for the Albany, New York; Delisle, Mississippi; and Johnsonville, Tennessee projects for one bidding process. (Patterson, Tr. 361-62, 355-56). PDM was the lowest bidder, Graver's bid was 4% above PDM's, and CB&I's bid was 7% above PDM's bid. (Patterson, Tr. 362). Once again, Patterson used PDM as leverage, informing Graver that "somebody has a better price than they do." (Patterson, Tr. 363). The customer was again successful in promoting the most competitive environment he could, as "Graver dropped the price substantially." (Patterson, Tr. 364).

#### 4. Competition in the LIN/LOX market from Acquisition to time of trial

292. Since CB&I's acquisition of PDM in 2001, five LIN/LOX projects have been awarded by LIN/LOX customers. (Scorsone, Tr. 5015-16). The five LIN/LOX projects that have been awarded since the Acquisition are: Midland, North Carolina (BOC Gases); Hillsboro, Oregon (BOC Edwards); Freeport, Texas (Air Liquide); New Johnsonville, Tennessee (MG Industries); and Kirkland, New Mexico (Praxair). (Scorsone, Tr. 5017).

293. Since the Acquisition, of the five LIN/LOX tank projects awarded, AT&V has won three and CB&I has won two. (Harris, Tr. 7308; Scorsone, Tr. 5015-16).

294. Of the five post-Acquisition LIN/LOX projects, four were competitively bid. (Scorsone, Tr. 5017). Of the four competitively bid projects, AT&V bid on three and won all three. (Scorsone, Tr. 5018). CB&I has never won a LIN/LOX project when AT&V was a competitor bidding on the project. (Scorsone, Tr. 5018).

**a. Midland, North Carolina (BOC Gases)**

295. AT&V won both tank awards for the BOC Gases Midland, North Carolina project. (V. Kelley, Tr. 4599; Scorsone, Tr. 5024; RX 273, *in camera*). In 2000, BOC Gases solicited bids for the Midland LIN/LOX project from PDM, CB&I, AT&V and Chattanooga Boiler & Tank. (V. Kelley, Tr. 4598; Scorsone, Tr. 5024-25; RX 273, *in camera*).

296. BOC Gases awarded the Midland project to AT&V because of low cost and was satisfied with the price because it was below BOC Gas' budget for the project. (V. Kelley, Tr. 4599-601, Tr. 5272, Tr. 5282).

297. Dr. Kistenmacher, Vice President of BOC's successor, Linde BOC Process Plants, was told by his direct partner at BOC ". . . that the price was low in the beginning, but they [AT&V] had many change orders, that in the end the price was higher than of the conventional vendors." (Kistenmacher, Tr. 931-32).

298. BOC Gases had to budget 500 man-hours of additional BOC Gases engineering time to ensure that AT&V delivered the LIN/LOX tanks "on time, on schedule, on budget"; this was AT&V's first experience building LIN/LOX tanks. (JX 28 at 43-46 (V. Kelley, Dep.); RX 290 at CBI 046596-NEW).

**b. Hillsboro, Oregon (BOC Edwards)**

299. AT&V was awarded a LIN/LOX project for BOC Edwards in Hillsboro, Oregon. (Cutts, Tr. 2504-06; V. Kelley, Tr. 5291-92; RX 813).

300. CB&I submitted budget pricing for the LIN/LOX project in Hillsboro, Oregon. (Scorsone, Tr. 5018, 5031). BOC Edwards reviewed the budget prices submitted for the project and determined that AT&V had the low bid. (V. Kelley, Tr. 5292). Based on these budget prices, BOC Edwards awarded the project to AT&V. (V. Kelley, Tr. 5292; Scorsone, Tr. 5031).

**c. Freeport, Texas (Air Liquide)**

301. In 2001, Air Liquide solicited bids for a LIN/LOX project in Freeport, Texas. AT&V, CB&I, Matrix and BSL bid on the project. (Cutts, Tr. 2569; Scorsone, Tr. 5032; RX 627 at 2, *in camera*).

302. AT&V was awarded the Air Liquide LIN/LOX project in Freeport, Texas. (Kamrath, Tr. 2006; Scorsone, Tr. 5017). [ ] (Kamrath, Tr. 2235, *in camera*). [ ] (Scorsone, Tr. 5023-5024; Kamrath, Tr. 2235, *in camera*; RX 627 at 2, *in camera*).

303. Matrix's bid on Air Liquide's Freeport LIN/LOX tank [ ] (Kamrath, Tr. 2235, *in camera*).

304. [ ] (Kamrath, Tr. 2254-55, *in camera*).

305. [ ] (Kamrath, Tr. 2241, 2251, 2253, *in camera*). [ ] (Kamrath, Tr. 2252, *in camera*). Air Liquide asked CB&I to complete the project, but CB&I refused. (Scorsone, Tr. 5036).

d. [ ] (MG Industries)

306. In April 2002, MG Industries sought pricing for a LIN/LOX tank project in [ ] (Patterson, Tr. 456-57, *in camera*).

307. Requests for prices were sent to [ ]. (Patterson, Tr. 456-57, *in camera*). While [ ] submitted budget pricing, it did not submit a formal bid. (Stetzler, Tr. 6351). [ ] (Patterson, Tr. 482, *in camera*).

308. [ ] was the lowest bidder. (Patterson, Tr. 457, *in camera*). [ ] price was [ ] higher than [ ]. (Patterson, Tr. 457, *in camera*). [ ] budget price was [ ] higher than [ ]. (Patterson, Tr. 457, *in camera*).

309. [

(Patterson, Tr. 460-62, 482-83, *in camera*). ]

310. [

] (Patterson, Tr. 460, *in camera*). [

] (Patterson, Tr. 486-87, *in camera*). [

] (Patterson, Tr. 461, *in camera*).

**e. Kirkland, New Mexico (Praxair)**

311. CB&I was awarded a LIN/LOX project by Praxair in Kirkland, New Mexico pursuant to a partnering agreement. (Scorsone, Tr. 5019-20). PDM had entered into an alliance agreement with Praxair which obligated Praxair to award non-union LIN/LOX tank projects to PDM, and PDM was obligated to construct the projects at a 4 percent margin level. (Scorsone, Tr. 5018-19; RX 87 at 4). In 2001, PDM and Praxair agreed to renew the agreement for another three years. (RX 87 at 2). The partnering agreement between Praxair and PDM was transferred to CB&I after the Acquisition. (Scorsone, Tr. 5019).

**5. Recent entry in the LIN/LOX market**

312. No foreign company has ever built a LIN/LOX tank in the United States. (Hilgar, Tr. 1385).

**a. AT&V**

313. AT&V is a recent entrant to the LIN/LOX market. AT&V has won all three LIN/LOX projects that it has bid on. (Scorsone, Tr. 5018). AT&V is committed to pursuing LIN/LOX projects in the United States. (Cutts, Tr. 2332). AT&V has submitted budget pricing for approximately six customers and has formally been pre-qualified as a bidder by one customer and informally pre-qualified by several others. (Cutts, Tr. 2452-53).

314. Reviews of AT&V's price and performance for BOC's Midland project are mixed. One BOC witness testified that he "was satisfied with the price" it received and "satisfied with the work that AT&V did at Midland." (V. Kelley, Tr. 5285). Another testified that, although the price was low in the beginning, because of the many change orders the price ended up higher. (Kistenmacher, Tr. 931-32). In addition, "there was a design run of pipe [on the BOC project] that could have caused liquid oxygen to settle and then dissipate, creating a hazardous atmosphere in that location." and a "welding error" during construction that caused the steel plate that comprises the tank to buckle at a weld joint. (V. Kelley, Tr. 5269, 5273-74).

315. AT&V does not compete on an equal footing with CB&I in the LIN/LOX market. AT&V is much smaller than CB&I. (CX 460 at CBI-E 007235; JX 23 at Ex. 1 (Cutts, Dep.), *in camera*; Simpson, Tr. 3292-3315). AT&V's annual revenues are only 2-3 percent of CB&I's revenue. (CX 460 at CBI-E 007235; JX 23 at Ex. 1 (Cutts, Dep.), *in camera*; CX 1033 at 28). AT&V is capacity constrained. (Simpson, Tr. 3315 (citing JX 23a at 44, (Cutts, Dep.))). AT&V lacks the field capacity to handle more than four LIN tanks at a time or one small LNG project at a time. (Cutts, Tr. 2376). Recently, AT&V had to refuse to bid on two cryogenic tank projects in the United States because of its limited field capacity. (Cutts, Tr. 2375).

316. Cutts admitted that CB&I will outperform AT&V on future projects for years to come. "There would still probably be a few years to catch up. . . . [CB&I] would still probably be able to outperform us a little bit until we had a few years under our belt." (Cutts, Tr. 2380). Cutts stated that AT&V could compete with CB&I only "on certain fronts, on certain scale projects, okay, with certain assistance, if the customers are willing." (Cutts, Tr. 2374).

317. Customers that have done business with AT&V have found that any initial savings are often offset or exceeded by oversight costs and costs related to change orders. (Kistenmacher, Tr. 931-32; Kamrath, Tr. 2254-55, *in camera*). F. 297-98, 304, 314.

318. Air Products has not qualified AT&V as a LIN/LOX tank supplier, due to its concern over AT&V's performance and poor reputation. (Cutts, Tr. 2355-56; Hilgar, Tr. 1369). Another LIN/LOX customer, [ ], thinks that [ ] was "insane for buying a tank from an inexperienced tankee," and testified that it is concerned about working with AT&V, based on word of mouth reports of AT&V's performance on its LIN/LOX projects for [ ]. (CX 41 at CBI-E 007336; Patterson, Tr. 472, *in camera*). [

] F. 305.

319. In Respondents' competitive profile of AT&V, Respondents state that AT&V's "quality" and "safety" are "poor." (CX 86 at PDM-CH 002617). The document notes that on past projects, AT&V performed poorly in terms of supplying a quality tank or sphere and has not met customer safety standards. Kellogg and Bechtel threw AT&V off projects due to poor quality or poor safety practices. Moreover, in the past, Dupont, Shell-Norco and Exxon (Baton Rouge) would not let AT&V bid on their projects. (CX 86 at PDM-CH 002617). Respondents describe AT&V's safety practices as "severely lacking . . . and are being labeled as an undesirable risk by many." (CX 263 at CBI-HOO-004606).

#### **b. Matrix**

320. Matrix is a recent entrant. Although Matrix won only 4 of the 83 awards prior to Acquisition, all 4 of these are recent LIN/LOX construction. In 1997, Praxair awarded Matrix a liquid oxygen and liquid nitrogen "cluster tank" project in Rossford, Ohio over CB&I. Matrix finished the work on time and to the satisfaction of Praxair. (Newmeister, Tr. 2174-75). Matrix built two LIN/LOX tanks for Praxair in Delaware City, Delaware, in 1998. (Newmeister, Tr. 2173; 2176-77). Matrix was awarded the Delaware City LIN/LOX project in 1998 over CB&I

and it completed the project on time. (Newmeister, Tr. 2176-77). In 2000, Matrix was awarded a LAR tank for Praxair in East Chicago. Praxair was satisfied with the construction and the project was erected on schedule. (Newmeister, Tr. 2173; 2176-77). Also in 2000, Matrix was awarded a LIN tank by Air Products for a project in Kingsport, Tennessee. Air Products awarded the tank to Matrix over CB&I and PDM, despite the fact that Matrix had never built a tank for Air Products before. (Newmeister, Tr. 2173-74).

321. Matrix has been a high bidder, and consequently non-competitive, on recent LIN/LOX tank projects for several customers, including Air Liquide and Linde. (Newmeister, Tr. 2156-58). (See Fan, Tr. 960-62 (on 2002 project, Matrix bid over [ ], while CB&I bid [ ]); Kistenmacher, Tr. 860 (on preliminary bids, Matrix was eliminated from consideration because its pricing was high); Fontenot, Tr. 2029 (CB&I was at least [ ] Matrix on Air Liquide's recent Longview, Texas project).

322. Matrix has been told that Matrix has not won these projects either because its pricing has been too high or because the customer did not believe that Matrix was sufficiently qualified. (Newmeister, Tr. 2155-58; Kamrath, Tr. 2000-01 (Matrix's prices have "never been below what we'd seen from any of the other competitors"); Fontenot, Tr. 2022 ("didn't feel comfortable with Matrix"); Hilgar, Tr. 1354, 1382-83 (Matrix has "more limited capacity to produce field-erected cryogenic storage tanks," as compared to CB&I or PDM)).

323. Air Product's supply manager, with responsibility for bidding out LIN/LOX tanks, testified that Matrix cannot replace PDM in the LIN/LOX marketplace from Air Products' perspective. (Hilgar, Tr. 1354).

324. Matrix is a diminished competitor in the LIN/LOX tank market as a result of the sale in August 2000 of its Brown Steel subsidiary, which owned the fabrication facility where Matrix fabricated LIN/LOX tanks. (Newmeister, Tr. 1590-91, 1595). Matrix determined that "once we sold Brown Steel Company, we lost some competitive advantage in the two primary areas, one of which – one of being able to do internal blasting and priming, and the other, impressing." (Newmeister, Tr. 2158-59). By losing its fabrication capability, Matrix is required to subcontract the fabrication work for these tanks, and subcontracting increases Matrix's costs. (Newmeister, Tr. 1569-70, 1590 (As a result of subcontracting its fabrication work, Matrix's "costs will be higher. They won't be as competitive.")).

### **c. Chattanooga Boiler & Tank**

325. Chattanooga Boiler & Tank ("Chattanooga") does not effectively compete in the LIN/LOX market. Chattanooga has never built a LIN/LOX tank. (JX 2 at 2 (Respondents stipulate that Chattanooga has never built a LIN/LOX tank); CX 623 at FTC0000399; Stetzler, Tr. 6413-15). Chattanooga has never created any strategic plans or pricing strategy for designing, engineering, fabricating, or erecting LIN/LOX tanks. (Stetzler, Tr. 6421-22, 6426). Mr. Jerry Stetzler, Chattanooga's President, testified that the supply of LIN/LOX tanks is "not really a business that we've been participating in." (Stetzler, Tr. 6422).

326. On one occasion when it recently bid on a LIN/LOX project, Chattanooga's price was higher than any other competitor. (CX 189 at CBI-PL015105; [ ], Tr. 457, *in camera*) (Chattanooga's price was [ ] higher than CB&I's).

327. LIN/LOX industry participants question Chattanooga's ability to build a LIN/LOX tank. MG Industries "has doubts" of Chattanooga's "abilities." (CX 41 at CBI-E007336). Cutts testified that AT&V does not consider Chattanooga for LIN/LOX tanks in the United States. (Cutts, Tr. 2333). Scorsone admitted that Chattanooga was never "on the radar screen for competing for LOX/LIN projects." (Scorsone, Tr. 4877).

## 6. Barriers to entry in the LIN/LOX market

328. It is very important to MG Industries that its suppliers have prior experience. (Patterson, Tr. 467, *in camera*).

329. To build a LIN/LOX tank takes very specialized know-how, including knowledge about the material shrinking process and how to avoid cracks. (Kistenmacher, Tr. 852).

330. If a LIN/LOX tank is not constructed properly, severe harm and destruction could occur. (Kistenmacher, Tr. 848).

331. Track record and experience of the vendor are important factors in selecting a manufacturer of LIN/LOX tanks. (Kistenmacher, Tr. 849).

332. A new entrant will need to establish the capability to perform specialized metal fabrication. (Hilgar, Tr. 1343-44 (fabrication of the pieces for a LIN/LOX tank is complex due to "the tolerances and the manufacturing processes. . . . [if the] pieces get to the field and don't fit, you have a major problem"); Kamrath, Tr. 1995 (customer "would be very concerned about how he manages that, the supervision he provides, the standards and guidance he provides. It's not something that eliminates a supplier, but certainly it raises a concern."))).

333. A new entrant will need large amounts of cash to conduct physical tests of materials and tank prototypes or components. For example, Matrix spent [ ] testing cellular glass and rigid insulation systems that form the ground insulation between the inner and outer tanks for a LIN/LOX tank. (Newmeister, Tr. 1584-85; Kamrath, Tr. 2235-36, *in camera* [

]

334. Air Liquide would not buy a LIN/LOX tank from someone who had not built a tank before, because of the risks, including technical and safety risks, and project execution risk. (Kamrath, Tr. 1995-96, 2236-37, *in camera*; see also Knight, Tr. 2628 (experience building LIN/LOX tanks provides customers with confidence that the product will be designed and built

the way it was requested); JX 25 at 83-4 (Hilgar, Dep.) (describing safety hazards associated with LIN/LOX tanks).

## **7. Alleged post-acquisition price increases**

335. In 2002, Linde and Praxair were competing against each other for the same air separation facility. (Scorsone, Tr. 5020). Linde lost the air separation facility to Praxair, therefore Linde did not pursue the pricing for its proposed project any further than the budget pricing stage. (Scorsone, Tr. 5020-21). Praxair won the contract for air separation facility and awarded the LIN/LOX project to CB&I. (Scorsone, Tr. 5019).

### **a. Linde-New Mexico Project**

336. In 2002, Linde BOC Process Plant LLC ("Linde") requested budget pricing for a proposed 344,000 gallon LIN/LOX tank to be located in New Mexico ("Linde-New Mexico"). (Fan, Tr. 1002, 1064; CX 1344 at LPPI 0000259, LPPI 0000261).

337. Mr. Chung Fan is a proposal manager at Linde BOC Process Plants. (Fan, Tr. 947). In his request for proposal, Fan did not provide the following information: a construction schedule (Fan Tr., 1073), where in the state of New Mexico the project would be located (Fan, Tr. 1075), the time of year that the tank would be constructed (Fan, Tr. 1076), the conditions of the project site (Fan, Tr. 1077), or the identity of the end-user (Fan, Tr. 1078; *see also* RX 860 at CBI 071847). Fan provided only a preliminary nozzle list (Fan, Tr. 1060) and requested that the pricing for the New Mexico project be submitted within two weeks time. (Fan, Tr. 1062). Fan admitted that he did not provide sufficient information to produce a firm-fixed price. (Fan, Tr. 1078).

338. AT&V quoted a price of approximately \$600,000. (Fan, Tr. 960-961). Matrix responded with a price of over \$900,000. (Fan, Tr. 962). CB&I responded with a budget price of \$814,000. (CX 1344 at LPPI 0000261).

339. Fan stated that he did not consider AT&V's price "reliable" because it diverged so widely from CB&I and Matrix. (Fan, Tr. 963). Fan could not see how AT&V could do it so cheaply compared to CB&I. (Fan, Tr. 963). While AT&V's low price has caused some concerns for Linde, there has been pressure within Linde to use AT&V because of their low price. (Fan, Tr. 1016-18).

340. Fan dismissed Matrix because he believed its price was always high. (Fan, Tr. 1019).

341. Fan compared CB&I's budget price on the New Mexico project, which was based on incomplete information and was not the result of any negotiation, to a 3 year old PDM firm fixed price which was the result of significant negotiation, and believed that CB&I's price had gone up. (Fan, Tr. 1019, 1069-70).

342. Fan also compared CB&I's price with a pricing model that Linde routinely uses to distinguish between reasonable and unreasonable price quotes from vendors. (CX 1584; Fan, Tr. 966, 1024). Using his pricing model and the past price information from PDM, Fan concluded that the quote he received from CB&I was higher than Linde would have paid to PDM. (Fan, Tr. 1009-10).

343. Prior to April 2002, the time of the New Mexico estimate, Fan had not updated his estimating spreadsheet for approximately two years. (Fan, Tr. 973). Fan stated that he uses the year 1998 as a baseline for his spreadsheet. Fan agreed that the further away from his baseline year of 1998 he gets, the less accurate his estimating attempts become. (Fan, Tr. 1069). Fan stated that his calculations do not account for price changes between the time the project is bid and the time it is awarded because that is not the purpose of his spreadsheet. (Fan, Tr. 1055-56).

344. Fan stated that his method was not accurate enough to determine if CB&I's prices went up because he did not have CB&I's metal pricing. (Fan, Tr. 1056). Fan does not know the quantity of perlite used for any of the tanks in his spreadsheet. (Fan, Tr. 1045). Fan stated that it is very difficult to calculate the amount of perlite and the thickness of the perlite required for a project because it shrinks when the tank is filled with cryogenic fluid. (Fan, Tr. 1045). Fan did not call up perlite suppliers to determine the current rate for perlite. (Fan, Tr. 1049). Fan did not call the foamglass supplier to determine the current rate for foamglass. (Fan, Tr. 1050). Fan did not call the concrete supplier to determine the current rate for concrete. (Fan, Tr. 1050). Fan did not know the thickness of the metal CB&I intended to use for the New Mexico project and attempted to calculate the metal thickness based upon drawings from other non-CB&I tanks. (Fan, Tr. 1047).

**b. Praxair-New Mexico Project 1**

345. On June 15, 2002, CB&I submitted a pricing proposal to Praxair for a [ ] gallon LIN/LOX tank to be built in Farmington, New Mexico. (CX 1508 at CBI 059657, *in camera*). Pursuant to the sole-source exclusive partnership agreement Praxair negotiated with CB&I shortly prior to the Acquisition, Praxair is obligated to contract with CB&I for its domestic non-union LIN/LOX tanks, and CB&I is required to provide open book pricing with a four percent margin. (Scorsone, Tr. 5019-20).

346. CB&I's quote to Praxair was [ ] (CX 1508 at CBI 059657, *in camera*).

347. CB&I provided a firm fixed price to Praxair pursuant to its partnering agreement; Praxair provided CB&I with all of the detail necessary to arrive at a firm price. (Scorsone, Tr. 5020-21). By contrast, CB&I had submitted a budget price to Linde because Linde had provided minimal detail and omitted the location of the project. (Scorsone, Tr. 5020-22; F.337).

348. The tanks proposed by Linde and Praxair for the same location were drastically different in scope and design. In contrast to the Linde tank, Praxair designed a more slender tank which resulted in an additional horizontal weld seam as well as required thicker steel throughout

the tank. (Scorsone, Tr. 5021). The Praxair project scope also included a full-time welding supervisor, an increased 50 hour work week, additional subsistence in order to attract field labor to the remote site, and a more complex nozzle structure. (Scorsone, Tr. 5021-22). Praxair specifically defined the complex nozzle structure they wanted for their tank, while Linde provided only basic information concerning its anticipated nozzle configuration. (Scorsone, Tr. 5022). There are approximately \$60,000 worth of additional cost items included in the Praxair pricing that were not included in the Linde budget price. (Scorsone, Tr. 5022).

**c. Praxair-New Mexico Project 2**

349. On November 6, 2001, after the merger, Praxair asked CB&I to provide a budget price for an LR-60 LIN tank in Farmington, New Mexico. (CX 448 at CBI-E 007391).

350. CB&I estimating staff was instructed to use a 4% profit margin. (CX 448 at CBI-E 007391). CB&I estimating staff was also instructed to use PDM's price on the Colorado Springs tank as a basis for determining the price for the New Mexico project, if necessary. (CX 448 at CBI-E 007393). PDM had provided a rough budget price of [ ] for a 500,000 gallon LOX tank in Colorado Springs, Colorado for Praxair in November 2000. (CX 448 at CBI-E 007391; CX 449 at CBI-E 007401, *in camera*; see RX 90 at PDM-CH 002717).

351. CB&I submitted "tight budget pricing" of [ ] for the New Mexico tank on April 30, 2002. (CX 449 at CBI-E 007411, 007403, *in camera*).

352. CB&I explained to Praxair that the increased price was a result of [ ] (RX 92 at CBI-E 007401, *in camera*).

**8. Sophistication of customers**

353. BOC is an experienced purchaser of LIN/LOX tanks. BOC hired engineering consultants to assist it and AT&V in working through the Midland project. (V. Kelley, Tr. 4619-20).

354. MG Industries has experience purchasing LIN/LOX tanks in the past; it purchased [ ] such tanks during the 1990s. (Patterson, Tr. 478-79, *in camera*). During the 1990s, MG Industries would often drive tank costs down by informing vendors that they were higher-priced than other vendors. (Patterson, Tr. 350).

355. Air Liquide Process is experienced at purchasing LIN/LOX tanks both domestically and overseas. (See Kamrath, Tr. 1979-80, 1983-85). [ ]

[ ] (Kamrath, Tr. 2235-36, *in camera*).

## **H. Effects on Competition in the TVC Market**

### **1. Overview of the TVC market**

356. A Thermal Vacuum Chamber ("TVC") is a large metal enclosure used to simulate the vacuum of space for the purpose of testing satellites and satellite components prior to launch. (Gill, Tr. 179-83; Neary, Tr. 1423-24). A TVC simulates the atmospheric and thermal conditions found in space. (Gill, Tr. 183; Proulx, Tr. 1722-23; Thompson, Tr. 2039-40; Higgins, Tr. 1264).

357. A TVC is composed of a large vacuum envelope (or chamber) constructed of stainless steel shaped roughly like a horizontal cylinder with a front door that may swing on a hinge or slide laterally on a rail. (Scully, Tr. 1098-99).

358. A "thermal vacuum system" is the process equipment that goes inside a TVC to simulate extreme heat and cold. (Higgins, Tr. 1263). The thermal vacuum system is comprised of one or more shrouds, vacuum insulated pipe, and cryo pumps or other pumping equipment, which are all controlled by a thermal control unit. (Higgins, Tr. 1263).

359. A TVC is outfitted with two or three different types of vacuum pumps that are used collectively to achieve the vacuum conditions found in space. (Scully, Tr. 1099).

360. The thermal shroud turns the vacuum chamber into a TVC. (Scully, Tr. 1099). This thermal shroud is a black wall found inside the vacuum envelope that cools or heats the contents of the chamber through radiation. (Scully, Tr. 1099-1101).

361. The extreme temperatures required inside a TVC are created by blowing nitrogen through tubes connected to the thermal radiator. (Scully, Tr. 1100; Thompson, Tr. 2039-40).

362. TVCs require field-erection at the facility site. Field-erection is required when the chamber or its pieces become too large to transport to the site. (*See* Gill, Tr. 187). This field-erection includes transporting the fabricated pieces of the stainless steel chamber to the site, using cranes and riggers to align the pieces, and using welders to weld the chamber pieces together. (Gill, Tr. 186, 268-69; Hart, Tr. 407; *see also* Newmeister, Tr. 2188-89).

### **2. Market shares and concentration in the TVC market prior to Acquisition**

363. CB&I's acquisition of PDM combined the only two competitors in the market for large field-erected TVCs in the U.S. (Simpson, Tr. 3489 (citing CX 272; CX 857, *in camera*; CX 264; CX 1040 at PDM-HOU 010889; CX 94 at PDM-HOU 017583)). Since 1960, the only companies that have built TVCs are PDM and CB&I. (Scully, Tr. 1110, 1115 (referencing RX 178); Higgins, Tr. 1267; Newmeister, Tr. 1564).

**a. Tank projects**

364. Only one field-erected TVC has been built since 1990. This was built by PDM in 1996. (Glenn, Tr. 4089, 4160; Scully, Tr. 1165, 1189, 1193).

365. CB&I has not built a field-erected TVC since 1984. (Scorsone, Tr. 5055-56; Glenn, Tr. 4089, 4160; Scully, Tr. 1187-89, 1193; Higgins, Tr. 1276-77). CB&I has never built a mailbox-shaped field-erected TVC. (Scully, Tr. 1193; Neary, Tr. 1467; Scorsone, Tr. 5056).

366. Both CB&I and PDM provided final pricing offers for [ ] large, field-erected mailbox shaped TVC in 1997 that [ ] now calls the [ ]. ([ ], Tr. 1740, 1901, *in camera*). In addition, two other companies, [ ] responded to [ ] request for proposals. ([ ], Tr. 1890-91, *in camera*). [ ] eliminated these companies from the bidding process because they were not qualified. ([ ], Tr. 1890-91, *in camera*).

367. PDM provided a firm fixed price proposal for a large, field-erected TVC for [ ] Seal Beach facility in 1999. (CX 1573 at 5, *in camera*; [ ], Tr. 1925-27, *in camera*). [ ] sought a sole-source procurement with PDM without even considering CB&I. ([ ], Tr. 1927, *in camera*; Scorsone, Tr. 5081-82, *in camera*).

368. Both CB&I and PDM developed specifications for a large field-erected TVC for Spectrum Astro in 1999. (CX 969 at CBI-PL014693; CX 1162 at CBI-ATL000941, *in camera*; Thompson, Tr. 2047-2048). In November 2000, both CB&I and PDM submitted best and final offers for the Spectrum Astro project. (Thompson, Tr. 2051; Scorsone, Tr. 5115-16). CB&I was selected. CB&I's price was lower than PDM's. (Thompson, Tr. 2051). Spectrum Astro subsequently decided not to proceed with the field-erected TVC project. (Thompson, Tr. 2097, 2103-04). CB&I and PDM were the only companies competing for this project. (Scully, Tr. 1169; Higgins, Tr. 1270).

369. Both CB&I and PDM were asked to provide rough order of magnitude ("ROM") pricing for a large field-erected TVC to TRW in 1999. (Neary, Tr. 1430-31). TRW has not asked for bids. (Gill, Tr. 253). After the Acquisition, TRW requested TVC pricing from Howard Fabrication, a small producer of shop-built TVCs. (Neary, Tr. 1442-43). TRW plans to award the contract for this TVC in late 2003 and begin building it in 2004. (Neary, Tr. 1431, 1471-73, 1501). CB&I, PDM and Howard were the only companies asked to provide ROM pricing. (Neary, 1431-32, 1444).

**b. HHI calculations**

370. Dr. Simpson testified that he would assign a 50-percent market share to CB&I and a 50-percent market share to PDM based on the opinions of market participants, documents, and the history of awarded projects. (Simpson, Tr. 3492-93, 3495-96). Dr. Simpson includes in his HHI analysis the value of the Spectrum Astro project which was awarded to CB&I, but was not

built. (Simpson, Tr. 3495). On these bases, Dr. Simpson testified that the Acquisition increased market concentration, as measured by the HHI, by 5000 points to a level of 10,000. (Simpson, Tr. 3494).

371. If CB&I and PDM are assigned market shares based on the dollar value of awarded sales since 1990, CB&I has a 49.3 percent market share, and PDM has a 50.7 percent market share. (Simpson, Tr. 3493-94). Based on the dollar value of TVC awards since 1990, CB&I and PDM have a combined share of 100%, and the Acquisition increases market concentration, as measured by the HHI, by 4,999 points to a level of 10,000. (Simpson, Tr. 3494; CX 1210 at 7, *in camera*; CX 567 at CBI 007139-HOU).

372. While CB&I was awarded a bid in 2000 for Spectrum Astro, a contract was never signed and the project was canceled. (Thompson, Tr. 2097, 2103-04; Scorsone, Tr. 5336-37). Without the proposed Spectrum Astro project included, PDM would have 100% market share and an HHI of 10,000 since 1984. The increase in the HHI would be zero.

373. Demand in the TVC market is extraordinarily thin. (Harris, Tr. 7325).

374. Already thin demand is decreasing for large, field-erected TVCs as the result of consolidation in the aerospace business, the miniaturization of electronic components in satellites, and the change in the economy since the 1990's. (Scully, Tr. 1199-1204).

375. Use of data from 1990 to Acquisition does not accurately predict harm to competition because the market for TVCs is extraordinarily thin. (Harris, Tr. 7325-27).

### **3. Respondents were each others' closest competitors in the TVC market**

#### **a. CB&I's views**

376. CB&I's business and strategic documents refer to PDM as CB&I's "only competitor" for TVC projects in the United States. (CX 212 at CBI-PL031721; *see also* CX 264 at CBI-H006780 ("only real competitor"); CX 265 at CBI-H007057 ("single USA competitor").

377. CB&I considered PDM to be a "formidable" competitor in the TVC market (CX 216 at CB&I-PL033886, *see also* CX 212 at CBI-PL031721 (PDM's strategic alliance was "the only competition for the thermal vacuum systems market")), and "our major competition if new work emerges" in TVCs. (CX 1040 at PDM-HOU 010889).

378. CB&I purchased XL Technology Systems ("XL") on September 30, 1999 with the hope that XL's technology would help CB&I compete in the field-erected TVC market. (Scully, Tr. 1123-30, 1178, 1189; *see also* Glenn, Tr. 4161).

379. The purchase of XL in 1999 improved CB&I's competitiveness in the TVC market. (Gill, Tr. 257). CB&I's partnership with XL was a significant factor in CB&I's winning the source selection for the Spectrum Astro project. (Thompson, Tr. 2103; Scully Tr. 1226).

**b. Industry views**

380. John Gill, owner of Howard Fabrication, testified that prior to the Acquisition, "PDM was either number one or number two," and CB&I was, "either number one or number two." (Gill, Tr. 204-205).

381. Kent Higgins, President of Process Systems International, testified that "PDM and CB&I" were the only firms that had the capability to construct TVCs. (Higgins, Tr. 1267).

382. Patrick Neary, Manager of the Environmental Test Organization, testified that Respondents were "the two large field-erected manufacturers" of TVCs. (Neary, Tr. 1430).

383. John Newmeister of Matrix testified that Respondents were the only two firms who have competed in the TVC market. (Newmeister, Tr. 1564).

384. [ ], Product Manufacturing Factory Planning Manager for [ ], testified that Respondents were "the lowest risk and best candidates for success." ([ ], Tr. 1899, 1900, *in camera*). Other firms lack the expertise to be as cost-effective and of equal quality as Respondents. ([ ], Tr. 1900-01, *in camera*).

385. David Thompson, CEO of Spectrum Astro, who has "seen most of the TVCs in the industrial base in the [United States]," testified that Spectrum Astro "tried to do a survey of everybody in the country that we thought would be a qualified bidder, and the two bidders that we found at the time were Chicago Bridge and Iron and PDM." (Thompson, Tr. 2039-41). Spectrum Astro saw CB&I and PDM "fighting against each other pretty hard to get our business." (Thompson, Tr. 2115).

386. XL Technologies viewed the competition between Respondents as "always relatively intense." (Scully, Tr. 1175). CB&I's desire to win TVC projects caused the "pricing [of TVCs] to go down." (Scully, Tr. 1175-6). The competition was so "intense" that XL Technologies and its partner CB&I worried that the prices to customers would not return a profit: "the costs incurred to get" a project were so high that "if the price of the system isn't high enough, you've lost your profit before you ever begin the job." (Scully, Tr. 1179-81). Ronald Scully, President of XL Systems, testified that turnkey suppliers for TVCs were limited to Respondents. (Scully, Tr. 1115, 1237).

387. Scully made sales calls to Lockheed on behalf of CB&I and XL Systems ("XL Systems") in 1997 in an attempt to solicit TVC business. (Scully, Tr. 1190). Lockheed employees refused to work with CB&I, because Lockheed believed PDM to be dominant in the industry and the technological leader. (Scully, Tr. 1190-91).

**c. Competition between Respondents lead to lower prices**

388. In [ ], which is now owned by [ ], procured a large, field-erected, mailbox-shaped TVC that [ ] now calls the [ ]. ([ ], Tr. 1740, 1901, *in camera*).

389. PDM and CB&I each attempted to preempt the competitive bidding process and win the project on a sole-source basis. Bob Swinderman, PDM sales representative, told [ ] that sole-sourcing the chamber with PDM "would be the cheapest and fastest way" to get the chamber built. ([ ], Tr. 1889-90, *in camera*). CB&I echoed the same sentiment, giving similar assurances to [ ] if it sole-sourced the chamber with CB&I. ([ ], Tr. 1889-90, *in camera*)

390. [ ] testified that he did not want to sole-source the project, as a sole-source arrangement generally resulted in higher costs. ([ ], Tr. 1890, *in camera*).

391. Rather than sole-source the project, [ ] made the specifications for the project available to "all the interested bidders." ([ ], Tr. 1892, *in camera*). [

].” ([ ], Tr. 1890-91, *in camera*).

392. Four companies responded to [ ] request for proposals: CB&I, PDM, [ ]. ([ ], Tr. 1899, *in camera*). These bidders presented "their conceptual design," cost estimate material, and other information required by [ ]. ([ ], Tr. 1892, *in camera*).

393. [ ] submitted the lowest bid in response to [ ] performance specifications. However, [ ] did not meet [ ] standards. [ ] eliminated [ ] from the bidding because "they did not show that they had a complete wherewithal as to the scope of the project in order to come in at cost," they "did not have clear solutions on some of the items delineated in . . . [ ] preliminary proposal review," and ". . . they lacked the demonstrated experience of building something of that size." ([ ], Tr. 1900, *in camera*).

394. [ ] also eliminated [ ] as a possible competitor because ". . . their proposal couldn't meet the spec. . . they took exception to some of our specs." ([ ], Tr. 1901, *in camera*).

395. In addition to the four original bidders, [ ] also contacted two other suppliers, "[ ] and requested that they submit proposals for

the project. ([redacted], Tr. 1902-1903, *in camera*). [redacted] refused to submit a bid because "they felt the size of the project was beyond their company's means." ([redacted], Tr. 1903, *in camera*).

396. The elimination of [redacted] and [redacted] from the competition, and the refusal of [redacted] to submit a bid, left PDM and CB&I as the two down-selected bidders for the [redacted]. ([redacted], Tr. 1892, *in camera*).

397. [redacted] told CB&I and PDM that they were competing against each other for the [redacted]. ([redacted], Tr. 1909, *in camera*). [redacted] project manager testified that he wanted CB&I and PDM to know that they were competing against each other because "when you have competitors bidding best and final, one number takes all, [that] is when we would receive the lowest price. . . ." ([redacted], Tr. 1909, *in camera*).

398. [redacted] asked each company for "cost-saving initiatives, what could be done to reduce costs." ([redacted], Tr. 1907, *in camera*). As both companies developed their final designs, incorporating their own cost-saving innovations, they used "their expertise as designers and builders to suggest anything that might lower the bottom line cost for the chamber." ([redacted], Tr. 1907-08, *in camera*).

399. After receiving the final pricing offers for the [redacted] [redacted] added some items to the TVC specifications. ([redacted], Tr. 1911, *in camera*). Even though [redacted] believed these additional items "would have increased the price," [redacted] asked CB&I and PDM to "sharpen their pencils and give me their lowest price." ([redacted], Tr. 1911-12, *in camera*).

400. In response to this last request, CB&I increased its final pricing "a little bit." ([redacted], Tr. 1911, *in camera*).

401. Despite the increase in cost from the additional items, "PDM actually lowered their price by . . . over a million dollars." ([redacted], Tr. 1910-11, *in camera*; *see* Scully, Tr. 1166 (after the bid was awarded, CB&I learned that, at the last opportunity in the bidding process, PDM had further lowered its price by "something in the order of as much as \$2 million"))).

402. PDM bid the [redacted] in 1997 at below cost with the intention of keeping CB&I completely out of the market. (Scully, Tr. 1193-94, 1166).

403. [redacted] perceived, based on comments, that PDM lowered its pricing to demonstrate "technical prowess, boasting rights, so to speak, of having won or the desire to win for future business prospectives that [redacted] contract. . . ." ([redacted], Tr. 1916, *in camera*).

404. Sometime after [ ] awarded the contract to PDM, [ ] talked with Bob Swinderman, the PDM sales representative, about the competition for the [ ] project:

. . . PDM had felt that CB&I had been out of the market for several years and that if they allowed them to win that particular project, which was a very significant project, that they would be back in and become a significant competitor, and it was important to PDM management that they not win that, and so through telephone calls they developed a price, lowered the price and offered it to [ ] at the last minute. . . .

(Scully, Tr. 1166).

405. The lowest price was the deciding factor in who won the project. [ ] awarded the [ ] contract to PDM and its subcontractor, Chart Industries, primarily because they offered a lower price than the CB&I/XL team. ([ ], Tr. 1891-93, *in camera*).

406. [ ] testified that his procurement strategy had saved [ ] below what he had originally estimated as the likely cost of the [ ]. ([ ], Tr. 1910, *in camera*).

#### **4. Competition in the TVC market from Acquisition to time of trial**

407. [ ] ([ ], Tr. 1957, *in camera*).

408. TRW began its procurement process for its TVC in 1999 by obtaining ROM pricing from CB&I and PDM. TRW plans to award the contract for its TVC in late 2003 and begin building it in 2004. (Neary, Tr. 1431, 1501).

409. Spectrum Astro will likely procure a new TVC in the next 3-4 years. (Thompson, Tr. 2104).

#### **5. No other companies provide competition in the TVC market**

410. Howard Fabrication is a domestic company that supplies shop-fabricated TVCs and thermal vacuum systems. Howard Fabrication has never supplied, and does not have the capability necessary to supply, a TVC with a diameter greater than 20 feet. (Gill, Tr. 182, 192-93). Gill testified that his company, Howard Fabrication, with \$2.5 million in annual revenues, could not effectively compete in the market for TVCs because it was not large enough to purchase the bonds for TVC projects. (Gill, Tr. 200-01, 234).

411. CB&I does not consider Howard capable of fabricating a TVC, let alone having the capability to design, engineer, and field-erect a TVC. (Scorsone, Tr. 5061 ("I think that would be a real stretch for Howard, very much so.")).

412. Mr. Higgins, the President of the Chart division that supplies the systems and equipment attached to TVCs, testified that Chart is not "capable" of field-erecting a TVC by itself. (Higgins, Tr. 1266-67).

413. Matrix has not expended any significant resources on developing its capability to engineer and design TVCs. (JX 37 at 89-90 (Newmeister, Dep.)).

414. XL Technologies admits that it is not capable of supplying a TVC without partnering with an experienced chamber supplier such as CB&I. (Scully, Tr. 1118, 1134, 1252; *see* CX 262 at CBI-H004037-38). On February 28, 2002, CB&I sold its XL Technologies subsidiary to Scully. (Scully, Tr. 1130). CB&I did not transfer to XL Technologies the assets, engineering know-how, equipment or personnel necessary to the field-erection of large TVCs. (Scully, Tr. 1132-33).

## **6. Barriers to entry in the TVC market**

415. Mr. Scully, President of XL Technology Systems, testified that TVC customers want experienced suppliers with "knowledge as to how to deal with the architects and the construction people . . . and ability to manage a project." (Scully, Tr. 1147; *see also* Higgins, Tr. 1272; Proulx, Tr. 1756; Neary, Tr. 1455).

416. New entrants would need to obtain "the ability to fabricate in the field a stainless steel vessel" and satisfy "the quality requirements of leak testing and cleanliness" for a TVC. (Higgins, Tr. 1272-3). A new entrant would need to hire engineers with previous experience in designing TVCs, which are "truly one-of-a-kind designs for very specific applications on very technical products." (Newmeister, Tr. 1612-13).

417. Leaks in a TVC can prevent the user from meeting the vacuum specifications required for satellite testing. ([redacted], Tr. 1904-05, *in camera*). In addition, defects in the welding of the chamber can lead to the leakage of contaminants into the chamber, which can interfere with the accuracy of the test results. (Scully, Tr. 1143-44). If a TVC fails during a satellite test, the satellite within the chamber can be damaged. (Neary, Tr. 1454; Scully, Tr. 1144). Operational problems with a TVC can have a "bad effect" on the satellite's program schedule, because the test may have to be restarted from the beginning after the problem is resolved. (Scully, Tr. 1145-46).

418. A new entrant would need to expend significant resources in developing proposals and price quotations for TVCs. One CB&I document reports that CB&I expended \$300,000 in design resources and \$190,000 in other resources to prepare its TVC proposal for Orbital Sciences' planned chamber. (CX 235 at CBI-PL060198).

## 7. Alleged post-acquisition anticompetitive behavior

### a. Spectrum Astro

419. In the fall of 1999, Spectrum Astro required a TVC in order to be considered for the Space Based Infrared System (SBIRS) Low Phase 2 Program, sponsored by the United States Air Force. (CX 969 at CBI-PL014693).

420. Mr. William Thompson, Spectrum Astro's president, testified that he competitively bid the project, because "we wanted obviously to get the best price we could get." (Thompson, Tr. 2051). Additionally, Spectrum Astro used a competitive bidding process because "we were looking for technical innovation. We generally find that when we have contractors in competition, they will - it will tend to drive innovation into the system." (Thompson, Tr. 2051).

421. Spectrum Astro retained both CB&I and PDM to develop specifications for a large field-erected TVC; Spectrum Astro also entered into an engineering and design contract with each company in which Spectrum Astro paid each company [ ] (CX 969 at CBI-PL014693; CX 1162 at CBI-ATL000941, *in camera*; Thompson, Tr. 2047-2048).

422. The contract was to be awarded according to a "rolling down-select between CB&I and PDM/PSI team." (CX 969 at CBI-PL014693).

423. Spectrum Astro received initial cost proposals from both CB&I and PDM in May 2000. CB&I and PDM's total cost amounts were \$9,929,990 and \$10,825,853 respectively. (CX 1570 at 22).

424. In November 2000, both CB&I and PDM submitted best and final offers for the Spectrum Astro project. (Thompson, Tr. 2051; Scorsone, Tr. 5115-16). Of the two offers that were submitted, CB&I's price was lower than PDM's. (Thompson, Tr. 2051). CB&I bid \$10,760,880, an increase of 8.4% above its previous cost proposal. (CX 1570 at 9). PDM bid \$11,528,900, an increase of 6.5% above its previous cost proposal. (CX 1570 at 5, 37).

425. CB&I's November 2000 offer included a profit margin of 7.77%. (CX 1489 at CBI 060015).

426. After evaluating the proposals submitted by PDM and CB&I, Spectrum Astro elected to proceed with CB&I, in December 2000. (Thompson, Tr. 2061; CX 926 at CBI 007212-HOU).

427. After selecting CB&I for the project, Spectrum Astro proceeded "based upon the price we had in our hands," that is the firm fixed price of approximately \$10.7 million. (Thompson, Tr. 2065; CX 1489 at CBI 060015).

428. The price provided to Spectrum Astro in December 2000 expired after 90 days, as is typical in this industry, because costs are expected to escalate or fluctuate beyond the 90 day period. (Scorsone, Tr. 5047-48; Thompson, Tr. 2609).

429. Following the selection of CB&I in December 2000, Spectrum Astro did not immediately award the project because it was working to get financing complete. (Thompson, Tr. 2066).

430. CB&I's price expired 90 days after the source selection, in February, 2001, and Spectrum Astro did not request updated pricing until 10 months later in November, 2001. (Scorsone, Tr. 5047; *see also* Thompson, Tr. 2069). For almost one year, the project remained dormant. (Scorsone, Tr. 5048).

431. In November 2001, CB&I provided Spectrum Astro with updated pricing for the Spectrum Astro chamber. (Thompson, Tr. 2069-2070). CB&I's updated price for the Spectrum Astro TVC was \$12,019,000 – almost \$1.2 million greater than its price 12 months prior. (Thompson, Tr. 2074; CX 567 at CBI 007139-HOU; Glenn, Tr. 4356-57).

432. CB&I's updated price of \$12,019,000 resulted in an 11.7% increase in the price of the chamber from the November 2000 price. (CX 1489 at CBI 060015; CX 1570 at 5).

433. According to a pricing analysis written by Scott O'Leary, Spectrum Astro's chief of facilities, Spectrum Astro was "expecting a decrease in cost due to the decrease in requirements." (CX 1570 at 5; Thompson, Tr. 2095). During the engineering study, "there [we]re some items that were taken out of the design which should have caused the price to go down." (Thompson, Tr. 2071, 2073). Due to other "offsetting kinds of things" in the design, Thompson testified that on balance, he believed the price of the chamber "would have stayed about the same." (Thompson, Tr. 2073).

434. The November 2001 price included an 11.97% profit margin. (CX 1489 at CBI-060015).

435. Scorsone testified that the extra profit included in the November 2001 re-pricing was a means of recovering some of the pre-contract costs, which was consistent with CB&I's policy at the time. (Scorsone, Tr. 5049). Scorsone told CB&I staff to "to insert the precontract costs incurred previously on the bid effort for this project even though those costs had been incurred in the previous year and had been written off." (CX 1492 at CBI 060000; *see* Scorsone, Tr. 5118, 5120-21; Scully, Tr. 1173-74). Scorsone further testified that another reason for the extra profit was the perceived need to mitigate some of the risks of moving forward with the project. (Scorsone, Tr. 5049). Satellite programs awarded by the Government are sometimes delayed. (Thompson, Tr. 2129). As a result, vendors of satellites must take account of the risk that these programs might be cancelled or delayed. (Thompson, Tr. 2129-30). Some of the extra profit was also the result of posturing in the negotiation with Spectrum Astro, because the final terms of the contract were never set. (Scorsone, Tr. 5049-51).

436. Scorsone also testified that the margin was increased to account for the added risk of erecting the "vessel outside of the building and then moving it in [to the building]" with the containment vessel. (Scorsone, Tr. 5122). However, this alternate method of erecting the chamber did not come up until after the November 2001 price increase. (Thompson, Tr. 2078-2079; CX 566 at 2; CX 1570 at 63 (alternate method was discussed in May 2002)). CB&I's comparison of its November 2000 and November 2001 proposals specifically states that estimates did not include "the alternate plan of erecting the chamber outside and then moving it into position." (CX 1489 at CBI 060013).

437. In CB&I's November 13, 2001, updated price quote to Spectrum Astro, Jeff Steimer listed nine reasons for its increase in price. (CX 567 at CBI 007136-HOU, CBI 007137-HOU). On December 19, 2001, CB&I provided Spectrum Astro with a follow-up justification letter to explain the bases for CB&I's price increase. (CX 1570 at 57-59).

438. Neither the November 13<sup>th</sup> nor the December 19<sup>th</sup> letter provide as reasons for the price increase the recovery of pre-contract costs previously incurred or risks of having to erect the chamber from outside the building. (CX 1570 at 46-47, 57-59).

439. The November 2001 price expired again after 90 days without Spectrum Astro acting on the new price. (Scorsone, Tr. 5051). After the second price had expired, Spectrum Astro waited six or seven months before requesting an updated price from CB&I. (Scorsone, Tr. 5051). The companies did not have a contract or financing at that point. (Scorsone, Tr. 5051-53).

440. In May 2002, Spectrum Astro responded to the November 2001 price asking CB&I to try again. (Scorsone, Tr. 5051). On June 25, 2002, CB&I provided Thompson with an updated price in the amount of \$11,553,790, a decrease of roughly \$500,000 from the previous price update. (Thompson, Tr. 2091-92).

441. CB&I lowered its price in June 2002, because Scorsone was aware that the customer was having difficulty obtaining financing, and he wanted to assist them by making the project more viable with a lower price. (Scorsone, Tr. 5051-53). The June 2002 price lowers the profit margin to 8%. (CX 1489 at CBI 1060015).

442. Spectrum Astro does not plan to proceed with the field-erected TVC project. (Thompson, Tr. 2097, 2103-04). The decision is the result of "government action." (Thompson, Tr. 2097). The lack of financing also influenced the decision. (Thompson, Tr. 2105). It will be a long time before the Spectrum Astro job is actually built, if at all. (Scully, Tr. 1225-26).

443. Instead, Spectrum Astro intends to build a smaller shop-fabricated chamber, a product which CB&I does not build. (Thompson, Tr. 2104-2105).

**b. TRW**

444. In 1999, TRW Space & Electronics ("TRW") decided to procure a TVC, and requested rough order of magnitude ("ROM") pricing from CB&I and PDM. (Neary, Tr. 1430-31).

445. TRW considers Howard Fabrication to be unqualified to compete in the TVC market. Neary testified that Howard Fabrication does not have "the technical competence nor the financial backing" necessary for TRW to award it a TVC project. (Neary, Tr. 1443). After the Acquisition, TRW nevertheless requested pricing from Howard Fabrication because it wanted to maximize competition for the TVC project. (Neary, Tr. 1444).

446. A CB&I salesman, Mike Miles, called John Gill of Howard Fabrication in mid-October 2002 to set up a meeting to discuss a new opportunity to work together. (Gill, Tr. 242-44). Miles did not indicate the nature of the opportunity during the initial phone call. (Gill, Tr. 242-44, 251-52).

447. Neither Miles nor Gill knew at the beginning of their October 2002 meeting that they had each separately provided very rough order of magnitude pricing on the TRW project. (Gill, Tr. 252-53, 274; Scorsone, Tr. 5059-60).

448. During the October 2002 meeting, Miles mentioned the possibility of Howard serving as a partner or subcontractor with CB&I for purposes of an unnamed proposed TVC project, since Howard Fabrication has worked with PDM as a subcontractor in the past. (Gill, Tr. 246-248, 251-56; Scorsone, Tr. 5059-60).

449. According to Gill, at the October 2002 meeting Miles gave him a copy of design specifications that he recognized as the same specifications that he was given by TRW for its TVC project. (Gill, Tr. 245). Gill told Miles that he knew the job was for TRW and that he had already presented a proposal to TRW for the job. (Gill, Tr. 245, 252-53, 274).

450. Gill testified that, nevertheless, during the October 2002 meeting, Miles asked him whether Howard "could coordinate on making a bid or a price quote to TRW." (Gill, Tr. 247). Gill confirmed that Miles proposed coordinating on the TRW bid after Gill had told him that Howard was bidding on the project. (Gill, Tr. 274).

451. Miles did not make this offer to coordinate on a bid to TRW with the consent or knowledge of management at CB&I. (Scorsone, Tr. 5059-62). Miles is an entry-level salesperson, and not a CB&I executive. (Scorsone, Tr. 5061-62). CB&I was unaware that Howard Fabrication had submitted budget pricing on the TRW project prior to Miles' meeting. (Scorsone, Tr. 5060).

452. TRW believes that CB&I's proposal to Howard to coordinate on the price and bid to TRW deprives TRW of any chance for relief from CB&I's monopoly price. At trial, Neary of

TRW testified that "it's not right" for a bidder to ask a competing bidder to coordinate on making a bid or price quote to TRW. (Neary, Tr. 1451). Neary further testified that "[w]e're not going to get a fair and equitable price. It goes back to why do we even have two competitors. We're at a disadvantage. We're going to get – we're basically hosed, as I would say." (Neary, Tr. 1451).

453. CB&I is still considering using Howard Fabrication as a subcontractor, but would seek the prior approval of the customer before doing so. (Scorsone, Tr. 5060).

c. [ ]

454. On June 30, 1999, PDM provided [ ] with a firm fixed price proposal for a large, field-erected TVC for [ ]. (CX 1573 at 5, *in camera*; [ ], Tr. 1925-27, *in camera*).

455. This firm fixed bid price was [

[ ] ( [ ], Tr. 1927; Scorsone, Tr. 5081-82, *in camera*).

456. Pre-acquisition, PDM quoted a price of [ ] in its proposal to [ ], but the customer chose to postpone the project. (CX 1573 at 5, *in camera*; [ ], Tr. 1926, *in camera*).

457. [

[ ] ( [ ], Tr. 1943, *in camera*). Prices expire because costs change over time. ( [ ], Tr. 1944, *in camera*). The price of steel and labor costs increased in the interim. ( [ ], Tr. 1952, *in camera*).

458. In May 2001, [ ] undertook a study to determine whether it should [ ]. ( [ ], Tr. 1927-28, *in camera*).

459. In order to analyze the costs of the two alternatives, [ ] requested "cost verification from CB&I . . . of the price . . . [ ] based on PDM's earlier proposal." ( [ ], Tr. 1929, *in camera*). [ ] contacted Dave Lacey of CB&I, asked him to review PDM's prior proposal and submit a renewed price based on the specifications and schedule of the prior bid. ( [ ], Tr. 1930, *in camera*).

460. [ ]'s official request was for a firm fixed price renewal of PDM's earlier bid for the TVC. ( [ ], Tr. 1933, 1935, *in camera*).

461. [ ] expected the price for the [ ] TVC project to increase marginally to cover "reasonable inflation." He anticipated the new pricing information to be



## 8. Sophistication of customers in the TVC market

471. [ ] is a large aerospace company. (Scully, Tr. 1092). [ ] has five field-erected TVCs and 30 shop-fabricated TVCs. ([ ], Tr. 1725-26).

472. TRW has five field-erected TVCs and approximately 15 shop-fabricated TVCs. (Neary, Tr. 1422).

473. Spectrum Astro is a satellite manufacturer that competes with large defense contractors. (Thompson, Tr. 2036).

### I. Factors Across All Product Markets

#### 1. Budget prices versus firm bid prices

474. A budget price is an initial price quote that can provide the initial basis for selecting a supplier and negotiating a final price. (Neary, Tr.1440 (“We first receive their initial price. Then we select the vendor”)).

475. Budget prices are prepared with less detailed information provided by the customer. (Hall, Tr. 1866; Carling, Tr. 4472; Fan, Tr. 1078). By contrast, a firm fixed bid price is based on very detailed designs. (Carling, Tr. 4472; Scorsone, Tr. 5003). The company providing the firm price is expected to "stand up to their price and do the work for that price." (Carling, Tr. 4472).

476. Bids can be awarded solely on the budget prices. (JX 23 at 27-28 (Cutts Tr.)). For example, Atlanta Gas Light Company selected PDM over CB&I, for an LNG project in 1998, based on budget price bids submitted by CB&I and PDM. (CX 161 at CBI-PL006113-114). PDM outsourced CB&I in the bidding competition “on the basis of their lower budget price.” (CX 161 at CBI-PL006113). In another example, Linde BOC used budget prices to compare CB&I’s and AT&V’s pricing for the Hillsboro LPG project. (V. Kelley, Tr. 5292; Scorsone, Tr. 5031).

477. Budget prices can be close to firm bid prices. *See* Stetzler, Tr. 6352 (“Budgetary to me means plus or minus 10 percent type of a bid.”). When CB&I and PDM competed for a TRW TVC project, CB&I’s final price to TRW was within 5 to 10% of the original budgetary price. (Neary, Tr. 1440-41).

478. Generally, budget prices are more imprecise than firm fixed bid prices. (Carling, Tr. 4472; Scorsone, Tr. 4999). When creating budget pricing, estimators use off-the-shelf tank designs of a similar size volume to develop a budget price. (Scorsone, Tr. 4999). Subcontractors are not consulted when developing a budget price. (Scorsone, Tr. 4999-00). Amount of engineering labor required to design a tank are estimated when developing a budget price. (Scorsone, Tr. 5000). Those hours are not calibrated as part of the budget price. (Scorsone, Tr. 5000). These practices reduce the accuracy of the final number in a budget price. (*See* Scorsone, Tr. 4999-5000).

479. Budget prices include assessments of risk and contingency. (Price, Tr. 608-09; Scorsone, Tr. 5252; Simpson, Tr. 5366). Projects that involve an excessive amount of risk or unknown contingencies will receive higher budget prices. (Scorsone, Tr. 5003).

480. Years sometimes elapse between the time when a budget price is submitted and the time when a firm fixed bid price is actually requested. (Scorsone, Tr. 5004).

481. When creating a firm fixed price, estimators use an actual tank design. (Scorsone, Tr. 4999).

482. Firm fixed bid prices require that a customer give the supplier information about the site conditions, as well as allowing someone from the bidding company to tour the job site to examine the access to the site and soil conditions. (Stetzler, Tr. 6353; Glenn, Tr. 4126).

## **2. CB&I and PDM recognized each other as each's greatest competitor**

483. PDM was the "single largest" reason CB&I lost business in the United States; competition from PDM accounted for 33% of CB&I's lost business. (Glenn, Tr. 4331; CX 227 at CBI-PL045101; *see also* CX 23 at PDM-C1002566 (PDM has made "significant market share increases against CB&I in both domestic and international markets")). In March 2000, CB&I reported that "in the last three months our business lost report is showing PDM taking some 13 jobs from [CB&I] at a value of \$25 million." (CX 243 at CBI-PL 4004707; *see* CX 660 at PDM-HOU005014 ("Since the fall of 1996, CB&I has been the most aggressive competitor in increasing market share")).

484. In March 2000, Steve Knott, CB&I's sales manager for the United States, e-mailed CB&I's sales team to lament that PDM is "'eating our lunch' and we know much of it is because of a CB&I cost problem." (CX 243 at CBI-PL 4004707).

485. Knott asked, "What is PDM doing that gives them the ability to be this low, this often? I am not 'coming down' on our group for losing to PDM. We all recognize that we can only sell to the market what the market will pay. Given our current system, we are bumping against pricing levels that are dangerously close to our direct cost." (CX 243 at CBI-PL 4004707).

486. Knott concluded that "We need to come up with a strategy to combat the effort PDM is making to erode our market share." (CX 243 at CBI-PL 4004707).

487. In October 2000, CB&I's Bob Lewis wrote to Steve Crain, President of CB&I's Western Hemisphere Operations that PDM was bidding "much lower than the market, leaving a lot of money on the table." (CX 278 at CBI-H 4004204).

488. Handwritten notes from the files of PDM's President note the following: (1) 1996-1997 "focused on more profitable assignments;" (2) 1997-1998 accept "lower gross profit in

pursuit of higher revenues;" and (3) 1998-1999 PDM "forced to bid at lower margins" due to "competition w/CB&I" and "seeking more revenues." (CX 76 at PDM-C1006141-3; *see also* CX 390 at PDM-C 1006145 ("97-98 -> aggressive growth market share - sacrifice margins")).

489. In May 2000, PDM warned its Board of Directors that "CB&I has been extremely aggressive on pricing work in North and South America. They have taken certain projects at levels which would be slightly over PDM EC's flat cost." (CX 64 at PDM-C 1002562).

490. Scorsone confirmed that he told PDM's investment firm, Tanner & Company, about the competition between PDM and CB&I and how the companies were "forced to bid at lower margins" because of this competition. (Scorsone, Tr. 5152).

**3. CB&I and PDM recognized that the Acquisition would reduce competition and lead to higher margins**

491. [ ] (CX 213 at CB&I-PL033037, *in camera*). [ ]  
(CX 213 at CBI-PL033084, *in camera*).

492. In 1999, PDM had assessed the benefits of acquiring CB&I and determined that acquiring CB&I would give PDM "Market dominance in Western Hemisphere." (CX 74 at PDM-C 1005941). Scorsone admitted that when he wrote the document he believed PDM could achieve "market dominance" by acquiring CB&I. (Scorsone, Tr. 5169).

493. An August 2000 document, created by a PDM sales person, titled "Benefits of Combining PDM with CB&I," listed the following: (1) "Dominance of the cryogenic (LNG/LOX/LIN) markets;" and (2) "Allows CB&I to have a low cost USA tank producer." (CX 621 at PDM-HOU006702).

494. At the time of the Acquisition, Scorsone thought CB&I/PDM will be a "powerhouse." (CX 72 at PDM-C 1004409). Scorsone later added that CB&I/PDM "will truly be the world leader in storage tanks." (CX 1686 at CBI/PDM-H 4005550; Scorsone, Tr. 5203).

495. An October 2000 PDM document entitled, "PDM Merger Objectives Brainstorm Results." outlined the following objectives: (1) "Create barriers to entry as they can be built;" (2) "Defend an expanding market share;" (3) "Ensure that we do not allow smaller competitors to take share and pursue business in our attractive markets;" (4) "Put plans in place to command premiums for the services we provide;" and (5) "Improve pricing to achieve margin growth from 12.5% to 17%." (CX 101 at PDM-HOU002359-60).

496. On October 26, 2000, Scorsone and other members of the integration team held an "Integration Kick-off Meeting." The "kick-off meeting" agenda prioritized the objectives of the merger: (1) "Ensure that we do not allow smaller competitors to take share and pursue business in our attractive markets;" (2) "Defend an expanding market share;" (3) "Create barriers to entry;" and (4) "Use pricing advantage as necessary to not lose market share to competitors during the merger." (CX 1544 at CBI 057941).

#### **4. Entry at prices above pre-merger prices does not restore competition**

497. Both economic experts agree that entry by new firms would not restore the competition lost through an anticompetitive merger if this entry is at a price above the pre-merger price. (Simpson, Tr. 3151-52; Harris, Tr. 7438).

498. A merger of the two strongest suppliers would enable the merged firm to increase price up until the point where other less-strong suppliers begin to constrain it. (Simpson, Tr. 3451). A merger that reduces the number of sellers of LIN/LOX tanks from four to three or from three to two would be likely to result in an increase in price. (Simpson, Tr. 3451).

499. Entry will not keep prices from rising above the pre-acquisition level if entry is only profitable at higher prices. (Harris, Tr. 7451). The mere fact that entry has occurred following an acquisition does not mean that the entry is sufficient to restore the premerger competitive environment. (Harris, Tr. 7436). Entry by firms who can only profitably enter at prices above the competitive level would not restore competition. (Harris, Tr. 7438).

500. The observation that new firms submit bids in a market does not always imply that entry is sufficient. (Simpson, Tr. 3282-84; Harris Tr. 7790-91). The observation that new firms make some investments to sell into a market does not always imply that entry is sufficient. (Simpson, Tr. 3284-88; Harris, Tr. 7791).

### **J. Exiting Assets Defense**

#### **1. PDM background**

501. PDM was founded in 1892 by the Jackson Family. PDM went public in 1965 on the American Stock Exchange. In 1999-2000, the Jackson Family was the primary stockholder of PDM, owning approximately 30 percent of the stock. (Byers, Tr. 6731-32; Scorsone, Tr. 4791). PDM's Board consisted of a majority of the Jackson Family and its friends and acquaintances. (Byers, Tr. 6734).

502. PDM operated four lines of business with five divisions -- PDM Stocal, Water, Engineered Construction (EC), Bridge, and Steel Distribution. (Byers, Tr. 6731; Scorsone, Tr. 4778-79; G. Glenn, Tr. 4075-76).

503. PDM's EC and Water Divisions were "intertwined" and "meshed together." (Scheman, Tr. 2929-30). PDM's management believed separating EC and Water would be costly and difficult. (Scheman, Tr. 2929). The EC and Water Divisions shared human resource departments, fabrication plants, equipment and construction crews and it was considered impossible to split the two. (Scorsone, Tr. 4779; Byers, Tr. 6780-81, 6800-01). The EC and Water Presidents reported directly to the CEO Bill McKee, rather than exercising complete control over their organizations. (Byers, Tr. 6734).

## **2. PDM decision to sell the company**

504. PDM's Board asked PDM management to consider potential options for the strategic direction of the company's future in Summer 1999. Scorsone, then President of PDM EC, prepared a presentation to the PDM Board in August 1999 about strategies for going forward with the PDM EC Division. (Scorsone, Tr. 4781-82).

505. At a strategic planning meeting, a list of options was devised to provide to the Board. This laundry list included making a major acquisition, buying something unrelated, taking the company private, and selling the company. (Byers, Tr. 6738-40; Scorsone, Tr. 4791).

506. This laundry list of options was presented to the PDM Board in Summer 1999, but no hard decisions were made at that time. (Byers, Tr. 6740). The various options presented to the PDM Board were to maintain the status quo, pursue acquisitions, declare a special dividend, conduct a stock repurchase, split into two separate companies, and the sale of the company. (Scheman, Tr. 2917-19).

507. In November or December 1999, the PDM Board indicated to management that it wanted to pursue taking the company private. The Jackson Family would make a tender offer and buy back all shares of PDM except for management's ownership. This plan was never implemented. (Byers, Tr. 6740-41).

508. At the February 2000 Board meeting, the Jackson Family indicated that it wished to take the company private. It was decided that the Family should hire its own investment banker. Polly Townsend, Bill Jackson, Sr.'s daughter, contacted a partner at Tanner & Co. ("Tanner") for an interview. (Byers, Tr. 6741-42; Scheman, Tr. 2911, 6907).

509. In May 2000, PDM decided to sell the company. (Byers, Tr. 6742).

510. In June 2000, PDM interviewed investment firms Goldman Sachs and Tanner to advise on the sale. (Byers, Tr. 6742-6743).

511. Goldman Sachs recommended that PDM pursue "five to ten strategic buyers and 10 to 20 LBO [leveraged buy out] buyers." (Byers, Tr. 6838-39; see also CX 380 at PDM-C 1004026).

512. Tanner recommended that PDM sell off the divisions in pieces rather than in a single transaction to a single purchaser. (Byers, Tr. 6755). Tanner believed that breaking up the company and selling it in parts would result in a higher total value. (Byers, Tr. 6755).

513. Both Goldman Sachs and Tanner made presentations at the same Board meeting on June 1, 2000. Shortly after this meeting, Tanner was retained by PDM. (Scheman, Tr. 2914-15, 6907-08; RX 25 at 2).

514. Tanner is no longer retained by PDM. Tanner's assignment concluded in the middle of March 2002 when PDM was acquired by Iron Bridge Holdings. (Scheman, Tr. 6909).

### **3. Steps resulting in acquisition**

515. In 2000, Bill McKee, former CEO of PDM, offered to sell PDM EC and Water Divisions to CB&I in a telephone call to Glenn of CB&I. (Glenn, Tr. 4077-78).

516. Peter Scheman, Tanner's representative to PDM, had the responsibility to "coordinate and lead everything." (Scheman, Tr. 6908). Scheman first became involved with PDM at the end of February 2000 or beginning of March 2000 when Tanner was retained as an advisor to the Jackson Family in March 2000. (Scheman, Tr. 2911-12, 6907-08).

517. Tanner & Company prepared an offering memorandum for the sale of the PDM EC Division (Scheman, Tr. 2930-31). Scheman recalled sending the PDM EC offering memorandum to only one company – CB&I. (Scheman, Tr. 2931).

518. PDM conducted discussions directly with CB&I. (Glenn, Tr. 4077-78). By the time the offering memorandum was completed, negotiations between CBI and PDM were at a point "that it didn't make sense to send it out to other people." (Scheman, Tr. 2931).

519. An e-mail from Scheman to Rich Goodrich, CB&I chief financial officer, dated August 4, 2000, states "We need to determine if there is a deal to be made between PDM and CBI or if we should be contacting other parties who have expressed similar interest." (CX 70 at PDM-C 1002706).

520. Scheman considered CB&I to be a "preemptive buyer" and this meant "that we never went out to other people. Their status as a preemptive buyer made it so we didn't go down the route of calling other people." (Scheman, Tr. 2938-40 (Tanner did not believe it was "prudent" to "go out and contact people"); (Tanner and PDM had "reached a point with CB&I where we thought we had a good deal, and we ultimately, I believe, entered into a letter of intent and, therefore, did not show [the offering memorandum] to other people"))).

521. On August 29, 2000, Respondents announced that they had signed a letter of intent for the acquisition of PDM's EC and Water Divisions by CB&I. (CX 285; CX 1565).

522. CB&I initially agreed to pay \$93.5 million for PDM EC and Water, which was at the "high end" of Tanner's estimates of PDM's sales value. (CX 521 at TAN 1000328). Tanner believed "it is doubtful that PDM could achieve a value exceeding \$93.5 million in an alternative transaction." (CX 521 at TAN 1000329). Rich Byers testified that the final price paid by CB&I for the PDM EC and Water Divisions was \$76-77 million (Byers, Tr. 6794).

523. CB&I purchased PDM EC and Water Divisions for more than investment banker Goldman Sachs' valuation for the company and for an amount within the valuation range determined by Tanner. (Byers, Tr. 6843).

524. Alternative buyers would unlikely pay a premium price for PDM EC and Water Divisions because they would face continued tough competition from CB&I. (Scheman, Tr. 2966-67). Handwritten notes of PDM's investment banker state "Need informed buyer willing to fund war wCB&I - unlikely to pay premium." (CX 534 at TAN 1001619). PDM EC and Water Divisions were worth more to CB&I than they were to other firms because of CB&I's ability to utilize PDM's resources and compete on a global basis. (Glenn, Tr. 4261-62).

#### **4. Alternatives to acquisition**

525. In July of 2000, PDM announced that it would sell the company. (Scheman, Tr. 2918-20).

526. Financial buyers, who would have maintained PDM as an independent on-going entity, were available and had been recommended by Goldman Sachs and Tanner as alternative buyers. (Byers, Tr. 6744; see also CX 520 at TAN 1003258; CX 380 at PDM-C 1004025).

527. Tanner & Company was given the responsibility to contact potential purchasers. (Byers, Tr. 6758). PDM management was instructed to direct all inquiries to Tanner & Company. (Byers, Tr. 6758).

528. Tanner & Company assembled a preliminary list of potential buyers, in June 2000, including 18 steel companies, 15 engineering and construction companies, and 4 financial buyers. (CX 520 at TAN 1003258). This list was presented to the PDM Board on June 1, 2000. (CX 520 at TAN 1003256).

529. Among the companies identified by Tanner as potential acquirers of PDM EC and Water Divisions were Fluor, Jacobs Engineering, Foster Wheeler, Morrison Knudsen, but to Byers's knowledge, none of these companies were contacted about acquiring PDM EC and Water Divisions. (Byers, Tr. 6806-08). "I don't know of anybody that PDM contacted, anybody other than CB&I and Enron." (Byers, Tr. 6764, 6812).

530. Tanner never contacted any foreign firms in connection with purchasing PDM EC. (Scheman, Tr. 2938-39). Tanner did not contact Skanska/Whessoe, Technigaz, TKK, Tractebel, Mitsubishi, Entrepose, Nooter, or Wiley. (Scheman, Tr. 2938-39; Byers, Tr. 6811-12).

531. Matrix, then the third-largest United States tank constructor, made efforts to buy PDM EC. (Vetal, Tr. 418-19). Matrix's President, Brad Vetal, called PDM's President, William McKee, and informed him of Matrix's interest in purchasing PDM EC. (Vetal, Tr. 422). McKee told Vetal that PDM could not talk with Vetal about a sale of the business because PDM already had a buyer, but McKee would call him if that deal fell through. (Vetal, Tr. 422-23; see also RX 168 at TAN 1000654 (handwritten notes of Peter Scheman indicating Vetal had contacted McKee)).

532. A fairness opinion prepared by Tanner, dated February 7, 2001, noted that if CB&I's acquisition of PDM EC and Water Divisions fell through, there were other potential buyers with the interest and adequate resources to purchase PDM EC and Water. (RX 29 at PDM-C 1006327). Other parties had in fact expressed an interest in purchasing PDM EC and Water. (CX 70 at PDM-C 1002706).

533. PDM actively sought buyers for its other divisions. As of August 18, 2000, "over ten parties had received the Confidential Memorandum for Steel Distribution and six groups had received Bridge Division books." (CX 521 at TAN 1000339).

534. On August 20, 2000, Tanner presented to PDM's president additional lists of prospective acquirers for the various PDM divisions, including fourteen parties who initiated contact expressing interest in possible acquisition of the various divisions and 32 prospective financial buyers. (CX 527 at TAN 1002453-2455)

## **5. PDM's financial condition**

535. PDM was a "profitable" company. (Scheman, Tr. 2923; CX 520 at TAN 1003317). The company's Earnings Before Interest, Taxes, Depreciation, and Amortization ("EBITDA") increased from \$20.5 million in 1994 to \$49.3 million in 1999. (CX 520 at TAN 1003317).

536. The EC and Water Divisions are intertwined, and together were profitable according to the Tanner fairness opinion of February 7, 2001. (RX 29 at PDM-C 1006326). Since the two divisions were sold together, it is fair to look at the profitability of the two divisions on a combined basis.

537. PDM's EC Division was profitable, increasing its margin each year from 1996 through 1999 and increasing its EBITDA earnings at a 5-year Combined Annual Growth Rate ("CAGR") of 18.7% on 5-year sales CAGR of 9.5%. (CX 520 at TAN 1003317). The Division's Earnings Before Interest and Taxes ("EBIT") increased from \$5.4 million in 1995 to \$9.5 million in 1999, a CAGR of 15.3%. (CX 522 at TAN 1003373). Revenues increased from \$121.7 million in 1995 to \$185.7 million in 1999. (CX 522 at TAN 1003373).

538. PDM EC had its best year ever in 1999. (Scorsone, Tr. 4823-24). As of July 2000, the month before CB&I and PDM signed the acquisition letter of intent, PDM EC projected EBIT of \$2 million in 2000. (CX 522 at TAN 1003373).

539. In 2000, the EC Division lost \$9 million after making \$9.5 million in 1999. (Scheman, Tr. 6920-21; RX 163 at TAN 1000385).

540. As of June 30, 2000, PDM EC had cash of \$2.6 million, total assets of \$79.2 million, no outstanding long-term debt, and shareholder' equity of \$56.8 million. (CX 385 at 30).

541. In September of 2000, Scorsone made a presentation to CB&I and its advisors about PDM EC's future prospects, "assuming that the company was not acquired [by CB&I]." (Scorsone, Tr. 5201; CX 1695 at CB&I/PDM-H 4005659). Scorsone projected PDM EC's earned revenues to be \$151 million for 2000, and \$168 million for 2001. (CX 1695 at CB&I/PDM-H 4005701; CX 529 at TAN 1000596; *see also* CX 1713 at CB&I/PDM-H 4015086-89 (projected income from operations increase each year from \$6.4 million to \$9.1 million, between the years 2001 and 2004)).

542. After Respondents announced the acquisition, PDM EC's earnings for 2000 declined, resulting in a loss for the year of about \$8 million. (Scorsone, Tr. 4825). After the date of closing, PDM and CB&I ultimately determined that PDM EC's losses approximated \$30 million in fiscal year 2000. (Scheman, Tr. 6917, 6921, 6926; Byers, Tr. 6789).

543. A short-term reduction in capital expenditures in the petroleum and petrochemical industries in 1999 negatively impacted all tank suppliers in 2000, including CB&I. (CX 522 at TAN 1003372; CX 529 at TAN 1000596 ("1999 - Down - Mergers in Oil + Gas \* Market Driver (Oil + Gas)").

544. Scorsone, PDM EC's President, Byers, PDM's Vice President of Finance, and PDM's investment banker all believed that PDM EC's poor performance in 2000 would be short-lived, and if PDM EC had remained independent, PDM EC would have returned to profitability the very next year and continued to grow. (Scorsone, Tr. 4838; Byers, Tr. 6899; CX 529 at TAN 1000596 ("2001 - will be good year [for PDM] - the bookings are higher"); (CX 1713 at CBI/PDM-H 4015089) (EC Division predicted to earn gross profits of \$20.0 million in 2002, \$22.4 million in 2003, and \$25.1 million in 2004); *see also* CX 522 at TAN 1003372 ("This decline is expected to be short lived" PDM EC projects 2001 revenue and EBIT of \$168.0 million and \$6.1 million, respectively)).

545. As late as February 7, 2001, the date CB&I consummated the acquisition, PDM's management projected that PDM EC would make a profit of \$4.8 million in 2001. (Scheman, Tr. 2961-2962; RX 163 at TAN 1000385).

## **6. PDM was not facing liquidation**

546. At the time PDM called CB&I to offer to sell, PDM's reputation in the two lines of business was very good -- they did good work and were recognized in the marketplace by being on everyone's bid lists. (G. Glenn, Tr. 4078).

547. The PDM EC Division was a successful and profitable business and was projected to sustain earnings growth. (CX 1695 at CB&I/PDM-H 4005701; CX 529 at TAN 1000596; see also CX 1713 at CB&I/PDM-H 4015086-89).

548. Scorsone testified that if the EC Division had not been sold, that it would not have gone out of business, and that it would be profitable in the future. (Scorsone, Tr. 4838).

549. Byers, former VP of Finance for PDM, testified that before making any recommendation to liquidate the PDM EC Division, his fiduciary duties would have required him to investigate to assure himself that there was no alternative purchaser for either PDM or for PDM EC willing to pay more than liquidation value of the business. (Byers, Tr. 6799-800, 6893, 6895). Byers never got to that point. (Byers, Tr. 6800). Byers never investigated whether there was a possibility of another purchaser. (Byers, Tr. 6895).

550. Tanner would have attempted to find alternative purchasers prior to recommending liquidation. (JX 34 at 83 (Scheman, IHT)).

551. PDM's Board of Directors meeting minutes illustrate that PDM had viable alternatives to liquidation. On November 28, 2000, PDM's President, William McKee stated that if the CB&I transaction fell through, PDM would continue its efforts to sell PDM EC and PDM Water Divisions by seeking other purchasers. (CX 1590 at PDM-C 1006065).

552. PDM's Board of Directors never took up the issue of liquidating the PDM EC Division. (Byers, Tr. 6891).

## **K. Remedy**

### **1. Divestiture can restore competition**

553. Divestiture to an appropriate acquirer of the reconstituted assets of PDM EC and PDM Water, as a viable business, would effectively restore competition and remedy any lessening of competition that resulted from the acquisition of PDM EC and PDM Water Divisions. (Simpson, Tr. 3608-09).

### **2. Assets acquired in the acquisition**

554. CB&I purchased "Tangible Personal Property" from PDM, which included "[a]ll design, manufacturing, construction, erection, maintenance, research and development, testing and other machinery and equipment, vehicles, tools, dies, molds, furniture, fixture, office equipment, field equipment, . . . supplies and other tangible personal property (together with all spare and maintenance parts, operating manuals, equipment specifications and diagrams)" used by PDM's EC and Water Divisions. (CX 328 at CBI 001264-CHI).

555. CB&I purchased real property or the leases to real property from PDM EC in the Acquisition in the following locations: Woodland, TX (leased headquarters), except for the subleased Third and Fourth floors; Provo, UT (owned); Fresno, CA (owned); Franklin, TN (owned); and Santa Fe, TX (leased). (CX 385 at 21-23; CX 328 at CBI 001320-CHI). All of the equipment located at these properties was also sold to CB&I in the Acquisition. (CX 328 at CBI 001264-CHI). Several other leases to offices used by the EC Division were transferred as well. (CX 328 at CBI 001265-CHI; CX 333).

556. As of July 2000, the Woodland, TX headquarters' significant equipment consisted of 157 desktop computers, 1 trailer, and 1 X-ray unit. (CX 385 at 21).

557. As of July 2000, the Provo, UT plant's significant equipment consisted of 2 bending machines, 4 blast machines, 2 bulldozers, 4 compressors, 20 cutting machines, 13 dist. box/PWR panels, 6 drill presses, 12 heaters/furnaces, 25 hoists, 3 lathes, 4 milling machines, 29 painting/planers/punchers, 16 positioners, 1 pump, 39 turning rolls, 14 saws, 2 trailers, 79 welders/wire feeders, and 16 X-ray units. (CX 385 at 21).

558. As of July 2000, the Fresno toolhouse's significant equipment consisted of 1 bulldozer, 1 burning machine, 8 compressors, 29 dist. box / PWR panels, 4 forklifts, 5 generators, 5 hoists, 1 lathe, 2 milling machines, 1 piece of office equipment, 5 pumps, 1 tractor, 2 trailers, 2 vehicles, 141 welders / wire feeders, 1 welding accessory, and 8 X-ray units. (CX 385 at 22).

559. As of July 2000, the Franklin toolhouse's significant equipment consisted of 1 bulldozer, 31 compressors, 56 dist. box / PWR panels, 2 forklifts, 40 generators, 23 hoists, 5 pieces of office equipment, 1 pump, 10 support towers, 1 tractor, 11 trailers, 1 vehicle, 385 welders / wire feeders, 3 welding accessories, and 7 X-ray units. (CX 385 at 23).

560. As of July 2000, the Santa Fe toolhouse's significant equipment consisted of 18 compressors, 26 dist. box / PWR panels, 16 generators, 5 trailers, 2 vehicles, 273 welders / wire feeders, 5 welding accessories, and 1 X-ray unit. (CX 385 at 23).

561. CB&I purchased real property or the leases to real property from PDM Water in the Acquisition in the following locations: Clive, IA plate fabrication plant and office (owned); Pittsburgh, PA toolhouse (owned); HyCon Birmingham, AL office and toolhouse (owned); HyCon Conroe, TX office and toolhouse (leased); and three other leased office properties. (CX 328 at CBI 001264-CHI, CBI 001265-CHI; CX 332; CX 333). The equipment located at these facilities was also sold to CB&I in the Acquisition. (CX 328 at CBI 001264-CHI).

562. CB&I purchased "Inventories and Stores and Supplies from PDM, which included "[a]ll raw materials, components, work-in-progress, finished products, packaging and shipping materials and supplies and other inventories (on-site, off-site and consigned)" used by PDM's EC and Water Divisions. (CX 328 at CBI 001264-CHI I- CBI 001265-CHI).

563. CB&I purchased all of PDM EC and Water Divisions' contract rights in the Acquisition, subject to non-assignability issues and exemptions, under Section 2.2.3 and Schedule 2.27 of the Asset Purchase Agreement. (CX 328 at CBI 001265-CHI, CBI 001319-CHI) The contractual rights transferred include: customer contracts, consulting agreements, alliance and partnering agreements, agency, representative and distribution agreements, licenses; purchase and sales orders, and backlog. *Id.*

564. CB&I purchased all of PDM's intellectual property rights listed in Schedule 5.1.10 of the PDM Disclosure Schedule and any intellectual property used by the acquired Divisions. (CX 328 at CBI 001265-CHI) The transferred intellectual property rights included all applications and registrations. *Id.* The "Pitt-DeMoines" and "PDM" names and all variations thereof were licensed to CB&I in the Acquisition. (CX 328 at CBI 001267-CHI).

565. CB&I purchased PDM's customer and contact lists; sales, product, and promotional data, brochures, forms, mailing lists, and advertising materials; vendor lists; project designs and specifications; and computer software. (CX 328 CBI 001266-CHI).

### **3. The EC and Water Divisions are inextricably intertwined**

566. PDM EC and PDM Water were inextricably intertwined. (Byers, Tr. 6780 (it is "impossible to split [PDM EC and PDM Water]" in two because "they shared many services. They shared human resources, they shared physical plant."); JX 34 at 33-34 (Scheman, Dep.) ("there was not a bright line that separated the two businesses but in certain places they kind of meshed together.")).

567. PDM EC and PDM Water routinely shared field erection personnel, fabrication facilities, construction resources, and field erection equipment. (Scorsone, Tr. 2852, 4779-80; CX 552 at 43-48 (Braden, Dep.); *see* Rano, Tr. 5894, 5898 (same engineering processes are used for a flat-bottom tank as is used for an LNG tank)).

568. PDM's EC and Water Divisions shared skilled personnel. (CX 552 at 45-47 (Braden, Dep.) (construction crews and project managers would seamlessly transfer from a PDM Water job to a PDM EC job with their tools and equipment); CX 442 at 210 (Knight, Dep.) (tank field-erection crews are switched from cryogenic tanks to flat-bottom tanks)).

569. Sharing resources benefitted both PDM EC and PDM Water because it "facilitated a more steady flow of work, a more consistent flow of work through . . . [the] warehouses [and] fabricating plants." (CX 552 at 52-53 (Braden, Dep.); Scorsone, Tr. 4779-80).

570. Separating the EC and Water Divisions might have cost between \$5 and \$10 million. (CX 525, TAN-1000406; Scheman, Tr. 6922-23).

571. PDM Water would have difficulty operating independently of PDM EC. (CX 552 at 44 (Braden, Dep.) (splitting PDM Water from PDM EC “would have lessened our ability to stand alone, and certainly would have diminished the profitability of the operation.”)).

572. Due to the intermingling of resources, PDM decided to sell the two divisions together, because it was not practical to sell one without the other. (Byers, Tr. 6780-82).

#### **4. Multiple fabrication facilities**

573. Possessing multiple fabrication facilities is advantageous, because it allows a competitor to rationalize its freight costs. (Vetal, Tr. 432-33; *see* CX 615 at 45 (Knight, IHT) (in competitive situations, a tank supplier benefits from having a fabrication facility located close to a job so that its freight costs are minimal)).

574. Having multiple facilities not only promotes a geographic competitive advantage, but also allows flexibility in fabrication. (CX 442 at 152, 156 (Knight, Dep.) (Tank suppliers with multiple fabrication shops and many field crews can “be more flexible in order to meet [changes in customers’ schedules],” including needing “the project faster or at a different time period . . . .”)).

575. Each of the former PDM facilities have different fabrication capabilities. (*See* CX 535 at 181-83 (Scorsone, Dep.); CX 615 at 46 (Knight, IHT) (some fabrication plants cannot fully fabricate storage tanks in the manner required by PDM, because they do not support “[c]ertain types of rolling and pressing operations” for thick steel plate)).

#### **5. Intellectual property**

576. A viable competitor in the relevant product markets would need intangible as well as tangible assets. (Simpson, Tr. 3608).

577. Intellectual Property rights can give competitors in the relevant markets cost advantages over their rivals. As of March 2000, CB&I possessed over 100 U.S. patents. (CX 230 at CBI-PL 055446). However, such intellectual property is not always necessary to be an effective competitor. (Cutts, Tr. 2563-64 (additional intellectual property was not necessary for AT&V to compete with CB&I for the LIN/LOX projects for BOC)).

#### **6. Reputation**

578. There is a great deal of goodwill in the PDM name. (Cutts, Tr. 2389 (“the PDM name, like the CB&I name, could obviously break down a lot of walls and barriers”)). A large amount of capital would have to be spent in marketing for a smaller competitor in the relevant industry to build a reputation equivalent to that of PDM. (Cutts, Tr. 2382 (such marketing would cost AT&V a million dollars over the next three years)).

579. Currently, customers are more willing to purchase from CB&I than anyone else, because CB&I has successfully built most of the relevant products. (Cutts, Tr. 2385; CX 258 at CBI-H001816-H001832; CX 1731 at 44 (LNG tank owners do not want to purchase from a second-rate company without a track record, because the work is “very specialized, very sophisticated.”)). It takes time to build a track record from scratch. (Cutts, Tr. 2372, 2385).

## 7. Assignability of contracts

580. Many of the contracts presently held by CB&I contain non-assignability clauses and key employee provisions that require the customer to approve the assignment of the contract or the replacement of key employees on a project. (Glenn, Tr. 4168-69; Izzo, Tr. 6508).

581. Prior to the Acquisition, PDM received approvals from its customers to transfer its contracts to CB&I. (Byers, Tr. 6804).

## 8. Employees

582. Experienced employees are specially trained and therefore valuable in the relevant industry. Hiring people off the street for skilled PDM field crews is “not economical.” (CX 615 at 25, 47 (Knight, IHT)). Skilled field crews and managers must be trained in equipment and procedures. *Id.* at 47, 50; CX 552 at 62 (Braden, Dep.) (“[T]here’s a fairly steep learning curve in our business, and to go out and try to fill experienced positions would require some effort . . . . People have to become familiar with our products and our processes. Processes more than anything.”)).

583. CB&I hires less skilled field crew personnel on a job to job basis. Field crew workers are free to work for a number of companies (Rano, Tr. 5953), and tend to move from job to job depending on where work is available. (Rano, Tr. 5957). Because field crews are very migratory, CB&I hires its general field labor on a job to job basis. (Glenn, Tr. 4119-20; Rano, Tr. 5917-18, 5953). Using local labor is cheaper than employing traveling workers, because it reduces the need to pay increased expenses associated with room and board for out-of-town workers. (Rano, Tr. 5909-10). CB&I recruits local labor by advertising in the local media, and making contacts with local labor leaders and local government officials. (Rano, Tr. 5908-10).

584. At CB&I, the engineering personnel are moved around to various projects depending upon the workload. (CX 497 at 365 (Leventry, Dep.)).

585. Sales representatives in the industry can service both the low temperature and cryogenic tank market and the industrial tank market. (CX 615 at 12, 14 (Knight, IHT)).

**9. A large revenue base is necessary to be a viable competitor**

**a. Bonding**

586. Howard Fabrication's annual revenues, of \$2.5 to \$3 million, are too small to enable it to compete against CB&I for larger thermal vacuum chamber projects. (Gill, Tr. 181, 199-201).

587. AT&V, which had annual revenues of [ ], needs "a little more financial strength and bonding capacity" to compete for larger low temperature and cryogenic tank projects. (JX 23 at Ex. 1, *in camera*).

588. Matrix, which has annual revenues of approximately \$190 million, but lacks a larger company to financially back its operations, has difficulty convincing LNG customers that they are a qualified supplier. (CX 460 at CBI-E 007235).

589. LNG customers testified that they would not purchase from a divested entity unless it was able to financially guarantee its work. (Izzo, Tr. 6508 ("[T]he first thing I'd be concerned about with a NewCo is whether I'd put them on my bid list because of ability to bond."); Bryngelson, Tr. 6157 ("Q. . . . So is it beneficial to El Paso to have a company that has size, even if a lot of that size doesn't necessarily come from the revenue generated by building tanks? / A. Yes."); Carling, Tr. 4467-68 ("We expected the lead contractor to stand behind his work, so the bonds and the guarantees would have to come from [a divested entity's] parent company.")).

590. As of June 30, 2000, PDM's 6-month revenues were approximately \$355 million. (CX 1567 at 3). This base of revenues was sufficient to provide the financial guarantees necessary to compete for LNG and TVC projects. (Carling, Tr. 4529 (PDM was able to provide sufficient financial guarantees to Enron to be employed for an LNG tank built in Penuelas, Venezuela); [ ], Tr. 1895-96, *in camera* (PDM had the financial ability to be considered for a TVC project)). However, there were some LNG projects, such as the one in Dabhol, India, that PDM was unwilling to guarantee to the level that the customer required. (Izzo, Tr. 6488-89; Carling Tr. 4529-30).

**b. Equipment used to construct the relevant products**

591. Soon after the Acquisition, CB&I auctioned off a substantial amount of the equipment that it purchased from PDM in an effort to reduce costs. (Scorsone, Tr. 2888).

592. A fully equipped crew requires a great deal of equipment, which costs approximately half a million dollars. (Cutts, Tr. 2388). It typically has a crane, air compressors, welding machines, general rigging equipment and other incidentals. (Cutts, Tr. 2388).

593. Costly automated welding equipment is necessary to be cost competitive in the construction of LNG tanks. (CX 706 at 98 (Newmeister, IHT); *see* CX 706 at 98-99

(Newmeister, IHT) (CB&I has patented welding equipment that is useful for welding large tanks); *see also* Cutts, Tr. 2379 (automated equipment is necessary to weld large tanks, but it is expensive to develop)).

594. Specific equipment is necessary for blasting, painting, and pressing capabilities. A large press and a large number of dyes for pressing the dome roofs used for LIN/LOX tanks costs roughly \$2 million. *See* CX 706 at 64-66 (Newmeister, IHT). Additionally the automated blast and paint system used to paint the outer tank on a LIN/LOX tank costs roughly \$2-3 million. *See* CX 706 at 64-66 (Newmeister, IHT).

595. In constructing some projects, subcontracting may lower costs, because subcontractors with an expertise in a particular area are able to use a standardized approach and may be better at certain job functions than a general contractor. (Bryngelson, Tr. 6143-44; Cutts, Tr. 2472; Hilgar, Tr. 1537-38).

### III. ANALYSIS AND CONCLUSIONS OF LAW

#### A. Jurisdiction

The Complaint charges Respondents with violations of Section 5 of the Federal Trade Commission Act (“FTC Act”), 15 U.S.C. § 45 and of Section 7 of the Clayton Act, 15 U.S.C. § 18.

Section 5(a)(2) of the FTC Act gives the Commission jurisdiction “to prevent persons, partnerships, or corporations . . . from using unfair methods of competition in or affecting commerce . . .” 15 U.S.C. § 45(a)(2); *Kaiser Aluminum & Chem. Corp. v. FTC*, 652 F.2d 1324, 1327 n.1 (7<sup>th</sup> Cir. 1981). Respondents are corporations engaged in the interstate sale of large, field-erected cryogenic tanks and thermal vacuum chambers. F. 1-3, 6, 9. Respondents’ challenged activities relating to the sale of large, field-erected cryogenic tanks and thermal vacuum chambers have an obvious nexus to interstate commerce. F. 3-5, 7-9. Thus, the Commission has jurisdiction over Respondents and the subject matter of this proceeding, pursuant to Section 5 of the FTC Act.

Section 7 of the Clayton Act prohibits acquisitions, the effect of which “may be substantially to lessen competition, or tend to create a monopoly.” 15 U.S.C. § 18. “Section 11(b) of the Clayton Act, 15 U.S.C. § 21(b), expressly vests the Commission with jurisdiction to determine the legality of a corporate acquisition under Section 7 and, if warranted, to order divestiture.” *In re R.R. Donnelley & Sons Co.*, 120 F.T.C. 36, 140 (1995); *see also Hospital Corp. of Am. v. FTC*, 807 F.2d 1381, 1386 (7<sup>th</sup> Cir. 1986). The February 7, 2001 purchase by CB&I of PDM’s Water Division and Engineered Construction Division was a corporate acquisition (“the Acquisition”). F. 10-12. The Commission’s jurisdiction includes adjudicating the lawfulness of acquisitions that have already been completed. *In re Coca-Cola Co.*, 117 F.T.C. 795, 911 (1994); *see generally FTC v. Consolidated Foods Corp.*, 380 U.S. 592, 598

(1965). Thus, the Commission has jurisdiction over Respondents and the subject matter of this proceeding, pursuant to Sections 7 and 11 of the Clayton Act.

## **B. Burden of Proof and Statutory Framework**

Under Commission Rule of Practice 3.51(c)(1), “[a]n initial decision shall be based on a consideration of the whole record relevant to the issues decided, and shall be supported by reliable and probative evidence.” 16 C.F.R. § 3.51(c)(1).<sup>1</sup> The Commission made amendments to its Rules of Practice, effective May 18, 2001. FTC Rules of Practice, Interim rules with request for comments, 66 Fed. Reg. 17,622 (April 3, 2001). Through these amendments, the Commission removed the requirement of Rule 3.51(c)(3) that the initial decision of an ALJ be supported by “substantial” evidence. 66 Fed. Reg. at 17,626. According to Black’s Law Dictionary, “probative evidence” means having the effect of proof; tending to prove, or actually proving an issue. “Substantial evidence” is defined in Black’s Law Dictionary as such evidence that a reasonable mind might accept as adequate to support a conclusion. At this level of the proceedings, the difference between probative evidence and substantial evidence is not dispositive. Therefore, all findings of fact in this Initial Decision are supported by reliable and probative evidence.

The parties’ burdens of proof are governed by Commission Rule 3.43(a), Section 556(d) of the Administrative Procedure Act (“APA”), and case law. Pursuant to Commission Rule 3.43(a), “[c]ounsel representing the Commission . . . shall have the burden of proof, but the proponent of any factual proposition shall be required to sustain the burden of proof with respect thereto.” 16 C.F.R. § 3.43(a). Under the APA, “[e]xcept as otherwise provided by statute, the proponent of a rule or order has the burden of proof.” 5 U.S.C. § 556(d). Further, under the APA, an Administrative Law Judge may not issue an order “except on consideration of the whole record or those parts thereof cited by a party and supported by and in accordance with the reliable, probative, and substantial evidence.” 5 U.S.C. § 556(d). *See also Steadman v. SEC*, 450 U.S. 91, 102 (1981) (APA establishes preponderance of the evidence standard of proof for formal administrative adjudicatory proceedings).

The Complaint challenges the Acquisition under both Section 7 of the Clayton Act and Section 5 of the FTC Act. The analytical standards for assessing legality in this context are read coextensively. *R.R. Donnelley & Sons*, 120 F.T.C. at 150 n.32; *FTC v. PPG Indus. Inc.*, 798 F.2d 1500, 1501 n.2 (D.C. Cir. 1986) (Section 5 of the FTC Act “may be assumed to be merely repetitive of [Section] 7 of the Clayton Act.”).

Section 7 of the Clayton Act prohibits acquisitions, “where in any line of commerce or in any activity affecting commerce in any section of the country, the effect of such acquisition may

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<sup>1</sup> Unlike *In re Schering-Plough Corp.*, Docket 9297 (Initial Decision June 27, 2002, available at <http://www.ftc.gov/os/adjpro/d9297/020627id.pdf>), where the complaint was issued on March 30, 2001, prior to the effective date of these amendments, the Complaint in this matter was issued on October 25, 2001, after the effective date of the amendments.

be substantially to lessen competition, or tend to create a monopoly.” 15 U.S.C. § 18. See *United States v. Phila. Nat’l Bank*, 374 U.S. 321, 355 (1963) (“The statutory test is whether the effect of the merger ‘may be substantially to lessen competition’ ‘in any section of the country.’”). “Congress used the words ‘may be substantially to lessen competition’ to indicate that its concern was with probabilities, not certainties.” *Brown Shoe Co. v. United States*, 370 U.S. 294, 323 (1962). Complaint Counsel need not prove that an anticompetitive effect is a certainty. *R.R. Donnelley & Sons*, 120 F.T.C. at 150 (citing *California v. American Stores Co.*, 495 U.S. 271, 284 (1990)).

The first step in analyzing a Section 7 case is to determine the “line of commerce” and the “section of the country.” 15 U.S.C. § 18. In other words, the first step is to determine the relevant product and geographic markets. *R.R. Donnelley & Sons*, 120 F.T.C. at 151; *United States v. General Dynamics Corp.*, 415 U.S. 486, 510 (1974) (“delineation of proper geographic and product markets is a necessary precondition to assessment of the probabilities of a substantial effect on competition within them”). “Complaint Counsel bears the burden of proving a relevant market within which anticompetitive effects are likely as a result of the acquisition.” *R.R. Donnelley & Sons*, 120 F.T.C. at 152.

The second step in analyzing a Section 7 case is to determine whether the effect of the acquisition “may be substantially to lessen competition, or to tend to create a monopoly.” 15 U.S.C. § 18. The analytical framework by which the government can establish probable effect has three parts, as summarized below.

First, the government has the burden of showing that the Acquisition would produce “a firm controlling an undue percentage share of the relevant market, and would result in a significant increase in the concentration of the firms in that market.” *FTC v. H.J. Heinz Co.*, 246 F.3d 708, 715 (D.C. Cir. 2001) (citing *Phila. Nat’l Bank*, 374 U.S. at 363); *United States v. Baker Hughes, Inc.*, 908 F.2d 981, 982 (D.C. Cir. 1990). The government may establish a *prima facie* case of anticompetitive effect by presenting statistics showing that combining the market shares of CB&I and PDM would significantly increase concentration in the already highly concentrated United States large, field-erected LNG tank, LPG tank, LIN/LOX tank and TVC markets. See *Baker Hughes*, 908 F.2d at 983. Once this showing is made, the government establishes a presumption that the transaction will substantially lessen competition. *Phila. Nat’l Bank*, 374 U.S. at 363; *Baker Hughes*, 908 F.2d at 982 (citing *United States v. Citizens & Southern Nat’l Bank*, 422 U.S. 86, 120-22 (1975); *Heinz*, 246 F.3d at 715; *In re B.F. Goodrich Co.*, 110 F.T.C. 207, 303-05 (1988).

Second, “[f]inding a *prima facie* violation of Section 7 creates a rebuttable presumption of anticompetitive effects and shifts the burden of going forward with evidence to the respondent.” *B.F. Goodrich Co.*, 110 F.T.C. at 305; *Citizens & Southern Nat’l Bank*, 422 U.S. at 120; *United States v. Marine Bancorporation, Inc.*, 418 U.S. 602, 631 (1974). A finding of *prima facie* illegality on the basis of concentration statistics can be rebutted by a showing that “the merger is not likely to have such anticompetitive effects.” *In re Weyerhaeuser Co.*, 106 F.T.C. 172, 278 (1985) (quoting *Phila. Nat’l Bank*, 374 U.S. at 363).

This second step of the analysis requires that the merger be “functionally viewed, in the context of its particular industry.” *Brown Shoe*, 370 U.S. at 321-22; *Weyerhaeuser Co.*, 106 F.T.C. at 278 (“only a further examination of the particular market -- its structure, history and probable future -- can provide the appropriate setting for judging the probable anticompetitive effect of the merger”). Respondents may “demonstrate unique economic circumstances that undermine the predictive value of the government’s statistics.” *FTC v. Univ. Health, Inc.*, 938 F.2d 1206, 1218 (11<sup>th</sup> Cir. 1991). “Nonstatistical evidence which casts doubt on the persuasive quality of the statistics to predict future anticompetitive consequences may be offered to rebut the *prima facie* case made out by the statistics.” *Kaiser Aluminum*, 652 F.2d at 1341. Factors which may be considered include “ease of entry into the market, the trend of the market either toward or away from concentration, and the continuation of active price competition.” *Id.*

Thus, while market share evidence is “an important starting point in merger analysis, it alone is not conclusive in determining the legality of a merger under Section 7.” *Weyerhaeuser Co.*, 106 F.T.C. at 278. *See also General Dynamics Corp.*, 415 U.S. at 498; *Baker Hughes*, 908 F.2d at 992 (“The Herfindahl-Hirschman Index cannot guarantee litigation victories.”); *Hosp. Corp. of Am.*, 807 F.2d at 1386 (deciding that market share figures are not always decisive in a Section 7 case and that the Commission was prudent in inquiring into the probability of harm to consumers).

Third, if Respondents successfully rebut the presumption of anticompetitive effects, “the burden of producing additional evidence of anticompetitive effect shifts to the government, and merges with the ultimate burden of persuasion, which remains with the government at all times.” *Heinz*, 246 F.3d at 715; *Baker Hughes*, 908 F.2d at 983. *Cf. Citizens & Southern Nat’l Bank*, 422 U.S. at 120; *Marine Bancorporation*, 418 U.S. at 631 (upon the government’s establishment of a *prima facie* case under *General Dynamics*, the burden then shifts to the acquiring firm to show that the statistics do not accurately depict competitive conditions). These comparative cases do not indicate that the burden of persuasion shifts from the government, but only that a burden of going forward with the evidence shifts. *Kaiser*, 652 F.2d at 1340 and n.12.

### C. Product Markets

The proper definition of the product market is a “necessary predicate” to an examination of the competition that may be affected by a merger or acquisition. *Brown Shoe*, 370 U.S. at 335; *R.R. Donnelley & Sons*, 120 F.T.C. at 151. The relevant market is the “area of effective competition” within which the defendant operates. *Tampa Elec. Co. v. Nashville Coal Co.*, 365 U.S. 320, 327-28 (1961). Product markets may be defined either by “the reasonable interchangeability of use or the cross-elasticity of demand.” *Brown Shoe*, 370 U.S. at 325; *Coca Cola Co.*, 117 F.T.C. at 925. *See also Kaiser Aluminum*, 652 F.2d at 1330 (“[t]he clearest indication that products should be included in the same market is if they are actually used by consumers in a readily interchangeable manner.”). Complaint Counsel bears the burden of proving a relevant market, within which anticompetitive effects are likely, as a result of the acquisition. *R.R. Donnelley & Sons*, 120 F.T.C. at 152; *see also* 16 C.F.R. § 3.43(a); 5 U.S.C. § 556(d).

The parties agree that the relevant product markets are large, field-erected: (1) liquefied natural gas (“LNG”) storage tanks (individually, or as a component of an import terminal or an LNG peak shaving plant); (2) refrigerated liquid petroleum gas (“LPG”) storage tanks; (3) liquid nitrogen, oxygen and argon (“LIN/LOX”) storage tanks; and (4) large (over 20 feet in diameter) thermal vacuum chambers (“TVCs”). F. 19. Therefore, the relevant product markets for assessing the probable effects of competition are large field-erected LNG storage tanks, LPG storage tanks, LIN/LOX storage tanks, and TVCs. F. 18-45.

#### **D. Geographic Market**

The statutory language of Section 7, “any section of the country,” equates to the relevant geographic market. *Marine Bancorporation*, 418 U.S. at 620-21; *In re Adventist Health Sys.*, 117 F.T.C. 224, 288 (1994). The relevant geographic market is the “area of effective competition . . . in which the seller operates, and to which the purchaser can practicably turn for supplies.” *Tampa Elec. Co.*, 365 U.S. at 327. The Government has the burden of proving the relevant geographic market. *United States v. Connecticut Nat’l Bank*, 418 U.S. 656, 669 (1974); *Adventist*, 117 F.T.C. at 289.

The parties agree that the relevant geographic market in which to analyze the merger is the United States. F. 15. By definition, field-erected LNG, LPG, and LIN/LOX storage tanks, as well as TVCs, must be built “in the field” at customers’ sites in the United States. F. 16. It is economically infeasible to import a field-erected storage tank from anywhere outside the United States. F. 17. Therefore, the relevant geographic market for assessing the probable effects of competition is the United States. F. 14-17.

#### **E. Effects on Competition**

The Complaint alleges violations pertaining to four product markets. Before analyzing the effects on competition in each of these markets, the standards by which probable effects are evaluated are set forth with an analysis applicable to all four product markets.

Section 7 is “designed to arrest in its incipiency . . . the substantial lessening of competition from the acquisition by one corporation of the whole or any part of the stock” or assets of a competing corporation. *United States v. E.I. du Pont de Nemours & Co.*, 353 U.S. 589 (1957); *Univ. Health*, 938 F.2d at 1218. “Congress used the words ‘may be substantially to lessen competition’ to indicate that its concern was with probabilities, not certainties.” *Brown Shoe*, 370 U.S. at 323. “But it is to be remembered that § 7 deals in ‘probabilities,’ not ‘ephemeral possibilities.’” *Marine Bancorporation*, 418 U.S. at 623. “Thus, to satisfy section 7, the government must show a reasonable probability that the proposed transaction would substantially lessen competition in the future.” *Univ. Health*, 938 F.2d at 1218; *FTC v. Warner Communications Inc.*, 742 F.2d 1156, 1160 (9<sup>th</sup> Cir. 1984).

The essential question is whether “the probability of such future impact exists at the time of trial.” *General Dynamics*, 415 U.S. at 505; *E. I. du Pont*, 353 U.S. at 607 (economic effects of

an acquisition are to be measured at the time of suit rather than at the time of acquisition). Thus, although the Clayton Act is an “incipiency” statute, post-acquisition evidence, so long as it “is such that it could not reflect deliberate manipulation by the merged companies temporarily to avoid anticompetitive activity,” will be given some consideration. *Lektro-Vend Corp. v. Vendo Co.*, 660 F.2d 255, 276 (7<sup>th</sup> Cir. 1981); *Consolidated Foods*, 380 U.S. at 598. Complaint Counsel has not demonstrated that Respondents deliberately manipulated the post-acquisition evidence. Further, Complaint Counsel has relied extensively on post-acquisition evidence to argue that, since the Acquisition, CB&I has implemented price increases. Complaint Counsel’s Proposed Findings of Fact (“CCPFF”) at pp. 103-177. Accordingly, post-acquisition evidence is considered and evaluated.

### 1. *Prima facie* case

Assessing the likely competitive effects of the proposed transactions begins by determining the market shares of the merging firms and the level of concentration in the relevant market. *FTC v. Cardinal Health Inc.*, 12 F. Supp. 2d 34, 52 (D.D.C. 1998). The most common method for Complaint Counsel to establish a *prima facie* case is to show that the acquisition “would produce ‘a firm controlling an undue percentage share of the relevant market, and [would] result in a significant increase in the concentration of firms in that market.’” *Univ. Health*, 938 F.2d at 1218 (quoting *Phila. Nat’l Bank*, 374 U.S. at 363). “[A] merger which significantly increases the share and concentration of firms in the relevant market is ‘so inherently likely to lessen competition’ that it must be considered presumptively invalid and enjoined in the absence of clear evidence to the contrary.” *Cardinal Health*, 12 F. Supp. 2d at 52 (quoting *Phila. Nat’l Bank*, 374 U.S. at 363).

Complaint Counsel has established its *prima facie* case by showing that CB&I’s acquisition of PDM’s EC and Water Divisions produces a firm controlling an undue percentage share in each of the four relevant markets. Although, as described below, Complaint Counsel’s HHI statistics are not sufficiently reliable, Complaint Counsel has presented reliable and probative evidence demonstrating that CB&I and PDM were the number one and two competitors in all four product markets and that no other company provided or is likely to provide effective competition. This showing establishes Complaint Counsel’s *prima facie* case.

#### a. **The Herfindahl-Hirschman Index (“HHI”)**

Market concentration is often measured by the Herfindahl-Hirschman Index (“HHI”). *Heinz*, 246 F.3d at 716; *PPG*, 798 F.2d at 1503; *Univ. Health*, 938 F.2d at 1211 n.12. The Department of Justice and the FTC rely on the HHI in evaluating whether to challenge proposed horizontal mergers. United States Dep’t of Justice & Federal Trade Comm’n, Horizontal Merger Guidelines §§ 1.5, 1.51 (1992), as revised (1997) (“*Merger Guidelines*”). “The FTC and the Department of Justice, as well as most economists, consider the measure superior to such cruder measures as the four- or eight- firm concentration ratios which merely sum up the market shares of the largest four or eight firms. *PPG*, 798 F.2d at 1503. See also *R.R. Donnelley & Sons*, 120 F.T.C. at 182 n.147 (Commission uses HHI as the most economically relevant measure of

concentration). The *Merger Guidelines* are not binding on courts or the Commission. *PPG*, 798 F.2d at 1503 n.4; *R.R. Donnelley & Sons*, 120 F.T.C. at 151 n.36. Instead, the *Merger Guidelines* serve to “describe the analytical process that the Agency will employ in determining whether to challenge a horizontal merger.” *Merger Guidelines* § 0.2.

Although market concentration is often measured by the HHI, there is no requirement that it must be. *United States v. Franklin Elec. Co., Inc.*, 130 F. Supp. 2d 1025, 1033-35 (W.D. Wisc. 2000), provides one example of a merger enjoined without a single reference to HHI. In *PPG*, the district court was unable to calculate an HHI for the high technology market since the market was growing rapidly, major portions of it lay in the immediate future, and market shares depended upon the success of future bids and the ultimate size of the projects for which they bid. 798 F.2d at 1505. Nevertheless, the court of appeals, without relying on the HHI for the “closest available approximation” market, concluded “the fact that there appear to be only three fully capable firms in that market indicates that the HHI will be very high.” *Id.* “Even if one or two other firms were thought capable of expanding or entering, the HHI would still put the market in the highly concentrated range, and the acquisition would cause a great increase in the HHI.” *Id.* Where, as in the instant case, the two largest competitors in thin product markets merge, the increase in market concentration and substantial lessening of competition are common sense conclusions.

When the HHI is utilized, the index is calculated by squaring the individual market shares of all the firms in the market and summing up the squares. *Heinz*, 246 F.3d at 716 n.9. Under the *Merger Guidelines*, a market with a post-merger HHI above 1800 is considered “highly concentrated” and mergers that increase the HHI in such a market by over 50 points “potentially raise significant competitive concerns.” *Merger Guidelines* § 1.51. Acquisitions producing an increase in the HHI of more than 100 points in highly concentrated markets raise significant competitive concerns. *Merger Guidelines* § 1.51. The *Merger Guidelines* define as “unconcentrated” a market with an HHI below 1000, as “moderately concentrated” a market with an HHI between 1000 and 1800, and as “highly concentrated” a market with an HHI over 1800. *Merger Guidelines* § 1.51. See also *PPG*, 798 F.2d at 1503. Sufficiently large HHI figures establish a *prima facie* case that a merger is anticompetitive. *Heinz*, 246 F.3d at 716; *Baker Hughes*, 908 F.2d at 982-83.

Complaint Counsel’s economic expert, Dr. John Simpson, examined market shares from 1990 to the time of the Acquisition in early 2001 and used this eleven year time period to calculate the HHI in each of the four relevant markets. F. 69, 216-18, 273-74, 370-71. Dr. Simpson provided no valid reason for using 1990 as a starting point, other than that was the starting point of the data that had been provided to him by Complaint Counsel. F. 69, 274.

Complaint Counsel cites to *Merger Guidelines* § 1.4 as authority for use of the eleven year time period for calculating the HHI. “Typically, annual data are used, but where individual sales are large and infrequent so that annual data may be unrepresentative, the Agency may measure market shares over a longer period of time.” *Merger Guidelines* § 1.4. Nowhere do the *Merger Guidelines* suggest that using data spanning beyond a decade is an appropriate period of

time. Despite this guideline, not a single case was cited to by Complaint Counsel where the government calculated the HHI in any manner other than based on annual sales. The only case found to have calculated HHI based on more than one year of sales is *Baker Hughes*, discussed *infra*. Instead, Complaint Counsel argues, “evidence that high market shares are sustained over several years is regularly used in antitrust cases to assess market power.” Complaint Counsel’s Post Trial Brief (“CCPTB”) at 14-15 (citing *Heinz*, 246 F.3d at 712, 717 (in analyzing barriers to entry, the court noted that there had been no significant entries in decades, yet determined market shares based on annual sales of baby food); *Borden, Inc. v. FTC*, 674 F.2d 498, 511 (6<sup>th</sup> Cir. 1982) (determining market share over five year period to infer monopoly power; suit not brought under the Clayton Act); *Greyhound Computer Corp. v. IBM Corp.*, 559 F.2d 488, 496-97 (9<sup>th</sup> Cir. 1977) (in a Sherman Section 2 case, defendant’s share of the market in 3 years over a 7 year period was evidence from which the jury could reasonably infer market power)). None of these cases support the proposition that it is appropriate to calculate the HHI based on market data spanning more than a decade.

Sales in the field-erected LNG tank, LPG tank, LIN/LOX tank and TVC markets are sporadic, and a single sale can represent a large percent of market share in any given year. *See* F. 65, 68, 210, 213, 269, 364. Dr. Barry Harris, Respondents’ economic expert, also presented numerous challenges to Dr. Simpson’s use of 1990 as the starting point. F. 70, 71, 221, 276, 373, 375. In these unusual markets, mechanical application of the HHI provides misleading results. *See Merger Guidelines* § 0 (“Because the specific standards set forth in the Guidelines must be applied to a broad range of possible factual circumstances, mechanical application of those standards may provide misleading answers to the economic questions raised under the antitrust laws.”).

The arbitrary nature of the HHI is underscored by the fact that choosing a different date achieves a completely different result. CB&I did not build an LNG tank, LPG tank, or TVC between 1996 and the date of the Acquisition, resulting in a change of zero in the HHI in three of the four markets. F. 70, 219, 372. An acquisition resulting in zero change in the HHI would not establish a *prima facie* case if only HHI were relied upon. *See Merger Guidelines*, § 1.5 (“Mergers producing an increase in the HHI of less than 50 points, even in highly concentrated markets post-merger, are unlikely to have adverse competitive consequences.”); *New York v. Kraft Gen. Foods*, 926 F. Supp. 321, 362 (S.D.N.Y. 1995). This case illustrates the fact that the HHI is subject to manipulation which weakens its reliability as an economic indicator.

Although Complaint Counsel places great emphasis on the HHI and the increases to the HHI, Complaint Counsel failed to demonstrate that a valid and credible HHI had been calculated in any of the relevant markets. For the reasons detailed in the following sections on each of the relevant markets, the HHI statistics alone do not conclusively establish Complaint Counsel’s *prima facie* case.

**(i) LNG market**

Dr. Simpson testified that the post-acquisition HHI for LNG tanks is 10,000, with a change of 4,956. F. 68. Dr. Simpson's HHI calculations are of questionable value, because they are based on a period of time of over 10 years and there have been so few sales from 1990 to the Acquisition. F. 65, 69, 71. If data dating back to 1996 is used instead, CB&I had no sales over that time period and the change in the HHI based on sales in the LNG market would be zero. F. 70. Accordingly, the HHI statistics lack reliability and are insufficient to establish Complaint Counsel's *prima facie* case in the LNG market.

**(ii) LPG market**

Dr. Simpson testified that the post-acquisition HHI for LPG tanks is 8,380, with a change of 3,910. F. 218. Dr. Simpson's HHI calculations are suspect for two reasons. First, he included in his calculation the value of a project that was awarded to CB&I after the Acquisition. F. 216, 217. Second, because CB&I's last pre-acquisition LPG project was awarded in 1993, if data dating back to 1994 or 1996, instead of back to 1990, were used, the change in the HHI based on sales in the LPG market would be zero. F. 219. HHI calculations are not accurate in determining the concentration in the LPG market due to the extraordinarily thin market and almost nonexistent demand. F. 220. Accordingly, the HHI statistics lack reliability and are insufficient to establish Complaint Counsel's *prima facie* case in the LPG market.

**(iii) LIN/LOX market**

Dr. Simpson testified that the post-acquisition HHI for LIN/LOX tanks is 5,845, with a change of 2,635. F. 273. Dr. Simpson's HHI calculations in the LIN/LOX market were based on sales from 1990 to the date of the Acquisition. F. 274. There is no principled basis for reaching back to 1990 for calculating the HHI. Unlike the other three markets, where there were only a handful of sales over the eleven year period, in the LIN/LOX market 83 projects, comprising 109 tanks, were awarded during the period from 1990 to the Acquisition. F. 269. Further, Dr. Simpson admitted that CB&I's spin off from Praxair in 1997 was a significant competitive change, a fact which could justify beginning the HHI calculation for the LIN/LOX market in 1997, after the date of that sale. F. 275. Accordingly, the HHI statistics lack reliability and are insufficient to establish Complaint Counsel's *prima facie* case in the LIN/LOX market.

**(iv) TVC market**

Dr. Simpson testified that the post-acquisition HHI for TVCs is 10,000, with a change of 5,000. F. 370. He arrived at this conclusion by two approaches. First, he assigned a 50-percent market share to CB&I and a 50-percent market share to PDM, based on the opinions of market participants and documents. F. 370. Second, he assigned a 49.3 percent market share to CB&I for a project that was awarded to CB&I by Spectrum Astro, but was not built. F. 371. In actuality, only one TVC was built in the 1990s and this TVC was by PDM. F. 364. The last TVC built by CB&I was in 1984. F. 365. Without the proposed Spectrum Astro project

included, PDM would have 100% market share and an HHI of 10,000. The increase in the HHI would be zero. F. 372. Applying different standards results in starkly different results in this extraordinarily thin market. Accordingly, the HHI statistics lack reliability and are insufficient to establish Complaint Counsel's *prima facie* case in the TVC market.

**b. Market power in bid markets**

The Supreme Court, in *General Dynamics*, held that evidence of annual sales is relevant as a prediction of future competitive strength in most markets, such as groceries or beer, since distribution systems and brand recognition are such significant factors that one may reasonably suppose that a company which has attracted a given number of sales will retain that competitive strength. 415 U.S. at 501 (referencing *United States v. Von's Grocery*, 384 U.S. 270 (1966); *United States v. Pabst Brewing Co.*, 384 U.S. 546 (1966)). However, in some markets, statistical evidence of past production may not always be the best measure of a company's ability to compete. *Id.* (upholding district court's focus on reserves of coal rather than past production, because the bulk of the coal produced was delivered under long term requirement contracts, which could not be obtained without sufficient coal reserves).

The product markets here are not like groceries or beer. Rather, the four product markets are similar to the market for hardrock hydraulic underground drilling rigs examined in *Baker Hughes*. In *Baker Hughes*, the products were assembled and made to suit each purchaser's needs and specifications. *United States v. Baker Hughes, Inc.*, 731 F. Supp. 3, 8 (D.D.C. 1990). In this case, the large field-erected tanks and TVCs are custom made to suit each purchaser's needs. *See generally supra* Part II.D. In *Baker Hughes*, customers sought bids from several suppliers and placed great emphasis upon a supplier's reputation for quality and service. 731 F. Supp. at 8. In this case, customers generally seek competitive bids from several suppliers for each of the products at issue and place great emphasis upon a supplier's reputation for quality and service. *E.g.*, F. 166-172, 222-26, 250-52, 283, 286. *Baker Hughes* addressed a very thin product market; the overall size of the market ranged from 51 to 61 sales over a three year period. 731 F. Supp. at 9. In this case, in the two years from the Acquisition to trial, one LNG tank, one LPG tank, five LIN/LOX tanks, and zero TVCs have been sold. F. 233, 292, 407-409. Indeed, Complaint Counsel has had to reach back eleven years to find more than a handful of sales in three of the four markets. F. 66, 211, 364.

The district court in *Baker Hughes* held, "[b]ecause of the nature of the products sold and the fact that the volume of business done is relatively small and customers' needs for new equipment are irregular, market shares in the line of commerce alone are not an accurate measure of market dominance." 731 F. Supp. at 9. As in *Baker Hughes*, here because of the nature of the products sold, the fact that the volume of business done is relatively small, and the customer's needs for new equipment are irregular, market shares in the line of commerce alone are not a conclusive measure of market dominance. Thus, other factors besides market shares are analyzed.

“In evaluating monopoly power, it is not market share that counts, but the ability to *maintain* market share.” *United States v. Syufy Enterprises*, 903 F.2d 659, 665-66 (9<sup>th</sup> Cir. 1990) (emphasis in original). Thus, a more accurate picture of competition arises through an examination not just of the number and the value of the tank projects awarded, but of the competitive pressure each manufacturer is able to exert by bidding. See *Baker Hughes*, 731 F. Supp. at 9 (evaluating numbers of bids over last two years). This approach was used by the Court of Appeals for the Second Circuit in evaluating “the unusual market” of carrier-based aircraft. *Grumman Corp. v. LTV Corp*, 665 F.2d 10, 12-13 (2<sup>d</sup> Cir. 1981).

In *Grumman Corp.*, the defendants did not dispute that during the past two decades the acquired and the acquiring companies had been substantial competitors. Defendants argued that there was an “insufficient basis to believe that [the acquired company would] be a competitive factor in the future.” *Id.* at 12. Even though the last order for the product in one of the relevant markets had been placed two years earlier and the single domestic purchaser had no current plans to purchase the product from the acquired company, the district court concluded that the acquired company could reasonably be expected to provide competition in the relevant market. *Id.* at 12.

The court of appeals upheld the district court’s finding in *Grumman*, stating it reflected “an inevitable aspect of an unusual market.”

[The relevant product does] not roll off assembly lines like television sets or automobiles. In a market with a single domestic purchaser, which buys intermittently, a court assessing the anti-competitive effect of a horizontal combination must consider future possibilities in assessing whether there exists a significant probability of decreased competition. Whether or not [the acquired company] will sell more [of the relevant product to the single domestic purchaser], the fact remains that it was properly found to be competing to do so. . . . The [purchaser’s] rejection of the proposal [to sell a modified version of the product] does not lessen the significance of [the acquired company’s] capacity and desire to make it.

*Id.* at 12-13.

*United States v. United Tote, Inc.* provides another example of a court, in analyzing an unusual market, basing its opinion not just on a review of past sales, but on an analysis of the companies’ ability to constrain competition by bidding. 768 F. Supp. 1071 (D. Del. 1991). In *Tote*, the relevant product market lines were on-track, off-track, and inter-track totalisator systems and services. *Id.* at 1069. In those markets, where companies submitted bids to tracks to have their systems used, the court found it to be significant that the two merging companies submitted bids against each other on 49 of the 116 totalisator contracts for which bids were sought. *Id.* at 1071 (holding that even though the acquired company had never replaced the acquiring company, where the acquiring company was the incumbent, the government’s statistical case accurately reflected the state of competition).

Although CB&I has not won projects in three of the four markets from 1996 to the Acquisition, to conclude that CB&I does not have market power “ignores the competitive effect they exert simply by being available to compete.” *Grumman*, 665 F.2d at 14. The fact that CB&I and PDM competed against each other consistently through the bid process is more dispositive to the determination of market power than how many projects were won. Thus, in the sections that follow, CB&I’s market power is demonstrated through an evaluation of which companies provided competition through bids on recent projects.

**(i) LNG market**

From 1990 to the Acquisition, nine LNG tank projects were awarded in the United States. CB&I won five of these projects and PDM won four. F. 65. For all but two of these projects, no company other than CB&I and PDM submitted bids. F. 72.

**(ii) LPG market**

From 1990 to the Acquisition, eleven LPG tank projects were awarded in the United States. CB&I won five and PDM won four. F. 210. From 1994 to the Acquisition, of the five LPG tank projects built in the United States, CB&I won zero and PDM won three. F. 210. Morse Tank and AT&V each won one. F. 210. For the last four pre-acquisition LPG tank projects for which the parties presented evidence on the companies that submitted bids, CB&I bid on all four projects and PDM bid on three of the four. F. 222-26. On two of these, CB&I and PDM were the only bidders. F. 224. Although CB&I did not win any of the last five LPG projects, both CB&I and PDM were effective competitors through bidding. *See Grumman*, 665 F.2d at 14.

**(iii) LIN/LOX market**

From 1990 to the Acquisition, 109 LIN/LOX tanks were awarded in the United States. F. 269. CB&I won 25 of the tanks and PDM won 44. F. 269. Graver, which went out of business in 2001 won 34 of the projects. F. 269, 270. CB&I, PDM, and Graver were competing with each other by bidding on LIN/LOX projects. F. 286-88. Because Graver is no longer in the business, it is no longer bidding against CB&I and no longer provides competition.

**(iv) TVC market**

From 1990 to the Acquisition, only one field-erected TVC has been built, and this TVC was built by PDM in 1996. F. 364. Both CB&I and PDM provided final pricing offers for [ ] in 1997. F. 366 (*in camera*). Both CB&I and PDM submitted best and final offers for the Spectrum Astro project in 1999. F. 368. Both CB&I and PDM were asked to provide rough order of magnitude (“ROM”) pricing to TRW in 1999. F. 369. [ ] sought a sole-source procurement with PDM for its [ ] facility. F. 367 (*in camera*). In all but one of these instances, CB&I and PDM were competing against each

other. F. 366, 368, 369. In all but one of these instances, no other company was even asked to participate in the bidding process. F. 366-69.

**c. Acquisition of closest competitor**

Regardless of how competition is measured, the decisive issue is that CB&I bought its closest competitor which is not likely to be replaced by an equally cost-effective and qualified competitor in any of the four markets. *Infra* Part III.E.2.c. Without PDM to bid against, CB&I is no longer required to submit the lowest possible bid to win projects. F. 498. Numerous recent D.C. court cases have used this economic principle when evaluating whether to enjoin a proposed merger or acquisition. *E.g.*, *Heinz*, 246 F.3d at 725 (finding that by buying its closest competitor, Heinz would create a “durable duopoly” that “affords both the opportunity and incentive for both firms to coordinate to increase prices”); *FTC v. Libbey, Inc.*, 211 F. Supp. 2d 34, 47 (D.D.C. 2002) (enjoining merger where there was substantial evidence that the proposed merger might effectively eliminate a competitor in the relevant market that was already highly concentrated); *FTC v. Swedish Match*, 131 F. Supp. 2d 151, 169 (D.D.C. 2000) (“A unilateral price increase by Swedish Match is likely after the acquisition because it will eliminate one of Swedish Match’s primary direct competitors.”); *Cardinal Health*, 12 F. Supp. 2d at 53, 64 (By combining with their closest competitors to capture an 80% market share, defendants could “curb downward pricing pressure and adversely affect competition.”); *FTC v. Staples Inc.*, 970 F. Supp. 1066, 1082 (D.D.C. 1997) (By eliminating its closest competitor, “this merger would allow Staples to increase prices or otherwise maintain prices at an anti-competitive level.”); *FTC v. Coca-Cola Co.*, 641 F. Supp. 1128, 1139 (D.D.C. 1986) (“The stark, unvarnished truth is that the [sought to be acquired] brand has been a staunch effective competitor . . . that [the potential purchaser] has tried to stifle” and is “now seeking to buy.”). *See also Merger Guidelines* n.21 (“A merger involving the first and second lowest-cost sellers could cause prices to rise to the constraining level of the next lowest-cost seller.”).

According to the D.C. Circuit Court of Appeals in *Heinz*, “no court has ever approved a merger to duopoly.” 246 F.3d at 717 (enjoining merger between the second and third largest sellers of jarred baby food where the higher priced company, Gerber, who was not a participant in the merger, had a 65% market share). In *PPG*, where there “appear[ed] to be only three fully capable firms in [the] market,” and “[t]he proposed acquisition would leave two,” the Commission’s showing of market concentration was “overwhelming,” and the proposed merger was enjoined. 798 F.2d at 1505-06. The circumstances in the instant case are similar to those in *Franklin Elec.*, where there were only two manufacturers of the relevant product. 130 F. Supp. 2d at 1033-35. In that case, the defendants argued that market share or percentage of sales was almost irrelevant, because the market was quite different from most consumer markets. *Id.* The court held that the combination “should be viewed” as nothing “other than a merger to monopoly that by definition will have an anticompetitive effect[.]” *Id.*

“[O]ne factor that is ‘an important consideration when analyzing possible anti-competitive effects’ is whether the acquisition ‘would result in the elimination of a particularly aggressive competitor in a highly concentrated market . . . .’” *Libbey*, 211 F. Supp. 2d at 39, 47

(enjoining a merger where, though the firm to be acquired had only seven percent of the market, it was the “most formidable competitor” in the relevant market) (quoting *Staples*, 970 F. Supp. at 1083). In *Grumman*, where the acquiring company and the acquired company competed against each other for every opportunity, even though neither company had a significant share of the market, the district court “was entitled to conclude that removing one competitor from this market would tend to substantially lessen competition.” 665 F.2d at 15. In this case, Respondents *do* have a significant share of the market, so, for even stronger reasons, removing a competitor would substantially lessen competition.

As discussed in each of the product market sections below, CB&I bought its closest competitor. Prior to the Acquisition, no other still existing company challenged CB&I’s market power. Without resorting to the mechanical HHI analysis, the pre-acquisition market shares controlled by CB&I and PDM and the power each exerted by bidding against the other cannot be ignored. As the evidence in this case demonstrates, lower prices for customers resulted from that pre-acquisition competition. See F. 83-87, 231, 286-91, 388-406. Even Respondents recognized at the time that they were contemplating the Acquisition that combined CB&I and PDM could achieve market dominance. F. 491-96. Accordingly, Complaint Counsel has established a presumption of illegality in all four product markets.

**(i) LNG market**

CB&I and PDM account for *all* of the sales of LNG tanks in the United States from 1990 to the Acquisition. F. 65. From 1990 to 2001, based on the dollar values of tank projects built, excluding cancelled projects, CB&I accounted for 45.3% and PDM accounted for 54.7% of the market. The combined market share is 100%. F. 68.

Prior to the Acquisition, Respondents were the only two competitors in the LNG market. F. 74. Respondents and industry members viewed CB&I and PDM as the only competitors for LNG tanks. F. 75-82. Customers sought to use competition between CB&I and PDM to obtain lower prices. F. 83-97.

**(ii) LPG market**

CB&I and its two acquisitions, PDM EC and Morse, account for all but one of the sales of LPG tanks in the United States from 1990 to the time of the Acquisition. F. 210, 214, 215. Dr. Simpson calculated market shares based on sales values from 1990 to 2001 and included the post-acquisition LPG project for BASF in Port Arthur, Texas that was awarded to CB&I. F. 212. Based on Dr. Simpson’s data set, PDM had a 34.5% market share, CB&I had a 56.7% market share, Morse Tank had an 8.2% market share, and AT&V had a 0.6 % market share. F. 213. By Dr. Simpson’s calculations, the combined CB&I and PDM market share from 1990 to the Acquisition is 91.2 %. F. 213.<sup>2</sup> On November 30, 2001, CB&I acquired Morse Tank,

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<sup>2</sup> If the post-acquisition win by CB&I is excluded from the calculations, the market share totals do not vary significantly. The combined CB&I and PDM total would be 90.9%. F. 213.

eliminating the firm that had accounted for the next most substantial share of LPG sales prior to the Acquisition. F. 214.

Respondents viewed each other as their only competition for LPG tanks. F. 228-30. Respondents' expert, Dr. Harris, testified that prior to the Acquisition, neither CB&I nor PDM could increase prices of LPG tanks in the United States without risking losing sales to the other. F. 231.

### (iii) LIN/LOX market

CB&I and PDM had a combined market share of 72.8% of the value of LIN/LOX awards for the time period of 1990 to the Acquisition. F. 269. Graver had a 23.3% market share, Matrix had a 2.6% market share, and AT&V had a 1.4% market share. F. 269. Graver went out of business, in 2001, and is no longer a competitor in the LIN/LOX market. F. 270.

Prior to the Acquisition, competition between CB&I and PDM was very aggressive. Respondents viewed each other as close competitors and in some instances dropped their prices to beat out the other or set prices that would generate "negative margins." F. 277-82. CB&I lost some projects to PDM because of PDM's "very low" pricing levels. F. 280. Prior to the Acquisition and prior to Graver's exit from the business, customers would use the vigorous competition between CB&I, PDM and Graver to obtain lower prices. F. 286-91.

### (iv) TVC market

CB&I's acquisition of PDM EC combined the only two competitors in the market for large field-erected TVCs in the United States. F. 363. Since 1960, the only companies that have built TVCs are CB&I and PDM. F. 363.

CB&I viewed PDM as its "only competitor" for TVC projects in the United States. F. 376-78. Purchasers of TVCs viewed CB&I and PDM as the only firms with the capability to construct TVCs. F. 380-85. One customer used competition between CB&I and PDM to obtain lower pricing. F. 388-406.

## 2. Respondents' rebuttal

### a. Standards & factors

Complaint Counsel established its *prima facie* case. The burden next shifts to Respondents to produce evidence that "show[s] that the market-share statistics [give] an inaccurate account of the acquisition['s] probable effect[] on competition" in the relevant markets. *Citizens & Southern Nat'l Bank*, 422 U.S. at 120; *Phila. Nat'l Bank*, 374 U.S. at 363; *United States v. Waste Mgmt., Inc.*, 743 F.2d 976, 981 (2d Cir. 1984). "The more compelling the *prima facie* case, the more evidence the defendant must present to rebut it successfully." *Baker Hughes*, 908 F.2d at 991. "Although the ultimate burden of persuasion always rests with the

FTC, once a presumption has been established that the proposed transactions will substantially affect competition, the burden of production shifts to the Defendants to rebut the presumption.” *Cardinal Health*, 12 F. Supp. 2d at 54 (citing *Marine Bancorporation*, 418 U.S. at 613). Respondents are not required to “clearly” disprove future anticompetitive effects, because such a requirement would impermissibly shift the ultimate burden of persuasion. *Baker Hughes*, 908 F.2d at 991.

Respondents may demonstrate unique economic circumstances that undermine the predictive value of the government's statistics. *Univ. Health*, 938 F.2d at 1218 (citing *General Dynamics*, 415 U.S. at 486). In addition to attacking the government's statistics, a respondent may present evidence on a number of factors that “are relevant in determining whether a transaction is likely to lessen competition substantially.” *Baker Hughes*, 908 F.2d at 985. These factors include: ease of entry into the market, the trend of the market either toward or away from concentration, the continuation of active price competition, and evidence of customer sophistication. *Univ. Health*, 938 F.2d at 1218; *Kaiser Aluminum*, 652 F.2d at 1341; *Baker Hughes*, 908 F.2d at 986. The acquired firm's weakness is also a factor that a defendant may introduce to rebut the government's *prima facie* case. *Univ. Health*, 938 F.2d at 1221.

In this case, Respondents contend that the following factors sufficiently rebut the FTC's *prima facie* case: (1) evidence that Complaint Counsel's concentration statistics are misleading; (2) evidence of actual or potential entry or the existence of low entry barriers; (3) evidence of customer sophistication; and (4) evidence of the weakness of the merging companies. Respondents' Post Trial Brief (“RPTB”) at 8-11.

#### **b. Statistics**

Statistics reflecting market share and concentration, while of great significance, are not conclusive indicators of anticompetitive effects. *Heinz*, 246 F.3d at 717 n.12 (citing *General Dynamics*, 415 U.S. at 498); *Brown Shoe*, 370 U.S. at 322 n.38 (“Statistics reflecting the shares of the market controlled by the industry leaders and the parties to the merger are, of course, the primary index of market power; but only a further examination of the particular market – its structure, history and probable future – can provide the appropriate setting for judging the probable anticompetitive effect of the merger.”). “The level of market concentration . . . is only the starting point to determine the likelihood of anticompetitive effects, and many other factors affect the likelihood of collusive or unilateral anticompetitive conduct.” *Adventist*, 117 F.T.C. at 307 (citing *Merger Guidelines*, § 2.0; *Baker Hughes*, 908 F.2d at 984, 992 (“[t]he Herfindahl-Hirschman Index cannot guarantee litigation victories.”)).

A respondent “may rebut the government's *prima facie* case by showing that the government's market share statistics overstate the acquired firm's ability to compete in the future and that, discounting the acquired firm's market share to take this into account, the merger would not substantially lessen competition.” *Univ. Health*, 938 F.2d at 12121 “[U]nder *General Dynamics*, a substantial existing market share is insufficient to void a merger where that share is misleading as to actual future competitive effect.” *Waste Mgmt.*, 743 F.2d at 982. The Supreme

Court held that, while the statistical showing proffered by the government in *General Dynamics* was sufficient to support finding an “undue concentration” in the absence of other considerations, the question . . . is whether . . . other pertinent factors affecting the coal industry and the business of the appellees mandated a conclusion that no substantial lessening of competition occurred or was threatened by the acquisition . . . .” 415 U.S. at 498. Because of fundamental changes in the structure of the relevant market, the statistics relied on by the government in *General Dynamics* were insufficient to sustain its case. 415 U.S. at 501.

This case does not present the situation before the court in *General Dynamics* where the Supreme Court held that the market share statistics that the government used to seek divestiture of the merged firm were insufficient, because in failing to take into account the acquired firm’s long-term contractual commitments (coal contracts), the statistics overestimated the acquired firm’s ability to compete in the relevant market in the future. *General Dynamics*, 415 U.S. at 500-04. By contrast to *General Dynamics*, where sales made by defendants represented “the obligation to fulfill previously negotiated contracts at a previously fixed price” and thus did not represent the exercise of market power, sales made by CB&I and PDM represent CB&I’s and PDM’s continuing ability to bid for, win, and build tank projects in all four relevant markets.

Nor does this case present the situation before the court in *Baker Hughes* where the market shares were “volatile and shifting,” where there were four domestic firms that each manufactured the relevant products, and where a contract to provide multiple rigs could catapult any one of those firms from fourth to first place. 908 F.2d at 986. As discussed above, in three of the four markets, Respondents were consistently the number one and number two competitors. In the fourth market, LIN/LOX, CB&I and PDM shared the field with Graver. Graver, however, is no longer in the business and is, thus, not able to take shares away from CB&I. *Supra* Part III.E.b. Therefore, this case does not present the situation addressed by the court in *Baker Hughes* where there were other competitors who were taking away sales and able to continue to take away sales from the merging companies.

As discussed in the previous section, the government’s HHI statistics are not reliable and probative evidence. Nevertheless, the deficiencies in the government’s HHI statistics do not undermine the evidence presented that CB&I bought its closest competitor or the evidence on CB&I’s ability to compete in the future. Accordingly, Respondents have not successfully demonstrated that the government’s market share statistics overstate CB&I’s ability to compete the relevant markets.

### **c. Actual or potential entry**

#### ***Standards***

“Ease of entry is the ability of other firms to respond to collusive pricing practices by entering to compete in the market.” *Cardinal Health*, 12 F. Supp. 2d at 54-55. “Even in highly concentrated markets, if there is sufficient ease of entry, enough firms can enter to compete with the merging firms, undercutting any of the likely anti-competitive effects of the proposed

mergers.” *Id.* If Respondents’ evidence regarding entry shows that the Commission’s market share statistics give an incorrect prediction of the Acquisition’s probable effect on competition because entry into the markets would likely avert any anticompetitive effect by acting as a constraint on CB&I’s prices, then Respondents have rebutted the *prima facie* case. *See Staples*, 970 F. Supp. at 1086.

In *Consolidated Foods*, the Supreme Court held that post-acquisition evidence tending to diminish the probability or impact of anticompetitive effects might be considered in a § 7 case, but that the probative value of such evidence was limited. 380 U.S. at 598. In *General Dynamics*, the Supreme Court held that post-acquisition evidence goes “directly to the question of whether future lessening of competition was probable and the District Court was fully justified in using it.” 415 U.S. at 506. “[P]ost-acquisition evidence favorable to a defendant can be an important indicator of the probability of anticompetitive effects where the evidence is such that it could not reflect deliberate manipulation by the merged companies temporarily to avoid anticompetitive activity, and could not reasonably be construed as representing less active market competition than would otherwise have occurred without the questioned acquisition.” *Lektro-Vend Corp.*, 660 F.2d at 276. Accordingly, in assessing whether entry will likely avert any anticompetitive effects, post-acquisition evidence is considered.

Complaint Counsel asserts that entry must be timely (within two years); likely to be profitable at pre-merger prices; and sufficient to deter or counteract the possible anticompetitive effects of the Acquisition. CCPTB at 18 (citing *Merger Guidelines* §§ 3.1-3.4; *Coca Cola*, 117 F.T.C. at 953). Respondents assert that evidence regarding actual or potential entry rebuts a *prima facie* case and that even the mere threat of entry can rebut a *prima facie* case. RPTB at 9-10 (citing *Baker Hughes*, 908 F.2d at 981). *See also Waste Mgmt.*, 743 F.2d at 983 (“entry by potential competitors may be considered in appraising whether a merger will ‘substantially lessen competition’”).

#### ***Likelihood and timing of entry***

In *Baker Hughes*, the district court reviewed the prospects for future entry and concluded that entry was likely, particularly if the acquisition were to lead to supracompetitive pricing. 908 F.2d at 988. The government appealed this conclusion, asserting that the district court should have required defendants to show clearly that entry would be quick and effective. *Id.* at 988. The court of appeals held that the district court’s factual findings amply supported its determination that future entry was likely. *Id.* at 989. Discussing *Baker Hughes*, the court in *Tote* stated, the “crucial aspect” of *Baker Hughes* was “that the leading firm’s ‘growth suggests that competitors not only can, but probably will, enter or expand if this acquisition leads to higher prices.’” 768 F. Supp. at 1081 (quoting *Baker Hughes*, 908 F.2d at 989). No such inference can be made in this case where the strength of Respondents, the leading firms, is not recent or attributable to any significant changes in the industry, but is grounded on long experience and a proven track record.

Despite characterizing the government's position in *Baker Hughes* that entry must be "quick and effective" as "novel and unduly onerous," the court of appeals found that "if the totality of a defendant's evidence suggests that entry will be *slow* and *ineffective*, then the district court is unlikely to find the prima facie case rebutted." *Id.* at 988 (emphasis added). Further, case law developed after *Baker Hughes* illustrates that a "quick and effective" standard for analyzing entry is no longer "novel." In *Tote*, where evidence presented at trial established that it would take 18 to 24 months to study, develop and then adequately debug a truly competitive product and where there was other evidence of factors that complicate a potential entrant's ability to design or modify the relevant product in a timely manner, defendants did not rebut the government's case. 768 F. Supp. at 1073-75. See also *Franklin Elec.*, 130 F. Supp. 2d at 1035-36 (enjoining merger where defendants had "not shown that *entry is so easy* that [the merged entity] could not sustain monopolist profits for *some period of time*") (emphasis added); *United States v. Calmar, Inc.*, 612 F. Supp. 1298, 1301 (D.N.J. 1985) ("If ease of entry in the market is such that the producers in the market could not *long* sustain an unjustified price increase, then in spite of a high degree of concentration there has not been a substantial lessening of competition.") (emphases added).

As discussed below, in all four of the relevant markets, the totality of the evidence establishes that potential and actual entry is slow and ineffective and cannot keep these markets competitive. Further, the evidence of entry in this case is not as compelling as the evidence was in *Baker Hughes* where at least two companies had entered the United States market immediately prior to the challenged acquisition and were poised for future expansion. 908 F.2d at 988-89. In *Baker Hughes*, a number of firms competing in Canada and other countries had not penetrated the United States market, but could be expected to do so if the acquisition led to higher prices. *Id.* Although, in this case, there is evidence that there are a number of firms competing worldwide, the evidence does not establish that they can be expected to enter the U.S. market and compete in a timely and effective manner.

### ***Constrain pricing***

Entry "must be able to restore competitive pricing – *i.e.*, it must be effective in offsetting any loss of competition due to the business combination in question." *Coca Cola*, 117 F.T.C. at 953, 960 ("If new entrants cannot sufficiently expand output to prevent existing producers from raising prices, their entry will not be sufficient to prevent a cartel from raising prices."). Where the likely and timely entry is not "sufficient to offset any post-merger pricing practices," defendants' claim of entry and expansion is "insufficient to rebut the Government's prima facie case." *Cardinal Health*, 12 F. Supp. 2d at 58. Even in *Baker Hughes*, the court found potential entry would be sufficient only if it "can keep that market competitive." *Id.* at 988 (emphasis added).

Respondents have presented evidence that other manufacturers are interested in entering the market and that customers might consider turning to these other sources. An interest of other firms in making sales is not sufficient to restore competition and prevent CB&I from exercising market power. See *Rebel Oil Co. v. Atlantic Richfield Co.*, 51 F.3d 1421, 1440 (9<sup>th</sup> Cir. 1995) (If

the *output or capacity* of the new entrant is *insufficient to take significant business away* from the predator, [the new entrants] are unlikely to represent a challenge to the predator's market power.") (emphasis added). Rather, the inquiry is focused on whether those firms will actually prevent an exercise of market power. See *Staples*, 970 F. Supp. at 1087-88; *Swedish Match*, 131 F. Supp. 2d at 170; *Coca-Cola*, 117 F.T.C. at 960 (Entrant must "be 'successful' in the sense of being profitable" and "sufficiently expand output to prevent existing producers from raising prices . . ."). The greater weight of evidence in this case establishes that other firms have not prevented and will not prevent CB&I from raising prices after acquiring PDM EC.

Respondents have also presented evidence of companies that have bid on recent projects. However, in most of the examples presented, the other companies' bidding has not exerted sufficient competitive pressure. In *Tote*, the defendants pointed to the example of a company that had submitted a number of bids to tracks and that could have entered the market in seven months. The court held:

despite the fact that ITS is actively bidding in the marketplace, United Tote was unable to offer even a single example of a competitor adjusting its prices in response to an ITS bid. Quite to the contrary, on one recent bid, ITS's price was almost twice that of AmTote's and 50% higher than Autotote's once the cost of buying was converted to the cost of leasing.

*Tote*, 768 F. Supp. at 1083. Thus, the court held that actual entry by ITS was not sufficient, because it would not constrain anticompetitive price increases by incumbents. *Id.* at 1082. In examples set forth below, the evidence in this case establishes that, as in *Tote*, the bids offered by smaller competitors are at higher prices than those of CB&I and thus do not constrain pricing.

#### (i) LNG market

Since the Acquisition, domestic companies partnered with foreign companies are taking steps to enter the United States LNG market. In three of the eleven new or potential LNG projects, foreign manufacturers have even submitted bids or budget pricing. However, in many of the examples presented at trial, the steps that recent or potential entrants have taken are too preliminary to challenge CB&I's market power.

The bidding stages of seven of the recently announced projects are sufficiently advanced to provide a basis for determining that other manufacturers do not constrain CB&I's exercise of market power:

In CMS Energy's planned LNG tank expansion, CB&I was awarded the contract over Skanska/Whessoe which had provided a budget price that was [ ] than the firm negotiated price submitted by CB&I. F. 102-05 (*in camera*).

[

] F. 106-07 (*in camera*).

With Poten & Partners, CB&I is negotiating a sole-source contract. F. 108.

For British Petroleum's three separate projects, CB&I is negotiating sole-source contracts. F. 109-13. Testimony from BP's representative that [

] (Sawchuck, Tr. 6062-63, 6092 *in camera*) is not persuasive evidence that these other companies have entered the market.

For Dynegy's Hackberry Facility, the one post-acquisition LNG tank award that CB&I did not win, CB&I declined to submit a tank bid only because it did not like the conditions under which it was asked to bid. F. 89-101.

The bidding stages of the other four recently announced projects are not sufficiently advanced to provide a basis for determining that other manufacturers constrain CB&I's exercise of market power. For some of these projects, the recent or potential entrants' level of participation rises only to the level of expressing an interest or participating in preliminary meetings. Thus, the evidence presented on recent or potential entrants' attempts to enter the LNG market does not support a conclusion that recent or potential entry restrains CB&I's market power:

For Yankee Gas' Waterbury project, CB&I has submitted budgetary pricing; Skanska/Whessoe has provided preliminary design solutions, preliminary design data sheets and pricing information; and [

] F. 117-32 (*in camera*). However, Yankee Gas has not yet determined whether Skanska/Whessoe or Technigaz are qualified to bid. F. 129.

For Freeport LNG's project, which is in the early design stages and may never be built, CB&I has sent Freeport LNG a proposal to do the front end engineering and design; Black & Veatch has sent Freeport LNG a letter which indicates that it has formed an alliance with Whessoe to build LNG-tanks in the Western Hemisphere; Skanska/Whessoe met with Freeport LNG to discuss contracting strategies and general tank designs and to provide Freeport LNG with marketing materials; TKK/AT&V has made presentations to Freeport LNG on the companies' capabilities and discussed contracting capabilities; and Technigaz/Zachry has approached Freeport LNG to present its alliance. F. 133-40.

For Williams' Cove Point II project, CB&I has submitted budgetary pricing; TKK, in partnership with DYWIDAG and AT&V, has submitted budgetary

pricing. F. 114-16. Testimony from [

] is not persuasive evidence that [ ] has entered the market. ([ ], Tr. 4693, (*in camera*)).

Calpine's Humboldt, California facility is "in the early stages of possible development;" there is only a 50% chance that the facility will be built. F. 141. Testimony from Calpine's representative that he believes that Skanska/Whessoe, Technigaz/Zachry, and TKK/AT&V are all competent builders and can build LNG tanks (Izzo, Tr. 6494-500) is not persuasive. CB&I is the only constructor with whom Calpine has had discussions about potentially building this facility. F. 142-43.

Although Respondents presented evidence that TKK/AT&V, Skanska/Whessoe, and Technigaz/Zachry have begun bidding in the U.S. LNG market and that several other manufacturers have taken steps to try to enter the U.S. LNG market, the evidence does not demonstrate that they compete with sufficient force to constrain CB&I.

Further, although Respondents assert that there is a trend toward building double or full containment tanks, and that CB&I is disadvantaged in competing for double or full containment tanks, the evidence does not demonstrate that there is a trend toward double or full containment tanks. F. 57. Respondents have not demonstrated that actual or potential entry is sufficient to challenge CB&I's market power in the LNG market.

#### (ii) LPG market

Respondents presented little evidence of recent entry in the LPG market. Respondents assert that two entrants, AT&V and Matrix, have recently begun to compete for LPG jobs, and that Chattanooga Boiler & Tank ("Chattanooga") is poised to enter this market. No evidence or testimony was offered to show that any foreign tank manufacturer has bid on U.S. LPG projects. F. 246. The evidence presented at trial does not demonstrate that these domestic or that foreign manufacturers can constrain CB&I's market power.

From the Acquisition to the time of trial, there has been one LPG project awarded, Port Arthur in 2001. This project was awarded to CB&I. F. 233.

The only still existing company that has built an LPG tank from 1990 to present, AT&V, lacks the capacity to constrain CB&I. Although AT&V was awarded the last pre-acquisition LPG tank project award, Deer Park, in 2000, the value of this project was a fraction of the value of the next largest tank built from 1990-2001. F. 226. AT&V also bid on the only LPG tank awarded since the Acquisition, which was won by CB&I. F. 237. Although AT&V provides some competition by bidding, the greater weight of the evidence demonstrates that AT&V cannot compete with sufficient force to constrain CB&I's market power. F. 238-40.

There is also insufficient evidence to demonstrate that Matrix, Wyatt, or Chattanooga can effectively compete. F. 241-44. Respondents did not present evidence that foreign manufacturers are poised to enter the U.S. LPG market. F. 245-49.

Therefore, Respondents have not demonstrated that actual or potential entry is sufficient to challenge CB&I's market power in the LPG market.

### (iii) LIN/LOX market

Respondents presented evidence of recent entry by AT&V in the LIN/LOX market. Respondents assert that two other domestic manufacturers, Matrix and Chattanooga, compete in the LIN/LOX market. Respondents do not assert that foreign manufacturers are poised to enter the U.S. LIN/LOX market.

From the Acquisition to the time of trial, there have been five LIN/LOX projects awarded. AT&V won three; CB&I won two. F. 292-93. In all three of the LIN/LOX projects that AT&V bid on and won, CB&I was also a bidder. F. 294. Respondents presented evidence that AT&V effectively competes against CB&I by bidding at lower prices than CB&I. F. 294.

However, Complaint Counsel presented evidence that AT&V cannot compete on an equal footing with CB&I in the LIN/LOX market as it lacks revenue and field capacity. F. 315. Further, some customers that have done business with AT&V have found that any initial savings are offset or exceeded by oversight costs and costs related to change orders. F. 297-98, 304-05, 314. Other customers have expressed concern with AT&V's performance and reputation. F. 318-19.

The greater weight of the evidence demonstrates that although AT&V has entered the LIN/LOX market and has won three of the five post-acquisition projects, AT&V does not provide the competitive force that PDM once did.

Matrix recently entered the LIN/LOX market, winning 4 recent pre-acquisition LIN/LOX projects. F. 320. However, Matrix has been a high bidder, and consequently non-competitive, on other recent LIN/LOX tank projects for several customers, including Air Liquide and Linde, and is viewed by some customers as not sufficiently qualified. F. 321-23. Moreover, after the sale of its subsidiary which owned the fabrication facility where Matrix fabricated LIN/LOX tanks, Matrix's capacity decreased. F. 324.

Chattanooga has never built a LIN/LOX tank and does not effectively compete in the LIN/LOX market. F. 325. LIN/LOX industry participants question Chattanooga's ability to build a LIN/LOX tank. F. 327. On one occasion when it recently bid on a LIN/LOX project, Chattanooga's price was [ ] higher than CB&I's. F. 326 (*in camera*).

Therefore, Respondents have not demonstrated that actual or potential entry is sufficient to challenge CB&I's market power in the LIN/LOX market.

#### (iv) TVC market

There is no evidence of actual or potential entry in the TVC market. In all but one of the TVC projects for which pricing was requested prior to the Acquisition, no company other than CB&I or PDM was even asked to provide pricing. F. 367-69. In the one instance where two other companies responded to the customer's request for proposals, these manufacturers were eliminated from the bidding process because the customer found them unqualified. F.366. The only company that, post-acquisition, has been asked to provide pricing on a TVC project, Howard Fabrication, was not considered by that customer to have "the technical competence nor the financial backing" necessary to award it a TVC project. F. 445. *See also* F. 410-11. Industry members testified that the field for manufacturing TVCs is limited to CB&I. F. 380-85. *See also* F. 412-14.

Therefore, Respondents have not demonstrated that actual or potential entry is sufficient to challenge CB&I's market power in the TVC market.

#### d. Barriers to entry

Determining whether there is ease of entry also entails an analysis of barriers to new firms entering the market or to existing firms expanding into new regions of the market. *Cardinal Health*, 12 F. Supp. 2d at 54 (citing *Baker Hughes*, 908 F.2d at 987). If barriers to entry are low, the threat of outside entry can significantly alter the anticompetitive effects of the merger by deterring the remaining entities from colluding or exercising market power. *Heinz*, 246 F.3d at 717 (citing *United States v. Falstaff Brewing Corp.*, 410 U.S. 526, 532-33 (1973); *Baker Hughes*, 908 F.2d at 987 ("In the absence of significant barriers, a company probably cannot maintain supracompetitive pricing for any length of time.")). Low barriers to entry enable a potential competitor to deter anticompetitive behavior by firms within the market simply by its ability to enter the market. *Heinz*, 246 F.3d at 717 n.13 (citing *FTC v. Procter & Gamble Co.*, 386 U.S. 568, 581 (1967)).

Expertise in the industry, a fair amount of capital, a positive reputation, and the need to have specialized equipment are all barriers to entry. *Fruehauf Corp. v. FTC*, 603 F.2d 345, 357 (2d Cir. 1979); *Cardinal Health*, F. Supp. 2d at 58; *United States v. Blue Bell, Inc.*, 395 F. Supp. 538, 549 (M.D. Tenn. 1975). In *Kennecott Copper Corp. v. FTC*, 467 F.2d 67, 79 (10<sup>th</sup> Cir. 1972), the court found that due to the specialized nature of the industry, which required particular knowledge and highly developed equipment, the entry barriers were formidable. *See also FTC v. PPG Indus.*, 628 F. Supp. 881, 885 (D.D.C. 1986) (high entry barriers where witnesses estimated it would take from two to six years to acquire the technological expertise, assemble the trained personnel, and devise the tooling to enter the market as a credible competitor). As set forth for each of the product markets below, these barriers exist in this case.

Another barrier is that most customers already have established relationships with an existing manufacturer. Thus, to persuade those customers to conduct business with it, a new entrant would probably have to undercut the current competitors in the market by selling at lower

prices in order to secure new business. *Libbey*, 211 F. Supp. 2d at 48. As set forth for each of the product markets below, this barrier exists in this case.

In some markets, “the need for reliability is so great and the consequences of new product failure so dire that, even if the competitive nature of the market deteriorated, consumers would still be reluctant to switch to new entrants.” *Tote*, 768 F. Supp. at 1076 (finding proven ability to provide reliable systems and service an important factor in a racetrack’s selection of a totalisator supplier to preserve the track’s revenue and goodwill). The unwillingness of customers to use a company with an unproven track record is a barrier to entry. *See Tote*, 768 F. Supp. at 1078. As set forth for each of the product markets below, this barrier exists in this case.

Even in *Baker Hughes*, the district court noted that the following facts suggested difficulty of entry and “may handicap new entrants”: products that are custom-made are not readily interchangeable or replaceable; buyers tend to return to sellers from whom they have purchased in the past; and customers typically place great importance on assurances of product quality and reliable future service. 908 F.2d at 989 n.10. As set forth for each of the product markets below, these factors exist in this case.

Many witnesses in this case, including those of Respondents, testified that to be successful in these markets, a company has to be large, have experience and know-how, have specialized equipment, and have a fair amount of capital. As set forth below, Complaint Counsel introduced evidence of high barriers to entry in all four markets. These barriers to entry make it unlikely that any potential competitor, or even a small existing competitor in the U.S., such as AT&V, will be able to replace PDM as a competitive force, by filling the capacity that PDM had or by being profitable at pre-acquisition prices at a pricing level that constrains CB&I’s ability to raise prices.

**(i) LNG market**

Barriers to entry in the LNG tank market are high. LNG tank suppliers must have sufficient personnel to design, engineer and construct LNG tanks and to handle adjustments to possible schedule changes. F. 166, 169, 172. LNG suppliers must also have sufficient capacity to bond large projects. F. 175-76. Experience and reputation are extremely important in a product market, like the one for LNG tanks, where the values of the projects are so high and where there are tremendous safety considerations. F. 167-173. The evidence establishes that barriers are not low and that entry is not so easy that an existing or potential company could replace PDM in the LNG market.

**(ii) LPG market**

Barriers to entry in the LPG market, while not as high as in the LNG or TVC markets, still exist. LPG tank suppliers must have sufficient personnel to design, engineer and construct LPG tanks and to handle adjustments to possible schedule changes. F. 250-51. Experience and reputation are important in this market. F. 252. *See also* F. 253. The evidence establishes that

barriers are not low and that entry is not so easy that an existing or potential company could replace PDM in the LPG market.

**(iii) LIN/LOX market**

Barriers to entry in the LIN/LOX market, while also not as high as in the LNG or TVC markets, do exist. LIN/LOX manufacturers must establish the capability to perform specialized metal fabrication and must have sufficient financial capacity to conduct physical tests of materials and tank prototypes or components. F. 329-33. Experience and reputation are also important in this market. F. 328, 331, 334. The evidence establishes that barriers are not low and that entry is not so easy that an existing or potential company could replace PDM in the LIN/LOX market.

**(iv) TVC market**

Barriers to entry in the TVC market are high. No evidence or testimony was offered to show that barriers to entry are low in the large field-erected TVC market. TVC customers want experienced suppliers with knowledge, ability to fabricate in the field a stainless steel vessel, and ability to satisfy the quality requirements of leak testing and cleanliness for a TVC. F. 415-17. A new entrant would need to hire engineers with previous experience in designing TVCs, which are "truly one-of-a-kind designs for very specific applications on very technical products." F. 416. A new entrant would need to expend significant resources in developing proposals and price quotations for TVCs. F. 418. The evidence establishes that barriers are not low and that entry is not so easy that an existing or potential company could replace PDM in the TVC market.

**e. Customer sophistication**

"Well-established precedent and the . . . *Merger Guidelines* recognize that the sophistication and bargaining power of buyers play a significant role in assessing the effects of a proposed transaction." *FTC v. R.R. Donnelley & Sons Co.*, 1990 U.S. Dist. LEXIS 11361, \*10 (D.D.C. 1990). "Although the courts have not yet found that power buyers alone enable a defendant to overcome the government's presumption of anti-competitiveness, courts have found that the existence of power buyers can be considered in their evaluation of an anti-trust case, along with such other factors as the ease of entry and likely efficiencies." *Cardinal Health*, 12 F. Supp. 2d at 58. Some courts have stressed that the existence of power buyers does not necessarily mean that a merger will not result in anticompetitive effects. The court in *Tote* held that the existence of power buyers did not outweigh the potentially damaging effects of a merger on numerous smaller customers. 768 F. Supp. at 1085. Although the larger buyers were not likely to suffer the effects of a lack of competition, the court concluded that the defendants' smaller to mid-size customers without any significant bargaining power would be impermissibly harmed by the proposed merger. *Id.*

In all four of the relevant product markets, the customers purchasing the products are large companies, with sophisticated procurement processes, who generally seek to have two or

more bidders for their projects. F. 254, 353-55, 471-73. However, due to the fact that, in three of the four markets, there are very few products purchased and there are confidentiality provisions, past pricing is not well known. *E.g.*, F. 204-07. Thus, most customers do not have significant bargaining power. In the end, although evidence of the sophistication of customers in these markets was presented and has been considered, this does not rebut Complaint Counsel's *prima facie* case.

#### **f. Weakness of the merging companies**

The acquired firm's weakness is another factor that a defendant may introduce to rebut the government's *prima facie* case. *Kaiser Aluminum*, 652 F.2d at 1339; *United States v. Int'l Harvester Co.*, 564 F.2d 769, 774 (7th Cir. 1977) ("[T]he *prima facie* case presented by the Government was rebutted by persuasive evidence, including [the acquired firm's] weakened financial condition."). However, such a defense is credited "only in rare cases, when the defendant makes a substantial showing that the acquired firm's weakness, which cannot be resolved by any competitive means, would cause that firm's market share to reduce to a level that would undermine the government's *prima facie* case." *Univ. Health*, 938 F.2d at 1221.

Facts presented at trial establish that PDM was not a weak firm. PDM was winning recent tank projects. *Supra* Part III.E.1. Moreover, PDM was a profitable company and PDM's EC Division was profitable. F. 535-45. As of July 2000, the month before CB&I and PDM signed the acquisition letter of intent, PDM EC projected earnings before interest and taxes of \$2 million in 2000. F. 538. Accordingly, this factor does not rebut the government's *prima facie* case.

### **3. Burden of persuasion**

"If the defendant successfully rebuts the presumption [of illegality], the burden of producing additional evidence of anticompetitive effect shifts to the government, and merges with the ultimate burden of persuasion, which remains with the government at all times." *Baker Hughes*, 908 F.2d at 983; *see also Kaiser Aluminum*, 652 F.2d at 1340 and n.12. Respondents did not successfully rebut Complaint Counsel's presumption of anticompetitiveness and thus the inquiry into whether CB&I's acquisition of PDM EC and Water Divisions violated the Clayton Act may conclude. Nevertheless, although it was not required to do so, Complaint Counsel attempted to show that anticompetitive effects have already occurred in three of the four markets. As set forth below, Complaint Counsel's evidence did not prove that CB&I has implemented price increases.

**a. LNG market**

**(i) Sole-source contracts**

Complaint Counsel argues that CB&I used its position as the only domestic supplier of LNG tanks to force LNG tank purchasers into sole-source arrangements. CCPTB at 37-38. The evidence establishes that three companies have entered sole-source arrangements with CB&I. F. 106-13. Complaint Counsel presented evidence that sole-source arrangements can result in higher profit margins and that one of these customers believed that CB&I was essentially its only choice. F. 111-13. Although the evidence presented at trial did not establish conclusively that the sole-source arrangements have resulted in higher prices, without competitive constraints, higher prices are probable.

**(ii) Memphis Light Gas and Water**

Complaint Counsel argues that recent prices provided for Memphis Light Gas and Water (“MLGW”) represent a post-acquisition price increase. Complaint Counsel attempts to compare the competitively bid and negotiated 8% margin projected by CB&I on the 1994 MLGW project to a [ ] margin included as part of a budget price given to MLGW in 2002. CCPTB at 6, 35 (*in camera*). This argument is misleading, because it is based entirely on a comparison of apples and oranges. The 1994 price was a fixed, firm price bid that was competitively bid and negotiated, while the 2002 number was a budget price. F. 83, 84, 180-82. Budget prices are preliminary in nature and are often based on broad assumptions of many unknown variables. F. 474-75, 478-79. Complaint Counsel’s assertion that CB&I implemented a price increase to MLGW is not supported by sufficient evidence.

**(iii) Cove Point I**

Complaint Counsel argues that PDM increased its price on the Cove Point expansion in September 2000 in anticipation of the Acquisition. CCPTB at 33-34. Complaint Counsel bases its argument first upon RX 127, a chart prepared by CB&I for a bid review meeting in March 2000, entitled “To Be Completed Prior to Final Proposal Submittal.” CCPFF 781 (citing RX 127 at CBI-H008204). While RX 127 contains proposed pricing of [ ] for the Cove Point project, there is no evidence in the record suggesting that this figure was actually submitted by CB&I or used as a bid for the project. RX 127 (*in camera*). Complaint Counsel asked no witnesses at trial about this document. Complaint Counsel asserts that PDM initially quoted a price of approximately [ ]. CCPFF 781 (citing CX 226 at CBI-PL044978, *in camera*). CX 226 is a CB&I memorandum wherein an employee of CB&I speculates that PDM had provided a “budget of something like [ ].” (CX 226 at CBI-PL044978, *in camera*). Based on this speculation, the CB&I employee recommended that CB&I reduce its price to [ ]. F. 187 (*in camera*). Speculations made by a CB&I employee about what PDM may have provided as a budget price do not support Complaint Counsel’s assertion that PDM bid [ ]. (*In camera*). Complaint Counsel then asserts that PDM subsequently bid [ ]. CCPFF 781 (citing CX 1058 at PDM-HOU

017465, *in camera*). CX 1058, a summary of pending LNG projects, does not establish conclusively that PDM bid [ ] million. (CX 1058 at PDM-HOU 017465, *in camera*). No witnesses at trial were asked about this document.

The evidence does establish that on September 8, 2000, PDM quoted Williams a budget price of [ ] for a 750,000 barrel tank. F. 192 (*in camera*). Complaint Counsel compares the September 8, 2000 budget price to the earlier figures to argue that PDM implemented a price increase in September 2000, in anticipation of the Acquisition. CCPFF 793. But because Complaint Counsel has not established that the earlier figures were budget prices or were ever submitted, Complaint Counsel's assertion that PDM implemented a price increase in September 8, 2000 is not supported by reliable evidence.

Next, Complaint Counsel argues that PDM increased its price on the Cove Point expansion in November 2000 in anticipation of the Acquisition. CCPTB at 33-34. Complaint Counsel bases this theory on CX 1160, [

] *See* CCPTB at 33-34. The evidence shows that this document was created for purposes of evaluating an estimate from the estimating department in a formal bid review meeting. Decisions made at the meeting resulted in the November 2, 2000 "as submitted" price. F. 194, 195. The fact that CX 1160 shows a different price on November 2 as compared to the estimated price on November 1 is not probative, since the very nature of the meeting was to review the bid.

Complaint Counsel points to CB&I's actual post-acquisition profit margin for performing the Cove Point project and argues that the actual profit margin has increased in comparison to the March 2000 chart prepared for a bid review meeting. CCPTB at 34. However, the evidence establishes that CB&I will earn a greater than expected margin because [

] F. 201-03 (*in camera*). [

] F. 203 (*in camera*). In addition, Complaint Counsel's arguments pertaining to RX 323, a document not used at trial and CX 906, a document demonstrated by Respondents to be unreliable, are speculative and not supported by reliable evidence.

#### (iv) Fairbanks

Complaint Counsel asserts that the LNG project for Fairbanks Natural Gas, LLC in Alaska ("Fairbanks") in 2002 illustrates that, since the merger, CB&I has raised prices and increased profit margins. CCPFF 955. To support this assertion, Complaint Counsel relies on CX 307, a document that was not introduced in evidence, and on RX 407, a document for which only very limited testimony was introduced. (*See* Scorsone, Tr. 5331, *in camera*). The trial transcript is devoid of any specific information about the document including who wrote the

document and when, who viewed the document and when, and what the document means. The conclusions Complaint Counsel draws from RX 407 are speculative. The conclusions Complaint Counsel draws from CX 307, a document not in evidence, are disregarded.

In addition, Complaint Counsel compares CB&I's budget price for Fairbanks in 2002 to PDM's budget price for BC Gas in 1996 for an LNG tank to be built in Vancouver, British Columbia and argues that the difference between these figures illustrates that CB&I implemented a price increase on the Fairbanks project. CCPFF 977. This argument fails for two reasons. First, CX 791, the document Complaint Counsel asserts represents PDM's budget estimate for the BC project, was not used at trial with any fact witness and Complaint Counsel's expert testified that he did not know how the figures listed on CX 791 were formulated. (Simpson, Tr. 5387-92). Thus, the conclusions Complaint Counsel draws from it are not reliable. Second, the differences between a 1996 budget estimate prepared by PDM for a 1.2 million gallon LNG tank located in Canada and a 2002 budget estimate prepared by CB&I for a 1.0 million gallon LNG tank located in Alaska render a comparison between the two figures meaningless. The 1996 PDM budget estimate appears to have been extrapolated from a 1993 estimate to a different client in a vastly different location. (See CX 791; Simpson Tr. 5390-93). By contrast, CB&I derived the Fairbanks estimate in 2002 using a formal budgetary exercise. (Compare RX 626 to CX 791). Further, Complaint Counsel has not shown that the costs for the BC Gas job (such as material or shipping costs) would be the same as those on the Fairbanks job located deep in interior Alaska. The Fairbanks budget price contained a very high margin figure to account for lack of information and contingencies associated with an Alaska project, such as a cold climate, short construction seasons, and burdensome labor regulations. (RX 626 at CBI 063013; Scorsone, Tr. 5004-06). Indeed, Dr. Simpson acknowledged that these factors would be relevant in any comparison of the two projects. (Simpson, Tr. 5385). Accordingly, Complaint Counsel did not present reliable evidence to support its allegation that the Fairbanks LNG project illustrates that CB&I is raising prices and increasing margins.

**b. LPG market**

Complaint Counsel does not assert that there have been anticompetitive effects in the LPG market.

**c. LIN/LOX market**

Complaint Counsel asserts that there are three examples of CB&I implementing an 8.7% price increase to Linde and to Praxair. None of Complaint Counsel's allegations are supported by sufficient, reliable evidence.

Complaint Counsel's argument that CB&I implemented its first price increase to Linde in April 2002 is based on testimony from a fact witness' comparison of CB&I's budget price to a three year old PDM firm fixed price and his comparison to an outdated pricing model. F. 341-44. The witness admitted several deficiencies in his pricing model. F. 344. Although the

witness may have believed the price was high, the opinion that the price actually increased is not reliable and is disregarded.

Complaint Counsel's argument that CB&I implemented a second price increase to Praxair in June 2002 is based on Complaint Counsel's assertion, with no cites to record evidence, that the difference in CB&I's price to Praxair and CB&I's price to Linde is only [            ], or less than [            ]. CCPFF 1075 (*in camera*). Next, Complaint Counsel hypothesizes that because CB&I's price to Linde increased by 8.7%, and because the Linde tank is similar in size to the Praxair tank, and because CB&I's price to Praxair was close to CB&I's price to Linde, then CB&I's price to Praxair must have increased 8.7%. CCPFF 1072-76. This conclusion is not supported by sufficient probative evidence. First, it is based on Complaint Counsel's theory - that is rejected in the preceding paragraph - that CB&I implemented an 8.7% price increase to Linde in April 2002. Second, because of differences in the details, such as construction schedule, location, conditions of the project site, provided by Praxair and Linde to CB&I and because of differences between the tank specifications, Complaint Counsel's comparison is speculative. F. 336-37, 345, 347-48. Therefore, Complaint Counsel did not present reliable evidence to support its allegation that CB&I implemented an 8.7% price increase to Praxair in June 2002.

Complaint Counsel's theory of a third instance of an 8.7% price increase to Praxair in April 2002 is based on a comparison between PDM's budget price for a 500,000 gallon LOX tank in Colorado in November 2000 to CB&I's budget price for a LR-60 LIN tank in New Mexico in April 2002. CCPFF 1077-1085. CB&I's estimating staff was instructed to use PDM's price on the Colorado Springs LOX tank as a basis for determining the price for Praxair's New Mexico LIN tank. F. 350. Complaint Counsel compared these two budget prices and concluded that the difference in price amounts to an 8.7% price increase. The documents Complaint Counsel relies upon, CX 448 and CX 449, while admitted into evidence, were never used at trial with any witness. CX 448 does not provide technical specifications, including the proposed tank size. Complaint Counsel has not presented evidence that the design of the Colorado LOX tank and the New Mexico LIN tank are identical. Thus, Complaint Counsel's argument that differences in the prices is the result of an exercise of market power is not supported by reliable and probative evidence. Accordingly, the evidence does not support Complaint Counsel's allegation that CB&I implemented an 8.7% price increase to Praxair in April 2002.

#### **d. TVC market**

Complaint Counsel alleges that, after the letter of intent for the Acquisition was signed, CB&I and PDM colluded regarding pricing for Spectrum Astro's proposed TVC project. CCPTB at 31-32. Complaint Counsel first points to a handwritten internal note reflecting a conversation between CB&I's Chief Operating Officer and PDM's President of PDM EC calling this project "D.O.A." (CX 1705 at PDM-HOU009169). Complaint Counsel also points to an internal CB&I memorandum from a low-level salesman (Dave Lacey) to support its argument. CCPTB at 31 (citing CX 242, *in camera*). The evidence does not establish that issues of pricing, profit margins, costs or anything else related to this project were discussed between PDM and CB&I. (Scorsone, Tr. 4796-97, 5045-46; Scully, Tr. 1217).

Complaint Counsel alleges that, after the Acquisition, CB&I increased its price for the Spectrum Astro project. CCPTB at 32. The evidence presented does not establish this allegation. F. 423-41.

Complaint Counsel alleges that, after the Acquisition, CB&I attempted to coordinate a pricing proposal with Howard Fabrication for TRW's proposed TVC project. CCPTB at 31-32. The evidence presented does not demonstrate that anyone in CB&I's management was aware of or approved such a proposal. F. 446-51.

Complaint Counsel alleges that, after the Acquisition, CB&I increased its price on a [ ] project. F. 454-70 (*in camera*). The evidence presented does not conclusively establish this allegation.

#### e. Conclusion

Complaint Counsel's evidence in support of many of its allegations of price increases implemented by CB&I after the Acquisition does not prove that CB&I has in fact increased prices. However, Complaint Counsel is not required to prove that anticompetitive effects have in fact occurred. "The Government is not required to establish with certitude that competition in fact will be substantially lessened." *Crown Zellerbach Corp. v. FTC*, 296 F.2d 800, 823 n.21 (9<sup>th</sup> Cir. 1961) (citation omitted). Because § 7 deals in "probabilities, not certainties," "the mere nonoccurrence of a substantial lessening of competition in the interval between acquisition and trial does not mean that no substantial lessening will develop thereafter . . . ." *General Dynamics*, 415 U.S. at 505 (quoting *Brown Shoe*, 370 U.S. at 323).

Complaint Counsel did prove that, prior to the Acquisition, in all four product markets, there were two primary competitors, and that, as a result of the Acquisition, there is now one dominant firm. A merger of the two strongest suppliers enables CB&I to increase prices up until the point where other less-strong suppliers begin to constrain it. There can be no doubt that CB&I has the ability to exercise market power as a result of its acquisition of the only other competitor that had constrained CB&I. Complaint Counsel presented reliable and probative evidence to carry its burden of persuasion that the probability of a substantial lessening of competition did exist at the time of trial.

#### F. Exiting Assets Defense

Respondents assert an affirmative defense of "exiting assets." Respondents definitively state that "CB&I does not assert the failing firm defense, . . . which requires a showing that the acquired company is 'so depleted and the prospect of rehabilitation so remote' that it is at risk of 'the grave possibility of business failure' and that 'the company that acquires the failing company . . . is the only available purchaser.'" RPTB at 153-54 (quoting *Citizen Publ'g v. United States*, 394 U.S. 131, 138 (1969)).<sup>3</sup> Rather, Respondents argue that the "exiting assets" defense is a

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<sup>3</sup> The criteria for establishing a failing company are not met by PDM. F. 535-45.

viable defense to Complaint Counsel's allegations. RPTB at 152-55. Respondents acknowledge that "there has been no case since *Olin* asserting the defense until this case was tried." RPTB at 154-55 n.29.

Respondents claim that, absent the Acquisition, PDM would have liquidated its EC Division and that there was no potential purchaser other than CB&I. RPTB at 138-52. Under these circumstances, Respondents argue that there has been no substantial lessening of competition, because competition if CB&I had not bought PDM EC is exactly the same as competition after CB&I's acquisition of PDM EC. RPTB at 152-55.

Complaint Counsel asserts that the "exiting assets" defense is not based on any accepted law, but rather upon a 1986 law review article, and that the Commission has rejected this defense. Complaint Counsel's Post Trial Reply Brief ("CCPTRB") at 62. Complaint Counsel further asserts that Respondents failed to establish that CB&I was "the only available purchaser" for PDM's EC and Water Divisions, that PDM conducted an "exhaustive" search for alternative buyers, and that PDM's EC Division was actually exiting the market. CCPTRB at 63-70.

The defense presented by Respondents is similar to the one rejected in *United States v. Phillips Petroleum Co.*, 367 F. Supp. 1226, 1258 (C.D. Cal. 1973), where the court rejected the defense that since the acquired company "would have gone out of business on the West Coast anyway, the acquisition of its assets by [defendant] did not result in any anticompetitive effect in the market." *Id.* "[U]nless the seller objectively comes within the 'failing company' doctrine, it is irrelevant why one corporation sells its assets to another." *Id.*

The exiting assets defense, as described by a law review article, has as its "key element . . . proof that, without the merger, the assets owned by the acquired firm would shortly be leaving the market." John E. Kwoka, Jr. & Frederick R. Warren-Boulton, *Efficiencies, Failing Firms, and Alternatives to Merger: A Policy Synthesis*, 31 Antitrust Bull. 431, 446 (1986) (cited in *Olin Corp. v. FTC*, 986 F.2d 1295, 1307 (9<sup>th</sup> Cir. 1993)). The exiting assets defense was first presented to the Commission in *In re Olin Corp.*, 113 F.T.C. 400 (1990). In *Olin*, the ALJ characterized the exiting assets defense as a "novel policy proposal" and held that, even if the "novel 'exiting assets' doctrine" was accepted, it would not save the challenged acquisition. 113 F.T.C. at 582-84. The ALJ found that there were alternatives short of merger and that the evidence failed to show that the acquired company made an unsuccessful effort to sell its business to a competitively preferable buyer and failed to show that there were no competitively preferable acquirers. *Id.* at 583.

On appeal from the initial decision, the Commission held that the evidence in *Olin* did not establish that the selling company had made the decision to close the relevant business at issue in the near future (instead, the evidence showed that the selling company continued to operate the facility in the expectation that the facility could at some point be sold) and that there was no evidence that the selling company had conducted an exhaustive effort to sell the assets at issue. *Olin*, 113 F.T.C. at 618. Based on these factual findings, the Commission concluded "the facts would not support the description of the proposed defense, even if we adopted the defense, and we decline to do so in this case." *Id.*

On appeal from the Commission's decision, the Court of Appeals for the Ninth Circuit did not adopt the exiting assets defense either. Rather, it characterized the defense as "novel," stated that the Commission had indicated that it was not inclined to recognize this defense, and held that the "burden of proof is undoubtedly on Olin to establish *any such* defense." 986 F.2d at 1307 (emphasis added).

A finding that the assets would not be exiting the relevant market "shortly" is sufficient to sustain a ruling that CB&I did not establish an "exiting assets" defense. *See Olin*, 986 F.2d at 1307 (The Ninth Circuit did not need to determine whether or not less anticompetitive alternatives to the merger existed.). In *Olin*, the respondent had not demonstrated that assets would be exiting the market shortly where: (1) the evidence did not establish that the selling company had made the decision to close the business in the near future; and (2) there was no evidence that the selling company had conducted an *exhaustive* effort to sell the relevant assets to any companies other than respondent. *Olin*, 113 F.T.C. at 618 (emphasis added).

To the extent that an exiting assets defense is legally recognizable, the facts presented in the instant case do not support the proposed defense. First, Respondents did not establish that PDM would have closed the business in the near future. Second, Respondents did not establish that PDM had conducted an exhaustive effort to sell the EC Division to any company other than CB&I.

Because *Olin* is the only case law found specifically addressing an exiting assets defense, cases analyzing failing company or failing division defenses are utilized. Cases analyzing a failing company defense hold that intent to leave the market is not sufficient to establish the defense. *E.g.*, *Phillips Petroleum*, 367 F. Supp. at 1260 (subjective statements of management intention or desire by management to exit the business does not satisfy the defense); *Warner Communications*, 742 F.2d at 1165 ("a company's stated intention to leave the market or its financial weakness does not in itself justify a merger"); *Blue Bell*, 395 F. Supp. at 550 (company's intention to divest itself of a certain division is immaterial).

Respondents' argument that PDM intended to leave the market is not supported by the evidence presented at trial. Mr. Scorsone, the former President of PDM EC, testified that if the EC Division had not been sold, it would not have gone out of business, and that it would be profitable in the future. F. 548. Mr. Byers, former V.P. of Finance for PDM, testified that before making any recommendation to liquidate the PDM EC Division, his fiduciary duties would have required him to investigate to assure himself that there was no alternative purchaser for either PDM or PDM EC willing to pay more than the liquidation value of the business. F. 549. PDM's investment banker, Tanner & Company ("Tanner"), would also have attempted to find alternative purchasers prior to recommending liquidation. F. 550. PDM's President, William McKee, stated that if the CB&I transaction fell through, PDM would have continued its efforts to sell the PDM EC and PDM Water Divisions by seeking other purchasers. F. 551. Finally, PDM's Board of Directors never took up the issue of liquidating the PDM EC Division. F. 552.

Thus, the evidence does not establish that PDM had made the decision to close the business in the near future. Respondents' defense may be rejected on this basis. *Citizen Publ'g*,

394 U.S. at 136 (rejecting defense where there was “no indication that the owners of the Citizen were contemplating a liquidation”).

In addition, Respondents did not present sufficient evidence to demonstrate that PDM conducted an exhaustive effort to sell the package of assets sold to CB&I. Respondents have not made a “clear showing” that PDM “undertook a well conceived and thorough canvas of the industry such as to ferret out viable alternative partners.” *United States v. Pabst Brewing Co.*, 296 F. Supp. 994, 1002 (E.D. Wis. 1969) (defendant had burden of proving that it had made every reasonable effort to explore alternative possibilities).

Tanner assembled a preliminary list of potential buyers, including 18 steel companies, 15 engineering and construction companies, and 4 financial buyers. F. 528. This list was presented to the PDM Board on June 1, 2000. F. 528. Among the companies identified by Tanner as potential acquirers of PDM EC were Fluor, Jacobs Engineering, Foster Wheeler, and Morrison Knudsen. F. 529. However, to Mr. Byers’ knowledge, none of these companies were contacted about acquiring PDM. F. 529. Tanner never contacted any foreign firms regarding the purchase of PDM EC. F. 530.

In July of 2000, PDM announced that it would sell the company. F. 525. Tanner prepared an offering memorandum for the sale of the PDM EC Division. F. 517. This offering memorandum was sent to only one company – CB&I. F. 517. By the time the offering memorandum was completed, negotiations between CB&I and PDM were at a point “that it didn’t make sense to send it out to other people.” F. 518.

These efforts in no way rise to the level sufficient to sustain the proposed defense. For example, in *California v. Sutter Health Sys.*, the defendant’s efforts to seek offers from other potential purchasers satisfied an element of a failing company defense where defendant proved that it had conducted a three-year “extensive good faith search for purchasers” in which it “formulated a detailed and thorough proposal process and sought out numerous potential partners.” 130 F. Supp. 2d 1109, 1136 (N.D. Cal. 2001). One “expression of interest” came only after the defendant “repeatedly contacted” the potential buyer who “failed to make any offer in response to these inquiries.” *Id.* Further, the efforts taken by PDM were even less exhaustive than those found to be insufficient in *FTC v. Harbour Group Invs.*, 1990 U.S. Dist. LEXIS 15542, \*12-13 (D.D.C. Nov. 19, 1990), where the efforts made by the investment banker did not comport with its normal exhaustive search; where the offering materials were minimal, containing a brief two page executive summary with financial information and product brochures attached; and the search consisted of minimal exploratory phone calls, with little follow-up or attention by the brokers who were responsible for the search.

Financial buyers, who would have maintained PDM as an independent on-going entity, were available and had been recommended by Goldman Sachs and by Tanner as alternative buyers. F. 526. Matrix, then the third-largest United States tank constructor, made efforts to buy PDM EC. F. 531. Tanner’s fairness opinion, dated February 7, 2001, noted that if CB&I’s acquisition of PDM EC and Water Divisions fell through, there were other potential buyers with the interest and adequate resources to purchase PDM EC. F. 532.

Because Respondents have not presented sufficient evidence to demonstrate that PDM had made the decision to close the business in the near future and that PDM had conducted an exhaustive effort to sell the assets sold to CB&I, Respondents have not demonstrated that the assets would be exiting the market shortly. Thus, to the extent that exiting assets is a viable defense, Respondents have not met their burden of establishing it.

## **G. Summary of Liability**

Count I of the Complaint charges that “[t]he effect of the Acquisition may be substantially to lessen competition or tend to create a monopoly in violation of Section 7 of the Clayton Act, 15 U.S.C. § 18, and Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45.” Count II of the Complaint charges that “CB&I and PDM, through the Acquisition and the Acquisition agreement described in Paragraph 8 [of the Complaint], have engaged in unfair methods of competition in or affecting commerce in violation of Section 5 of the Federal Trade Commission Act, 15 U.S.C. § 45.” Complaint Counsel has presented reliable and probative evidence to support Counts I and II of the Complaint.

## **H. Remedy**

### **1. Standard**

Complaint Counsel has established that the acquisition of PDM’s Water and EC Divisions by CB&I may substantially lessen competition in the relevant markets and, thus, has established that Respondents violated Section 7 of the Clayton Act. Pursuant to Section 11(b) of the Clayton Act:

If upon such hearing the Commission . . . shall be of the opinion that any of the provisions of [Section 7] have been or are being violated, it *shall* . . . issue and cause to be served on such person an order requiring such person to cease and desist from such violations, and *divest* itself of the . . . assets, held . . . in the manner and within the time fixed by said order.” 15 U.S.C. § 21(b) (emphasis added).

Through Section 11 of the Clayton Act, Congress expressly directed the FTC to issue orders requiring that a violator of § 7 divest itself of the assets held in violation of the Clayton Act. *Am. Stores*, 495 U.S. at 284-85 and n.11; *FTC v. Western Meat Co.*, 272 U.S. 554, 559 (1926) (Commission has a duty to issue an order directing that a violator of § 7 “cease and desist therefrom and divest itself of what it had no right to hold.”).

Under both the text of the Clayton Act and Supreme Court precedent, divestiture is the usual and proper remedy where a violation of § 7 has been found. *E.I. du Pont*, 366 U.S. at 329 (“The very words of § 7 suggest that an undoing of the acquisition is a natural remedy.”); *Ford Motor Co. v. United States*, 405 U.S. 562, 573 (1972) (“Complete divestiture is particularly appropriate where asset or stock acquisitions violate the antitrust laws.”); *Am. Stores*, 495 U.S. at

285 n.11 (A person who is allowed to continue holding ownership over stock or assets that created a Section 7 violation would be engaging in a perpetual violation, thus divestiture is the only effective remedy.). *See also United States v. El Paso Natural Gas Co.*, 376 U.S. 651, 662 (1964) (directing the district court to order divestiture without delay). “Of the very few litigated § 7 cases which have been reported, most decreed divestiture as a matter of course.” *E.I. du Pont*, 366 U.S. at 330.

Respondents argue that Complaint Counsel’s proposed remedy is not appropriate because Complaint Counsel has not met a burden of presenting evidence relating to the effectiveness of the proposed remedy. RPTB at 158-59 (relying principally on *United States v. Microsoft*, 253 F.3d 34, 46 (D.C. Cir. 2001)). In *Microsoft*, a case brought under the Sherman Act, the Court of Appeals for the D.C. Circuit reversed the district court order of remedy based in large part on the district court’s failure to take evidence concerning remedy. *See id.* at 103. However, as the *Microsoft* Court recognized, merger cases are different from monopolization cases:

By and large, cases upon which plaintiffs rely in arguing for the split of *Microsoft* have involved the dissolution of entities formed by mergers and acquisitions. On the contrary, the Supreme Court has clarified that divestiture “has traditionally been the remedy for Sherman Act violations whose heart is intercorporate *combination and control*,” and that “complete divestiture is particularly appropriate where asset or stock *acquisitions* violate the antitrust laws.”

*Microsoft*, 253 F.3d at 105 (citations omitted) (emphasis added). Thus, *Microsoft* is distinguishable and does not impose on Complaint Counsel the burden of presenting evidence related to the effectiveness of Complaint Counsel’s proposed remedy for this violation of the Clayton Act.

To the contrary, “it is well settled that once the Government has successfully borne the considerable burden of establishing a violation of law, all doubts as to the remedy are to be resolved in its favor.” *E.I. du Pont*, 366 U.S. at 334. In a merger case, “absent clear proof, which is generally likely to come only at the compliance stage when a good faith effort to divest has been made, the presumption should be that an acquired competitive entity can be viably restored to its preacquisition status.” *In re RSR Corp.*, 88 F.T.C. 800, 894 (1976), *aff’d* 602 F.2d 1317 (9<sup>th</sup> Cir. 1979).

Consistent with the Commission’s “duty” to order divestiture, *Am. Stores*, 495 U.S. at 285 n.11, the Commission has held that “the burden rests with the respondent to demonstrate that a remedy other than full divestiture would adequately redress any violation which is found.” *In re Fruehauf Corp.*, 90 F.T.C. 891, 892 n.1 (1977). In *In re Diamond Alkali Co.*, after stating that the most appropriate remedy to redress a Section 7 violation is “generally divestiture,” the Commission held, “exceptions to the general rule can be reasonably invoked . . . only when the proof of their probable efficacy is clear and convincing.” 72 F.T.C. 700, 742 (1967).

In the absence of proof to the contrary the assumption of this Commission must be that “only divestiture can reasonably be expected to restore competition and make the affected markets whole again.” Moreover, if an order of divestiture appears to the Commission to be in all likelihood the most effective available remedy, the Commission need not justify its order beforehand by showing that it will unquestionably restore competition.

*Id.* (citation omitted).

The Commission has ordered divestiture of integrated assets in consummated merger cases numerous times where violations of the Clayton Act have been found. *E.g.*, *Olin*, 113 F.T.C. at 619; *In re Crown Zellerbach Corp.*, 54 F.T.C. 769, 808 (1957), *aff'd*, 296 F.2d 800 (9<sup>th</sup> Cir. 1961); *In re Ekco Prods. Co.*, 65 F.T.C. 1163, 1228-29 (1964), *aff'd* 347 F.2d 745 (7<sup>th</sup> Cir. 1965). In this case, Respondents have not presented compelling arguments or sufficient evidence to depart from the usual remedy of divestiture.

## 2. Divestiture is the appropriate remedy

“In section 7 cases, the principal purpose of relief is to restore competition to the state in which it existed prior to, and would have continued to exist but for, the illegal merger.” *In re B.F. Goodrich*, 110 F.T.C. at 345. The foremost function of divestiture is “the liquidation of the illegally acquired market power.” *United States v. Greater Buffalo Press, Inc.*, 402 U.S. 549, 556 (1971) (citing *Schine Chain Theatres v. United States*, 334 U.S. 110, 127-29 (1948)). Divestiture is limited to assets that were purchased in the illegal acquisition. *Reynolds Metals Co. v. FTC*, 309 F.2d 223, 230-31 (D.C. Cir. 1962); *Luria Bros. & Co. v. FTC*, 389 F.2d 847, 865 (3<sup>rd</sup> Cir. 1968) (An order can only be directed at assets obtained by the buyer “as a result of the illegal acquisition.”).

Complaint Counsel, relying on *Ford*, 405 U.S. at 573 and n.8, urges additional equitable relief to create a viable entity that operates independently of CB&I. Nowhere does *Ford* refer to the use of such relief to increase the competitiveness of the marketplace beyond the level existing prior to the merger. Further, *Ford* concerned the equitable powers of a district court. *Id.* Specific provisions of Complaint Counsel’s proposed order that are designed to force CB&I to give up any after acquired assets or to do more than “restore competition to the state in which it existed prior to . . . the illegal merger[.]” *B.F. Goodrich*, 110 F.T.C. at 345, are rejected.

The record in this case includes evidence on the structure, composition, and competitive viability of PDM and CB&I premerger, the PDM assets and personnel acquired by CB&I, and the disposition of those assets and personnel. F. 545-65. Upon consideration of the entire record in this case, divestiture is hereby ordered.

**a. Complete divestiture**

To “ensure that the package of assets divested is sufficient to give its acquirer a real chance at competitive success,” the Commission may order broad divestiture. *Olin*, 113 F.T.C. at 619-20. In *Olin*, the Commission ordered the respondent to divest a facility that manufactured the relevant product, isocyanurate (ISOS) and a product outside the relevant market, cyanuric acid (CA). The ISOS and CA facilities were located at the same plant. The respondent in *Olin* failed to introduce evidence that the facilities were separate, stand-alone operations, rather than integrated facilities that share common facilities of power, emission control, receiving and shipping, and other functions. *Id.* Because both facilities were intertwined, both were ordered to be divested. *Id.*

In the instant case, the evidence clearly establishes that PDM’s EC and Water Divisions are closely interrelated. F. 566-72. The same personnel, equipment, and fabrication facilities are generally used in the construction of the products of both groups. F. 566-69. The dispositive point is that the assets of both divisions were acquired together by CB&I. F. 554-65. PDM did not find it practical or value optimizing to split the EC and Water Divisions when it evaluated the best course of action for the assets prior to the Acquisition. F. 570-72. Although only the products made by the EC Division are within the affected lines of commerce, the Water Division must be divested along with the EC Division.

**3. Relief**

The record in this case includes evidence on the assets CB&I acquired from PDM. F. 554-65. The evidence establishes that CB&I acquired intellectual property, technology and know-how and other intangible assets related to the relevant products from PDM. F. 564-65. Evidence also establishes that CB&I acquired a number of outstanding contracts from PDM. F. 563.

Upon consideration of the entire record, relief designed to restore competition as it existed prior to the Acquisition is hereby ordered. The attached Order, discussed below, is designed to remedy the anticompetitive effects arising from the Acquisition.

Paragraph II.A.1 orders CB&I to divest all assets, title, properties, interest, rights and privileges purchased from PDM in the Acquisition. CB&I is also ordered to divest all assets that have been purchased by CB&I to replace or maintain assets purchased in the Acquisition. *See B.F. Goodrich*, 110 F.T.C. at 344 (ordering divestiture of all additions and improvements); *Ekco*, 65 F.T.C. at 1228-29 (ordering assets acquired, together with all additions thereto and replacements therefore to be divested).

Paragraphs II.A.2-4 order CB&I to divest all intellectual property or rights to such intellectual property as were purchased by CB&I from PDM in the Acquisition. *See Ekco*, 347 F.2d at 754 (intellectual property subject to divestiture when acquired in contravention of Section 7). Any rights that CB&I acquired to the PDM name shall also be divested. *See Ford*, 405 U.S. at 574.

Paragraphs II.A.5-6 order CB&I to divest all contracts formerly held by PDM and obtained by CB&I in the Acquisition that have not been fully performed. A lag-time provision of 180 days, after the Order becomes final, is included for construction contracts. Complaint Counsel's proposed order sought the divestiture of "45% of the total combined dollar value of CB&I's Tank Business Customer Contracts." Complaint Counsel's Proposed Order ("CCPO") at II.C.3. Such requested relief would require the divestiture of assets not obtained in the Acquisition. This is not appropriate. *Luria Bros.*, 389 F.2d at 865; *Reynolds Metals*, 309 F.2d at 231 ("no basis for ordering divestiture of after acquired properties"). Accordingly, the Order does not require CB&I to divest a portion of its backlog of work or customer contracts entered into by CB&I post-acquisition.

Paragraph II.B. of the Order requires that "[i]f at all possible, irrespective of loss suffered by CB&I, the divested assets shall be sold as a viable going concern that will enhance competition in the relevant markets." For bonding purposes, to be a viable competitor in the LNG market, a company must have a substantial revenue base. F. 586-90. Therefore, to comply with the Order, the Acquirer, if at all possible, must possess the necessary revenue base to actively compete in the LNG market.

The divestiture sale shall be conducted in "good faith," Paragraph II.D., and CB&I is ordered to maintain the assets to be divested, Paragraph V. In conjunction, these provisions prohibit CB&I from disclosing or making available any proprietary information regarding the divested assets to any person, except as is necessary to effect the sale.

Complaint Counsel also sought to require CB&I to transfer 45% of its total full time employees to the Acquirer. CCPO at II.F. Although educated, experienced, and knowledgeable employees are required to build the relevant products, F. 582-85, unlike other necessary assets, such as tools, building supplies, and mechanical equipment, employees are not owned by the company for which they work. Furthermore, Complaint Counsel has cited no authority supporting the proposition that at-will employees are assets that may be divested. Accordingly, this proposed measure is not included in the Order. The Order does, at Paragraph IV, preclude CB&I from granting incentives to its employees or enforcing any non-compete clauses in its employees' contracts in order to prevent its employees from transferring to the Acquiring company.

Paragraph VII orders a divestiture trustee. Complaint Counsel sought both a "monitor trustee," CCPO at V, whose responsibility would be to ensure that Respondents comply with the terms of the Order; and a "divestiture trustee," CCPO at VI, who would be appointed to accomplish the divestiture, in the event that CB&I fails to divest in the manner and time required by the Order. Complaint Counsel has failed to cite any litigated case where a monitor trustee has

been ordered. Although monitor trustees have been used recently to monitor compliance with divestiture agreements where respondents have entered into consent decrees with the FTC, e.g., *Solvay*, 2002 FTC LEXIS 34, \*47 (2002), *America Online, Inc.*, 2001 FTC LEXIS 44, \*37 (2001), this is not persuasive. *E.I. du Pont*, 366 U.S. at 330 n.12 (“the circumstances surrounding . . . negotiated [consent decrees] are so different that they cannot be persuasively cited in a litigation context”). A contingent divestiture trustee is ordered; a monitor trustee is not.

Complaint Counsel sought to require CB&I to provide technical assistance and administrative services to the Acquirer. CCPO at II.I-J. Requiring technical assistance and administrative services may provide an opportunity for anticompetitive behavior. In addition, Complaint Counsel did not demonstrate that technical assistance or administrative services are not available from a source other than CB&I. These assets were not expressly acquired by CB&I in the Acquisition. (*See* CX 328). Therefore, the Order does not require this relief.

Complaint Counsel did not seek to prohibit Respondents from future acquisitions of all or any part of the stock or assets of, or any interest in, any producer of the relevant products. Therefore, such a prohibition is not included in the Order.

#### **IV. SUMMARY OF CONCLUSIONS OF LAW**

1. The Federal Trade Commission (“FTC”) has jurisdiction over the subject matter of this proceeding and over Respondents Chicago Bridge & Iron Company, N.V., Chicago Bridge and Iron Company, and Pitt-Des Moines, Inc. (“PDM”), pursuant to Section 5 of the Federal Trade Commission Act (“FTC Act”), 15 U.S.C. § 45, and Sections 7 and 11 of the Clayton Act, 15 U.S.C. §§ 18, 21(b).

2. Chicago Bridge & Iron Company N.V., and Chicago Bridge & Iron Company, a corporation (collectively, “CB&I”) is a corporation, as “corporation” is defined in Section 4 of the Federal Trade Commission Act, 15 U.S.C. § 44.

3. Respondents were engaged in commerce, as “commerce” is defined in Section 1 of the Clayton Act, as amended, 15 U.S.C. § 12, and affected commerce, as “commerce” is defined in Section 4 of the FTC Act, as amended, 15 U.S.C. § 44.

4. On or about February 7, 2001, CB&I acquired PDM’s Water and Engineered Construction (“EC”) Divisions, (“the Acquisition”). The Acquisition is a transaction subject to Section 7 of the Clayton Act, 15 U.S.C. § 18, and Section 5 of the FTC Act, 15 U.S.C. § 45.

5. Section 7 of the Clayton Act prohibits any acquisition of stock or assets “where in any line of commerce . . . in any section of the country, the effect of such acquisition may be substantially to lessen competition or to tend to create a monopoly.” 15 U.S.C. § 18.

6. Section 7 of the Clayton Act is designed to arrest in its incipiency the substantial lessening of competition from the acquisition by one corporation of the assets of a competing

corporation. Section 7 does not require proof from Complaint Counsel that a merger has caused higher prices in the affected market. To satisfy Section 7, Complaint Counsel need only show a reasonable probability that the proposed transaction would substantially lessen competition in the future.

7. The appropriate lines of commerce within which to evaluate the probable competitive effects of the Acquisition are: large, field-erected: (1) liquefied natural gas ("LNG") storage tanks (individually, or as a component of an import terminal or a LNG peak shaving plant); (2) refrigerated liquid petroleum gas ("LPG") storage tanks; (3) liquid nitrogen, oxygen and argon ("LIN/LOX") storage tanks; and (4) large (over 20 feet in diameter) thermal vacuum chambers ("TVCs").

8. The appropriate section of the country within which to evaluate the probable competitive effects of the Acquisition is the United States.

9. The government has the burden of showing that the Acquisition would produce a firm controlling an undue percentage share of the relevant markets and would result in a significant increase in the concentration of the firms in those markets. A merger which significantly increases the share and concentration of firms in the relevant markets is so inherently likely to lessen competition that it is considered presumptively invalid.

10. Complaint Counsel established its *prima facie* case by showing that the Acquisition produces a firm controlling an undue percentage share in each of the four relevant markets. Complaint Counsel established that CB&I and PDM were the number one and two competitors in all four product markets and that no other company provides effective competition.

11. Finding a *prima facie* violation of Section 7 creates a rebuttable presumption of anticompetitive effects and shifts the burden of going forward with evidence to Respondents. Respondents have the burden of producing evidence that shows that the market share statistics supporting the *prima facie* case give an inaccurate account of the Acquisition's probable effects on competition.

12. Respondents have not demonstrated that the market share statistics give an inaccurate prediction of the Acquisition's probable effects on competition.

13. Respondents may rebut the *prima facie* case by demonstrating that entry by other firms would likely avert the Acquisition's probable effects on competition by acting as a constraint on CB&I's exercise of market power. Respondents may rebut the *prima facie* case by demonstrating that barriers to entry are so low that the threat of entry can significantly alter the anticompetitive effects of the merger by deterring the remaining entities from exercising market power.

14. Respondents have not demonstrated that actual or potential entrants constrain CB&I's exercise of market power. Due to high barriers, entry by new manufacturers or the

expansion of existing manufacturers is not likely to avert the anticompetitive effects of the Acquisition in the relevant markets.

15. Respondents have not produced any significant evidence rebutting the presumption of a violation of Section 7 of the Clayton Act.

16. Because Respondents did not produce evidence sufficient to rebut the presumption of a violation of Section 7 of the Clayton Act, the burden of producing further evidence of anticompetitive effects did not shift to Complaint Counsel.

17. Respondents have presented an exiting assets defense. To the extent that an exiting assets defense is a valid defense, Respondents have not demonstrated that PDM EC's assets would have left the market in the near future or that PDM had conducted an exhaustive effort to sell the EC Division to a company other than CB&I.

18. The Acquisition is likely to increase CB&I's ability to raise prices unilaterally in the relevant markets because the Acquisition eliminates competition from PDM, CB&I's closest competitor. The Acquisition is a merger involving the first and second lowest-cost sellers which could cause prices to rise to the constraining level of the next lowest-cost seller.

19. The Acquisition violates Section 7 of the Clayton Act because "the effect of such acquisition may be substantially to lessen competition or to tend to create a monopoly." 15 U.S.C. § 18. The Acquisition also constitutes an unfair method of competition in or affecting commerce in violation of Section 5 of the FTC Act. 15 U.S.C. § 45.

20. Complaint Counsel met its burden of proof in support of Count I and Count II of the Complaint.

21. Divestiture is the proper remedy.

22. Complete divestiture of all assets acquired in the Acquisition is required to restore competition as it existed prior to the Acquisition.

23. Relief designed to restore competition as it existed prior to the Acquisition is appropriate.

24. The Order entered hereinafter is necessary and appropriate to remedy the violations of law found to exist.

## ORDER

### I.

**IT IS HEREBY ORDERED** that for the purposes of this Order, the following definitions shall apply:

- A. “Acquirer” means an entity approved by the Commission who purchases the assets divested, pursuant to this Order.
- B. “Acquisition” means the transaction consummated on February 7, 2001, whereby CB&I purchased PDM’s Water and Engineered Construction (“EC”) Divisions.
- C. “CB&I” means Chicago Bridge & Iron Company N.V. and Chicago Bridge & Iron Company, individually and collectively.
- D. “Chicago Bridge & Iron Company N.V.” means Chicago Bridge & Iron Company, N.V.; its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; its subsidiaries, divisions, groups, and affiliates controlled by Chicago Bridge & Iron Company N.V.; and the respective directors, officers, employees, agents and representatives, successors, and assigns of each.
- E. “Chicago Bridge & Iron Company” means Chicago Bridge & Iron Company; its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; its subsidiaries, divisions, groups, and affiliates controlled by Chicago Bridge & Iron Company; and the respective directors, officers, employees, agents and representatives, successors, and assigns of each.
- F. “Commission” means Federal Trade Commission.
- G. “Divestiture Trustee” means a person, with experience and expertise in acquisitions and divestitures, appointed by the Commission to effect the divestiture requirements of this Order.
- H. “PDM” means Pitt-Des Moines, Inc.; its directors, officers, employees, agents and representatives, predecessors, successors, and assigns; its subsidiaries, divisions, groups, and affiliates controlled by Pitt-Des Moines, Inc.; and the respective directors, officers, employees, agents and representatives, successors, and assigns of each.

## II.

### IT IS FURTHER ORDERED that:

- A. No later than one hundred and eighty (180) days from the date that this Order becomes final, CB&I shall completely divest all assets, title, properties, interest, rights and privileges, of whatever nature, purchased from PDM in the Acquisition. This divestiture shall be complete and shall include, but is not limited to, all buildings, machinery, equipment, raw material reserves, inventory, customer lists, trade names, trademarks, patents, and any other assets, of whatever description, that were acquired by CB&I from PDM in the Acquisition.
1. Complete divestiture shall include any assets that have been purchased by CB&I to replace or maintain assets purchased in the Acquisition.
  2. Complete divestiture shall include any intellectual property or any rights to intellectual property as were purchased by CB&I from PDM in the Acquisition. Any rights acquired by CB&I to the "Pitt-Des Moines," "PDM," "Pitt-Des Moines EC," "PDM EC," "Pitt-Des Moines Water," and "PDM Water" names or any other variation of these names shall be divested.
  3. Complete divestiture shall include a worldwide, royalty-free, perpetual, irrevocable, transferable, sublicensable, non-exclusive license to all intellectual property that was (1) created in part by former PDM employees who became employed by CB&I as a result of the Acquisition or (2) was premised in part upon intellectual property formerly owned by PDM and transferred to CB&I in the Acquisition.
  4. Complete divestiture shall include a worldwide, royalty-free, perpetual, irrevocable license to any intellectual property owned by CB&I that would block Acquirer's legal use of the intellectual property that shall be required to be licensed to Acquirer, pursuant to Paragraph II.A.3 of this Order.
  5. Complete divestiture shall include the assignment of all construction contracts formerly held by PDM and obtained by CB&I in the Acquisition that have not been fully performed by CB&I one hundred and eighty (180) days after this Order becomes final. Acquirer shall compensate CB&I in *quantum meruit* for any work completed under these contracts by CB&I prior to assignment. If a third party's consent must be obtained to assign

any of these contracts, CB&I must use all available means, in good faith, to obtain such consent.

6. Complete divestiture shall include all non-construction contracts formerly held by PDM and obtained by CB&I in the Acquisition that have either not been fully performed by CB&I or that have not yet expired. These contracts include, but are not limited to, sales representative agreements, cooperation agreements, license agreements, partnership agreements, term employment contracts, and leases. If a third party's consent must be obtained to assign any of these contracts, CB&I must use all available means, in good faith, to obtain such consent.
- B. If at all possible, irrespective of loss suffered by CB&I, the divested assets shall be sold as a viable going concern that will enhance competition in the relevant markets.
  - C. Prior to the execution of the divestiture sale, a full accounting of all assets purchased in the Acquisition shall be provided to the Commission. The accounting shall disclose the approximate value, both at the time of the Acquisition and at the time that this Order becomes final; the current location; and the current condition of all of the assets purchased in the Acquisition. In the event that an asset is no longer in the possession of CB&I, any consideration received for the sale of such an asset shall be disclosed.
  - D. The divestiture sale shall be conducted in good faith, at no minimum price, and in compliance with the laws of the United States. The Acquirer, a divestiture agreement, and the manner of the sale must be approved by the Commission prior to the execution of the divestiture sale. The divestiture agreement shall not vary from or contradict, or be interpreted to vary from or contradict, the terms of this Order.
  - E. The divested assets shall not be sold or transferred, directly or indirectly, to any entity that at the time that this Order becomes final is a substantial stockholder, officer, director, employee, agent of, or otherwise directly or indirectly connected with or under the control or influence of CB&I.

**III.**

**IT IS FURTHER ORDERED** that CB&I shall comply with all terms of the divestiture agreement to be approved by the Commission, pursuant to Paragraph II.D of this Order. The divestiture agreement shall be deemed incorporated by reference into this Order, and any failure by CB&I to comply with the terms of the divestiture agreement shall constitute a failure to comply with this Order.

**IV.**

**IT IS FURTHER ORDERED** that CB&I shall, from the date that this Order becomes final and extending for a period of two (2) years after the divestiture required by Paragraph II.A of this Order is completed: (1) not offer or provide any incentive to any employee of CB&I to decline employment with the Acquirer; (2) waive any non-compete clauses in CB&I employees' contracts that would prevent such employees from seeking employment with the Acquirer.

**V.**

**IT IS FURTHER ORDERED** that from the date that this Order becomes final, until such time as the divestiture required by Paragraph II.A of this Order is completed, CB&I shall take all measures necessary to maintain all assets ordered to be divested in their accounted for condition and to prevent any further deterioration, except normal wear and tear, so as to not impair the assets' operating viability, marketability, or confidentiality, if applicable.

**VI.**

**IT IS FURTHER ORDERED** that:

- A. CB&I shall, within sixty (60) days from the date that this Order becomes final and every sixty (60) days thereafter, for one (1) year from the date that the divestiture required by Paragraph II.A of this Order is completed, submit in writing to the Commission a verified compliance report. Each report shall set forth, in detail, the manner and form in which CB&I intends to comply, is complying, or has complied with each of the requirements of this Order.
- B. CB&I shall include in the compliance reports, among other relevant information requested by the Commission, a description of all substantive contracts or negotiations relating to the divestiture, both oral and written; the identity of all potential Acquirers; copies of all written communications (including email) to and

from such entities regarding the divestiture; internal documents and communications relating to the divestiture; and a statement that the provisions of this Order have been and are being fully complied with.

## VII.

**IT IS FURTHER ORDERED** that:

- A. If CB&I has not fully complied with Section II.A of this Order within one hundred and eighty (180) days of this Order becoming final, the Commission may, at its discretion and at any time thereafter, appoint a Divestiture Trustee to fulfill the requirements of Paragraph II.A. This provision by no means hinders either the Commission or the U.S. Attorney General from seeking civil penalties or a court-appointed trustee for any violation of this Order by CB&I.
- B. If a Divestiture Trustee is appointed, that Divestiture Trustee shall have the following powers, duties, authority, and responsibilities:
1. Subject to the prior approval of the Commission, the Divestiture Trustee shall have the exclusive authority to effect the divestiture, in accordance with the requirements of this Order, for which the Divestiture Trustee has been appointed.
  2. Within ten (10) days of the Divestiture Trustee's appointment, CB&I shall grant the Divestiture Trustee, with the prior approval of the Commission, all of the rights and powers necessary to effect the divestiture for which the Divestiture Trustee has been appointed.
  3. The Divestiture Trustee shall have twelve (12) months, from the date that the Commission approves the grant of rights and powers, to complete the divestiture in accordance with this Order. This temporal duration may be extended for good cause or extenuating circumstances with the consent of the Commission.
  4. CB&I shall provide the Divestiture Trustee with full and complete access to personnel, books, records, facilities, or any other information that is related to the assets ordered to be divested. CB&I shall cooperate with the Divestiture Trustee in good faith and comply with any reasonable requests for the production of additional relevant information. Should CB&I delay or hinder the Divestiture Trustee, the duration of time lost due to the delay or hindrance shall be credited to the twelve-month temporal deadline for completion of the divestiture.

5. Best efforts shall be used by the Divestiture Trustee to negotiate the most favorable price and terms available for the assets being divested; but at the same time, the Divestiture Trustee shall seek to submit the proposed sales contracts to the Commission as promptly as possible at no minimum price. If the Divestiture Trustee receives good faith offers from more than one eligible potential Acquirer, and if the Commission approves more than one of these entities, the Divestiture Trustee shall divest the assets to the Acquirer that is selected by CB&I from those approved by the Commission. However, if CB&I does not respond within five (5) business days to the Commission's request for such a selection, the Divestiture Trustee shall have complete discretion in choosing the Acquirer from those entities approved by the Commission.
6. The Divestiture Trustee shall serve without bond or other security, at the cost and expense of CB&I, on such reasonable and customary terms and conditions as the Commission may set. The Divestiture Trustee shall have the authority to employ, at the cost and expense of CB&I, such consultants, accountants, attorneys, investment bankers, business brokers, appraisers, and other representatives and assistants as are necessary to carry out the Divestiture Trustee's duties and responsibilities. The Divestiture Trustee shall account for all consideration derived from the sale and all expenses incurred. Upon approval by the Commission of the Divestiture Trustee's accounting, all remaining fees and expenses shall be paid and the remainder of the consideration shall be distributed at the discretion of CB&I. Following the final distribution, the Divestiture Trustee's power and authority shall be terminated.
7. CB&I shall indemnify and hold the Divestiture Trustee harmless against any losses, claims, damages, liabilities, or expenses arising out of or in connection with the performances of the Divestiture Trustee's duties. This indemnification shall include all reasonable fees for counsel and other expenses incurred in connection with the preparation for or defense of any claim, whether or not resulting in any liability, except to the extent that such liabilities, losses, damages, claims, or expenses result from gross negligence or willful misconduct by the Divestiture Trustee. This indemnification shall be inclusive of all agents of or entities retained by the Divestiture Trustee, pursuant to Paragraph VII.B.6 of this Order.
8. The Commission may appoint a substitute in the event that the Divestiture Trustee fails to perform in a diligent manner, acts with gross negligence, or engages in willful misconduct.

9. The Divestiture Trustee shall have no obligation or authority to operate or maintain the assets ordered to be divested.
  10. The Divestiture Trustee shall report to the Commission, in writing, every sixty (60) days to inform it of the Divestiture Trustee's efforts to complete the ordered divestiture.
- C. The Commission may, at the request of the Divestiture Trustee, issue such additional orders or directions, within the scope of this Order, as may be necessary or appropriate to further the completion of the divestiture.

#### VIII.

**IT IS FURTHER ORDERED** that CB&I shall provide a copy of this Order to each of CB&I's officers, employees, or agents possessing managerial responsibility relating to any of the provisions contained in this Order, no later than ten (10) days after the date that this Order becomes final.

#### IX.

**IT IS FURTHER ORDERED** that CB&I shall notify the Commission at least thirty (30) days prior to any proposed change in the corporate structure or financial condition of CB&I that could affect compliance with the requirements of this Order, including, but not limited to, dissolution, assignment, sale, merger, sale or dissolution of subsidiaries, or bankruptcy.

#### X.

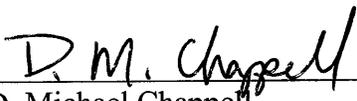
**IT IS FURTHER ORDERED** that, for the purpose of determining or securing compliance with this Order, subject to any legally recognized privilege, and upon written request with reasonable notice, CB&I shall permit any authorized agent of the Commission:

- A. Access, during office hours and in the presence of counsel, to all relevant facilities and documents. Such documents that may be inspected and copied include, but are not limited to, non-privileged books, ledgers, accounts, and correspondence

memoranda that are in the possession of or under the control of CB&I and relate to any matter contained in this Order.

- B. Access to interview CB&I's officers, directors, or employees who may possess information relevant to any matter contained in this Order. Counsel may be present for such interviews.

**ORDERED:**

  
\_\_\_\_\_  
D. Michael Chappell  
Administrative Law Judge

Date: June 18, 2003