

(Filed March 31, 1999)

FRU-CON CONSTRUCTION CORPORATION,

Plaintiff,

v.

THE UNITED STATES,

Defendant.

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* Contracts; Contract Disputes Act

* of 1978, 41 U.S.C.A. §§ 601-

* 613 (West 1987 & Supp. 1998);

* differing site conditions; notice;

* claim for loss of productivity;

* duty to record events

* contemporaneously.

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Val S. McWhorter, Vienna, VA, for plaintiff. Mark E. Hanson and Claire E. Kresse, Smith, Pachter, McWhorter & D'Ambrosio, P.L.C., of counsel.

Sean C. Griffin, Washington, DC, with whom was Assistant Attorney General Frank W. Hunger, for defendant. Rian Hancks, Rock Island District Army Corps of Engineers, Rock Island, IL, of counsel.

OPINION

MILLER, Judge.

The questions presented in this case, before the court after trial, are whether plaintiff encountered a differing site condition in repairing the walls of a lock and dam project and whether plaintiff is entitled to an equitable adjustment for unusually severe weather through which plaintiff was forced to accelerate in the face of significantly diminished productivity. The theme permeating this litigation is the consequences of failing to alert the Government of a condition for which a contractor does not intend to accept responsibility and of failing to keep contemporaneous records.

FACTS

On September 2, 1993, the Department of the Army, Rock Island District, Corps of Engineers (the "Corps") awarded Contract No. DACW25-93-C-0112 to Fru-Con Construction Corporation ("plaintiff") at a bid price of \$12,364,526.10. This fixed-price contract contemplated the rehabilitation of three lock and dam sites along the Illinois Waterway. The required work included, *inter alia*, the removal of

existing mitre gates, the installation of new mitre gates, and the installation of eight new floating mooring bitts ("FMBs"). FMBs are barrel-shaped metal structures that rest within guides embedded in the concrete lock walls. The FMBs float in the lock chamber and assist in stabilizing passing tows when the level of water within the lock chamber rises and falls. Specifically, the contract provided for the removal of concrete from the lock chamber walls to permit the installation of four FMBs at the Brandon Road lock and dam site, three at the Marseilles lock and dam site, and one at the Dresden Island lock and dam site. The contract mandated that the mitre gate and FMB installations be completed within a 60-day lock closure period commencing on July 11, 1995, and ending on September 8, 1995. (1) The Corps closed the locks to navigation during this 60-day period to permit plaintiff to dewater the locks and work within the lock chambers. As a result of the lock closure, an 82-mile portion of the Illinois Waterway was removed from active service. Recognizing the need to reopen the locks on time in order to permit barges to pass prior to the winter freeze, the contract provided that liquidated damages in the amount of \$20,695.00 could be assessed for each day the lock remained closed after September 8, 1995.

Although not involved in the performance of the Illinois Waterway project, Mr. Richard L. Allen was the Chief Estimator who prepared plaintiff's bid. Mr. Allen was employed by plaintiff for approximately ten years. During his tenure with plaintiff, Mr. Allen was also the Operations Manager for a project on the Oliver lock and dam site. (2) Mr. Allen testified that his responsibilities included selecting the projects on which to bid, attending pre-bid meetings, examining the job sites, and organizing all estimating efforts. He attended the pre-bid meeting at the lock sites for the Illinois Waterway project. Mr. Allen testified that the Corps provided a brief description of the work to the contractors after which he examined the Marseilles lock site before moving on to the other two sites. The Corps gave the contractors a general description of the work and permitted physical inspection of the lock site. The meetings lasted for approximately 45 minutes to one hour at each site. During his inspection, Mr. Allen "was looking for . . . any conflicts, overhead power lines for crane usage, conditions of the lock walls obviously, the impediments to operating equipment around the locks and generally access to the work that was to be accomplished." Mr. Allen photographed the lock and surrounding area on this visit to the lock sites. These photographs revealed construction joints, or lift joints, (3) in the concrete monoliths, which Mr. Allen did not believe would have a significant impact upon the concrete removal by the proposed drilling method or the later utilized blasting method. (4) Mr. Allen observed nothing unusual and anticipated high quality concrete. Although taking issue with the reasonableness of Mr. Allen's inspection, defendant does not dispute that such an inspection occurred.

Mr. Allen's site inspection was required by the contract's site investigation clause through which plaintiff acknowledged "that it has taken steps reasonably necessary to ascertain the nature and location of the work" with regard to "the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered . . ." Contract clause I.70, entitled SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK, provided:

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to (1) conditions bearing upon transportation, disposal, handling, and storage of materials; (2) the availability of labor, water, electric power, and roads; (3) uncertainties of weather, river stages, tides, or similar physical conditions at the site; (4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and

acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

In addition to the site inspection, Mr. Allen relied upon the bid documents in formulating plaintiff's bid.

The Corps issued a Notice To Proceed by letter dated September 21, 1993. The Corps authorized plaintiff to begin certain work prior to the lock closure, *i.e.*, sawcutting and line drilling. Once the lock closure occurred, plaintiff would begin the removal of the mitre gates and later concrete from the lock chamber.

Installation of the new FMBs required that plaintiff remove concrete from the lock chamber wall, thereby creating recesses between 39 and 52 feet in height. The contract permitted a choice in methods for the selective removal of concrete from the lock wall face. One method was mechanical, *i.e.*, the use of drilling followed by hydraulic splitters to break apart the concrete. Alternatively, the contract allowed for concrete removal by blasting as provided for in contract section C-02075, ¶ 3.2: "Removal of the existing concrete may be done by blasting, as indicated on the drawings. All removals may be accomplished by other methods as approved by the Contracting Officer in the procedures submitted under paragraph C-02075 entitled, 'SUBMITTALS.'" Paragraph 6 of section C-02075 specified the limits of concrete removal. The contract prohibited the removal of more than three feet of concrete per blast and delineated areas in which no blasting was to occur. Because the contract obligated plaintiff to repair any such damage at its expense, plaintiff was to "take all necessary precautions to ensure against damage to existing work to remain in place." Plaintiff prepared its initial estimate based upon the use of drilling and splitting, although it took the position that blasting always was considered a viable option. (5) Deeming, however, that blasting was both less expensive and a faster means of removal, plaintiff later chose to blast the concrete. (6)

During spring 1995 plaintiff solicited bids for the blasting work. On or about March 28, 1995, plaintiff awarded Ludwig Explosives, Inc. ("Ludwig"), a fixed-price subcontract in the amount of \$243,950.00 for the performance of pre-drilling, blasting and associated work at the three locks in accordance with the Contract documents. (7) Ludwig is a family-owned and operated business specializing in quarry rock blasting. The Secretary/Treasurer of Ludwig, Nowell M. Ludwig, runs the company and is involved in projects from preparing bid estimates to directing the daily work on site. Ludwig has performed a large variety of projects, which, in addition to quarry blasting, have included construction work and the distribution of explosives. Ludwig also has experience with controlled blasting in work on bridges located in residential areas. According to Mr. Ludwig, the company was available and qualified to perform light, controlled blasting, which involved using "the least amount of explosives to do selective type of blasting in certain areas." (8) Mr. Ludwig had approximately 13 years of experience in blasting at the time of the project.

Mr. Ludwig was on site for the blasting that took place on the first FMB, as well as the loading of charges for the initial blast on the second FMB. Thereafter, Mr. Ludwig left the work site for another project; in his stead Frank V. Camodeca remained as Chief Blaster. Ludwig hired Mr. Camodeca several

months prior to the Illinois Waterway project. ⁽⁹⁾ Following course work and on-the-job training, Mr. Camodeca assumed the position of Chief Blaster. He "never saw the blasting plan;" rather, "[w]hen we were on the job site, [Mr. Ludwig] explained what we were to do and how we were to do it." As Chief Blaster, Mr. Camodeca made the final decisions on the project site, as well as acting as "communicator" and liaison between Mr. Ludwig and plaintiff. Mr. Camodeca stressed the importance of the input in his decisions of experienced blasters and drillers on site.

Ludwig began drilling in April 1995 and completed the drilling for all eight FMBs prior to the July 11, 1995 lock closure. On July 11, 1995, plaintiff began removing the gates and dewatering of the locks. Plaintiff subcontracted with Concrete Coring Company of St. Louis to perform the sawcutting on top of the lock chamber walls and within the lock chambers. Sawcutting edges the boundaries of concrete to be removed from either a blast or mechanical means. Prior to July 11, 1995, Concrete Coring had completed the sawcutting on the exterior of the lock chambers. Concrete Coring began the sawcutting work for FMB Nos. 1 and 2, located at the Brandon Road site, on July 11, 1995, and ended on July 23, 1995. The sawcutting for the first and third FMBs at Marseilles was completed on July 19, 1995, and for the second FMB was completed on July 23, 1995. On July 18, 1995, Concrete Coring completed the sawcutting work on the FMB at Dresden Island.

Ludwig began blasting at FMB No. 1 at the Marseilles lock on July 17, 1995. Mr. Ludwig was present for this first blast; when he later left the site, Mr. Camodeca was in charge of blasting at Marseilles and Brandon Road and Mr. Edward Gallagher, a Ludwig employee, in charge of blasting at Dresden Island. The second blast at FMB No. 1 took place on July 18, 1995. ⁽¹⁰⁾ The following day Ludwig conducted the first and second blasts at FMB No. 3. On July 23, 1995, and July 24, 1995, Ludwig conducted both blasts for FMB No. 2. With regard to Brandon Road, Ludwig began blasting on FMB No. 4 on July 20, 1995. The first blast for the remaining three FMBs occurred on July 21, 1995, with the second blast on July 22, 1995. Ludwig also completed both blasts for the one FMB at Dresden Island on July 25, 1995.

Overbreak occurred at all eight FMBs. ⁽¹¹⁾ The excess concrete removal amounted to 4,249 cubic feet. Although plaintiff was insistent that the overbreak improved during the successive blasts, plaintiff acknowledges that the overbreak was not consistent. Depending on its severity, the overbreak required significant repair work, which included, *inter alia*, splicing rebar, making additional concrete forms, and modifying the existing scaffolding by attaching platforms that would enable workers to reach overbreak areas.

During the course of performance, plaintiff made two requests for an extension of time. The first request on July 31, 1995, was in response to a Teamsters strike at the Brandon Road lock. The laborers at Brandon Road picketed the site and brought work to a virtual halt from July 25, 1995, to July 28, 1995. As compensation for this loss of time, plaintiff requested a four-day extension to the 60-day lock closure. The Corps denied this request, directing plaintiff to accelerate to overcome the delay. In its letter of August 4, 1995, the Corps reminded plaintiff that compliance with the 60-day lock closure schedule was imperative and that the locks must reopen on September 9, 1995.

Plaintiff requested a second time extension by letter dated August 22, 1995, due to "excessive and unusual heat and humidity." Maintaining that it experienced a general loss of efficiency and production at all three sites, plaintiff's letter served "as notice to the Government of our loss of effectiveness to perform the work of our contract and to establish our entitlement to additional compensation and extension of time due to the unusually severe weather conditions" Although this letter did not specify with particularity the impact of such delays, plaintiff noted that "[w]e are currently evaluating the magnitude of both financial and time impact due to the aforementioned conditions and will advise the Government of the exact figures at a later date." By letter dated August 24, 1995, the contracting

officer denied plaintiff's request for a time extension and "directed [plaintiff] to take all necessary actions to complete all the work to allow reopening of the locks on September 9, 1995." The contracting officer emphasized in her letter of August 28, 1995, that the August 24, 1995 letter "did not deny [plaintiff's] request for a time extension due to unusually severe weather; it denied *any* time extension for *any* reason and directed [plaintiff] to hold to the original contract schedule" (12)

The general sequence of work performed by the contractor at each of the sites during the shut down required that plaintiff first close the upper gates, remove the mitre gates, install the bulkheads, and dewater the lock chamber. Thereafter, plaintiff could begin removing concrete for the FMBs. Concrete work was also required at, among other places, the sill and quoin areas. (13) Following completion of the sill work and reflooding of the lock chamber, new gates were to be installed. Once the gates were attached, the lock chamber was again dewatered until the remaining work was completed and the locks were reflooded.

Plaintiff was behind its proposed schedule from the first day when it was unable to remove the mitre gates as planned. Mr. Cipollone engaged in conversations with Corps personnel regarding scheduling on a daily basis. According to Mr. Cipollone, the Corps refused to accept a schedule that indicated negative float. (14) Mr. Cipollone initially was optimistic, believing that plaintiff could overcome the conditions that it was encountering at the sites. As the project progressed, however, a significant amount of extra work was required to repair the overbreakage, including refitting the prefabricated forms and gang planks that plaintiff had prepared in anticipation of this project, creating templates to enable proper placement of rebar and the FMB forms, and extending the rebar dowels. Although plaintiff could not accelerate the mitre gate work due to the need for a gate expert, Mr. Cipollone testified that plaintiff was accelerating generally. "We added manpower. We added equipment, a tremendous amount of equipment, a tremendous amount of manpower. We re-sequenced. We went to the floating mooring bitts."

Plaintiff also added a second shift, until that effort proved unproductive and was discontinued on August 23, 1995. Contending that the Corps exerted constant pressure to meet the September 8, 1995 deadline, Mr. Cipollone believed that discontinuing work on the project for any period of time was not an option. In spite of its efforts, plaintiff was unable to complete the contract work by the September 8, 1995 deadline. The Marseilles lock returned to operation on September 12, 1995; the Dresden Island lock and Brandon Road lock became operational on September 15, 1995, and September 18, 1995, respectively. (15) The Corps assessed ten days worth of liquidated damages for this delay totaling \$206,950.00.

On October 2, 1995, plaintiff submitted the first of two claim letters to the Corps. This claim sought \$4,265,718.00 as compensation for costs incurred due to the attempt to overcome labor delays caused by the Teamsters strike at Brandon Road, as well as "unusually severe weather delays experienced at all three lock sites." According to plaintiff, the Corps ordered it to accelerate by adding shifts and equipment, as well as by refusing to grant plaintiff a time extension due to unusually severe weather. Plaintiff's claim for additional labor costs totaled \$3,697,344.00, and its claim for additional overhead, including "additional supervision, equipment, supplies and materials," amounted to \$568,374.00. Plaintiff took the position "that it experienced these costs because of acceleration and that if it were granted the time extensions required by the Contract, it could have made its adjusted estimate on labor costs and there would have been no need for the additional supervision."

By letter dated July 1, 1996, Contracting Officer Janet K. Hall denied plaintiff's claim, finding that, at most, only three days in July and three days in August could arguably be considered unusually severe and that this number of days did not exceed the number of days allotted for weather delays in section H, Special Contract Requirements, ¶ 53. The contracting officer found that no correlation existed between

the heat and humidity and plaintiff's scheduling; plaintiff did not increase its workforce to overcome delays, but, rather, decelerated the work by discontinuing the night shift on August 23, 1995. Mrs. Hall noted that plaintiff "made numerous errors and incurred numerous inefficiencies during the lock outage period which increased its costs and caused it delay" at all three locks. Finding no excusable delay, the contracting officer denied plaintiff's claim for compensation due to weather.

With regard to the acceleration resulting from the Teamsters strike, Mrs. Hall noted that plaintiff failed to segregate the costs claimed for each delay/acceleration claim. In contrast to plaintiff's other claims for delay, however, the contracting officer concluded that, having established an excusable delay, provided notice, and requested a time extension, plaintiff was entitled to recover for a valid acceleration claim. Finding that the amount attributable to overcoming the strike delay was \$109,573.63, and reducing this amount by \$82,780.00 in previously remitted liquidated damages, the contracting officer determined that plaintiff was entitled to recover \$26,793.63.

On July 3, 1996, plaintiff submitted a second certified claim to the Corps, in which it asserted that many of the problems on the project resulted from "the Corps[]" incomplete and incorrect Contract Documents and poor administration." This claim sought compensation totaling \$5,734,417.51 for, *inter alia*, the overblast damage at the lock sites and mitre gate work, or, in the alternative, \$7,039,650.51 based on a theory of cardinal change/quantum meruit. Plaintiff alleged that neither Ludwig nor plaintiff had "specific information as to the nature of the concrete to be demolished and removed. [Plaintiff] relied upon the Corps in its approval process to assure that the plan for demolition and removal was reviewed in light of the nature of the concrete." Plaintiff and Ludwig, "without any information as to the nature of the concrete and relying on the Corps' knowledge, submitted such plan which was approved by the Corps." (16)

By final decision dated October 31, 1996, the contracting officer denied plaintiff's second claim, concluding that "[c]ontrary to the contractor's claim, the overbreakage it experienced was not the result of defective specifications or a Government failure to disclose information about concrete conditions (or, although the contractor's claim does not expressly raise this, any implied differing site condition)." The contracting officer found that the Corps "disclose[d] all information possessed by the Government concerning concrete conditions Consequently, rather than any problem with the specifications, it appears that the contractor's overbreakage may have been a function of its blast hole spacing, blast hole timing, charge or load, failure to adequately relieve the fracture face or blast area, and/or, its attempting to remove too much material in a single blast." (17) The contracting officer pointed out that the blasting plan called for the use of 150-grain primacord and that plaintiff increased the amount of explosive in excess of that permitted by the blasting plan in an effort to remove more than three feet of concrete in a single blast, in contravention of contract requirements. After a detailed factual review, the contracting officer also deemed that plaintiff's minor claims lacked merit. (18)

With regard to plaintiff's alternative claim for cardinal change, the contracting officer determined that "[n]o unreasonably difficult or novel types of work were added by the modifications" to the contract and "the change orders pointed to by the contractor do not support its allegation of a cardinal change." (19) The contracting officer concluded:

To the contrary, the work added by the change orders was generally of the same type as that provided for under the original contract and was typically performed using the same labor and equipment already available at the work sites. Moreover, the additional work generally had little or no impact on over-all work progress and, in the case of the largest of the modifications (P00011), was expressly incorporated

by the contractor into its schedule without impacting the lock closure completion date. In short, these were the types of minor corrections which are not unusual in any large construction project. They cannot be said to have fundamentally changed the nature of the project.

(Citations omitted.)

As defendant objected when plaintiff sought to add a differing site condition claim, plaintiff's October 2, 1995 letter does not delineate a claim based upon overblasting; instead, the claim focuses merely upon directives to accelerate to overcome the Teamsters strike and heat-related delays. In contrast, plaintiff's July 3, 1996 letter sets forth a claim for delay due to overblasting at all three lock sites, which plaintiff asserted was "a direct result of the defective specification" and the failure to disclose superior knowledge. Plaintiff maintained that "any additional cost of the concrete removal and replacement, including the additional cost of dealing with the undersized rebar dowels and concrete anchors entitles [plaintiff] to an adjustment in price and time." Plaintiff's letter also contends that it experienced a 79% increase in the amount of concrete removal and replacement work during the acceleration period. Having based its calculations for the amount of concrete on the "incorrect and misleading" drawings provided by the Corps, the claim later charged the Corps with "responsib[ility] for all additional costs to perform this work beyond [the] original estimate which relied upon the Corps[]" drawings."

Plaintiff alleged in its subsequent complaint that its work was "subjected to an extraordinary and unreasonable number of delays, disruptions and changes due to defective or changed design of the Project, delays and disruptions resulting from unusually severe weather, and delays and disruptions arising out of a labor strike." Complaint filed Jan. 21, 1997, ¶15. More pointedly, plaintiff claimed that it "was delayed and the prosecution of its work was disrupted by reason of defective specifications relating to concrete removal for the new floating mooring bitts at each site." *Id.* ¶ 16. Although noting its conformance with the specifications provided, plaintiff charged that "defects in the specifications caused spalling and over breakage of the lock wall concrete beyond the removal limit lines and required [plaintiff] to perform concrete restoration work during the lock outage period . . . ," *id.*, thereby disrupting, delaying, and forcing plaintiff to accelerate its work. Plaintiff sought damages for breach of contract in the amount of \$7,039,650.51. (20)

Trial was scheduled to begin on October 19, 1998, with defendant beginning its case five days hence. On September 23, 1998, plaintiff sought leave to file an amended complaint to add the following paragraph:

17. The circumstances described in paragraph 16, above, incorporated herein by reference, constitute Type 1 and Type 2 differing site conditions in that:

A. The excessive concrete overbreak [plaintiff] experienced differed materially from the conditions [plaintiff] reasonably anticipated based on indications in the Contract that, inter alia, "[r]emoval of the existing concrete may be done by blasting, as indicated on the drawings;" and

B. [T]he excessive overbreak conditions that [plaintiff] experienced differed materially from conditions ordinarily encountered and generally recognized as inhering in concrete removal work due to unknown and unusual lockwall concrete conditions at the site.

By order dated October 7, 1998, the court granted plaintiff leave to file its First Amended Complaint and, reasoning that the differing site conditions claim was considered by the contracting officer, denied conditionally defendant's motion to dismiss, reserving for trial defendant's claim of prejudice due to the late filing. On September 25, 1998, defendant had moved for summary judgment on plaintiff's claim that

the overblasting was due to defective specifications. ⁽²¹⁾ Defendant's motion for summary judgment on plaintiff's overblasting claim, premised on a theory of defective specifications, was granted, because the specifications at issue were of the performance type rather than the design type, and because plaintiff retained control over the development and implementation of the blasting plan. **See Fru-Con Constr. Corp. v. United States**, 42 Fed. Cl. 94, 96-97 (1998). Finding that plaintiff's nascent theory of impossibility/commercial impracticability was untimely and without merit, the court prohibited plaintiff from advancing any claim based upon the warranty of alternative methods. **See id.** at 98-99. Trial thus was restricted to plaintiff's differing site conditions and heat delay claims.

DISCUSSION

1. Type I differing site condition

The purpose of a Differing Site Conditions clause is to eliminate speculation in the bidding process, by shifting the risk from the contractor, "who normally bears such risk under a fixed-price contract, to the government." **Olympus Corp. v. United States**, 98 F.3d 1314, 1316 (Fed. Cir. 1996) (noting that Differing Site Conditions clause encourages more accurate bidding); **see H.B. Mac, Inc. v. United States**, 153 F.3d 1338, 1343 (Fed. Cir. 1998) (finding that clause removes "the need for contractors to inflate their bids to account for contingencies that may not occur"); **Woodcrest Constr. Co. v. United States**, 187 Ct. Cl. 249, 255-56, 408 F.2d 406, 410 (1969) (same). This clause serves to lessen a contractor's uncertainty with regard to potential subsurface or other latent physical conditions that may be encountered during the course of performance. Conversely, such a provision also ensures that the Government will obtain the most competitively priced bids on the project by obviating a contractor's need to include expenses for unexpected contingencies, including delays related to subsurface conditions, in the bid estimate. **See Olympus**, 98 F.3d at 1317; **Youngdale & Sons Constr. Co. v. United States**, 27 Fed. Cl. 516, 527-28 (1993). The applicability of this clause, however, is strictly limited to those physical conditions present at the time of contracting, and recovery is permissible in only two instances, *i.e.*, where the contractor encounters either a Type I or a Type II differing site condition. **See Olympus**, 98 F.3d at 1316-18; **Youngdale & Sons**, 27 Fed. Cl. at 527-29.

To succeed on a claim for a Type I differing site condition, the contractor must prove, by a preponderance of the evidence, "that the conditions 'indicated' in the contract differ materially from those it encounters during performance." **P.J. Maffei Bldg. Wrecking Corp. v. United States**, 732 F.2d 913, 916 (Fed. Cir. 1984) (citation omitted); **see Stuyvesant Dredging Co. v. United States**, 834 F.2d 1576, 1581 (Fed. Cir. 1987); **Youngdale & Sons**, 27 Fed. Cl. at 528 (listing six elements a contractor must prove to recover). "The contractor also must show that it reasonably relied upon its interpretation of the contract and the contract-related documents and that it was damaged as a result of the material variation between the expected and the encountered conditions." **Stuyvesant Dredging**, 834 F.2d at 1581; **Dawco Constr., Inc. v. United States**, 18 Cl. Ct. 682, 687 (1989) ("The term 'contract documents' is to be interpreted with considerable breadth to include not only the bidding documents (Invitation for Bids, drawings, specifications and other documents physically furnished to bidders) but also documents and materials mentioned in the bidding documents as well."), **aff'd in part, rev'd in part**, 930 F.2d 872 (Fed. Cir. 1991).

Although not bound to conduct expensive tests or to have expert knowledge, the contractor is presumed to know that which a reasonable bidder would have known from reading the contract itself, as well as any attached documentation. **See Stock & Grove, Inc. v. United States**, 204 Ct. Cl. 103, 109, 119, 493 F.2d 629, 631, 637 (1974) (noting contractor is responsible for patent contradictions in contract documents); **Foster Constr. C.A. & Williams Bros. Co. v. United States**, 193 Ct. Cl. 587, 615, 435 F.2d 873, 888 (1970) (stating contractor need not "discover hidden subsurface conditions or those

beyond the limits of an inspection appropriate to the time available"); **Kaiser Indus. Corp. v. United States**, 169 Ct. Cl. 310, 324, 340 F.2d 322, 330 (1965) (same). The contractor will only be eligible for an award if the contract describes what subsurface conditions are to be expected, and only if the conditions at the work site were reasonably unforeseeable based upon the information available to the contractor when bidding. See **H.B. Mac**, 153 F.3d at 1345; **Stuyvesant Dredging**, 834 F.2d at 1581; **P.J. Maffei**, 732 F.2d at 916; see also **S.T.G. Constr. Co. v. United States**, 157 Ct. Cl. 409, 415 (1962) (finding that contract must make reference to subsurface or latent conditions for Type I claim); **HallMark Elec. Contractors, Inc.**, 87-2 BCA ¶ 19,870, at 100,493 (holding no Type I differing site conditions claim because no references found in contract documents). Defendant may avoid liability on such a claim if it can demonstrate by a preponderance of the evidence that plaintiff performed inefficiently or unreasonably. J. Cibinic, Jr. & R. Nash, Jr., Administration of Government Contracts 481-82 (3d ed. 1995).

The contract documents included the following information regarding conditions at the site, and, in particular, the concrete that plaintiff would encounter:

(e) Reference Data: The following information is available for review at the Rock Island District Office (site of the bid opening) . . . :

(1) Folios (bound folders) of copies of original construction contract and shop drawings of the lock and dam construction for each site. These folios depict the original State of Illinois, Department of Public Works and Buildings and U.S. Army Corps of Engineers, Chicago District construction and shop drawings; and subsequent paragraph (2) drawings amassed and on file with the U.S. Army Corps of Engineers, Rock Island District.

(2) Partial plan and specification sets for Brandon Road, Dresden Island, and Marseilles Lock and Dam rehabilitations, repairs, and improvements conducted by the U.S. Army Corps of Engineers, Chicago District, prior to 1981. Work items include, but are not limited to, miter gate rehabilitations and repairs, sill repairs, quoin repairs, concrete resurfacing of lockwalls, installation of wall armor, reconstruction of approach walls, installation of floating mooring bits, lock machinery rehabilitations, electrical rehabilitations and improvements, lock facility additions and improvements, and work associated with the operation and maintenance of the locks.

(3) Plan and specification sets for Brandon Road, Dresden Island, and Marseilles Lock and Dam rehabilitations, repairs, and improvements conducted by the U.S. Army Corps of Engineers, Rock Island District, since 1981. Work items include, but are not limited to, miter gate rehabilitations and repairs, sill repairs, quoin repairs, concrete resurfacing of lockwalls, installation of wall armor, reconstruction of approach walls, lock machinery rehabilitations, electrical rehabilitations and improvements, lock facility additions and improvements, and work associated with the operation and maintenance of the locks.

(4) Inspection reports, periodic inspection reports, periodic inspection and continuing evaluation inspection brochures, and concrete condition surveys for each site. [T]hese reports and brochures contain site specific information pertaining to the current condition of the lock and dam. Information includes, but is not limited to, project description and history, soils and geology, boring layouts and records, concrete resurfacing layouts, miter gate and lockwall condition indices, concrete materials and strengths, and condition of lock and dam operating machinery and electrical systems for each site.

(5) Master Reservoir Regulation Manuals - Illinois Waterway Nine Foot Channel, Appendix 2 - Brandon Road Lock and Dam, Appendix 3 - Dresden Island Lock and Dam, and Appendix 4 - Marseilles Lock and Dam. These manuals contain information on project description, history of project,

hydrometeorology, data collection, and communications, hydrologic forecasts, regulation plan, and water resource management for each site.

(6) A general design memorandum entitled, "Illinois Waterway, Brandon Road Lock and Dam Major Rehabilitation, Design Memorandum No. 1", published April 1983. The memorandum discussed the condition and the proposed plan for rehabilitation of the Brandon Road Lock and Dam.

(7) Rehabilitation Evaluation Report - Illinois Waterway Major Rehabilitation Program, Lockport, Brandon Road, Dresden Island, and Marseilles Locks, June, 1991. The purpose of this report was to provide an evaluation of the condition, past problems, future operability and recommended rehabilitation measures for the four lock sites.

(8) Concrete Data:

(a) Brandon Road Lock: The horizontal and vertical faces of the lockwall were resurfaced in 1984. The replacement concrete is about 18 inches thick on most of the vertical surfaces. The new concrete is thicker nearer the floating mooring bits and ladders. The concrete contain 1 1/2 inch maximum size crushed limestone coarse aggregate. Compressive strength of quality control cylinders was about 4,800 pounds per square inch at 28 days.

The concrete used in the original construction contain 3-inch maximum size natural gravel coarse aggregate and a natural sand fine aggregate. The coarse aggregate is mostly carbonate rock types with occasional igneous rock and chert particles. Compressive strengths of concrete in constantly submerged areas such as the sills may be higher than 7,000 pounds per square inch.

(b) Dresden Island Lock: The concrete contains 3 inch maximum size natural gravel coarse aggregate and natural sand fine aggregate. The coarse aggregate is mostly carbonate rock types with occasional igneous rock and chert particles. The concrete is well consolidated and contains some entrapped air, but is non-air entrained. The light brown paste is hard and dense. Cores taken from the lockwalls in 1977 had compressive strengths from 4,200 to 6,200 pounds per square inch. Compressive strengths of concrete in constantly submerged areas such as sills may be significantly higher.

(c) Marseilles Lock: The concrete contains 3 inch maximum size natural gravel coarse aggregate and natural sand fine aggregate. The coarse aggregate is mostly dolomite and dolomite limestones with minor amounts of other rock types. The concrete is well consolidated and contains occasional entrapped air voids but is non-air entrained. Cores taken from the lockwalls in 1974 had compressive strengths from 5,070 to 7,760 pounds per square inch. Compressive strengths of concrete in constantly submerged areas such as sills may be significantly higher.

(9) State of Illinois photographs and plans on the control and power wiring for the Brandon Road bascule bridge.

Section H, Special Contract Requirements, ¶ 5(e).

In contrast to plaintiff's position that the contract reflected a lack information regarding the conditions at the site, the testimony established that both plaintiff and Ludwig failed to review pertinent contract documents prior to bidding for this project and prior to commencing blasting. For example, on cross-examination, James J. Cipollone, plaintiff's Project Manager, was asked whether plaintiff reviewed any of the documents listed in section H, ¶ 5 of the contract. Mr. Cipollone responded: "Prior to bidding this job, I don't believe anybody from [plaintiff] reviewed these drawings." Bernard W. Price, plaintiff's

Operations Manager for this project -- who was not involved in the bid estimate for this contract, aside from having some general and informal conversations with Mr. Cipollone -- stated that he "never sat down with the drawings and specifications or looked at what they were doing;" he "was basically recalling this type of stuff from [his] experience on the river shutdowns that [he] had performed before." During June 1994, after "the job ha[d] already been bid and we [were] now awarded the contract," Mr. Price assumed the role of Operations Manager for this project in a supervisory role to Mr. Cipollone, the Project Manager.

In preparing to blast the concrete for the FMBs on this project, Mr. Ludwig testified that he spoke with someone involved in the prior blasting work on the Brandon Road project, as well as another person involved in the prior blasting work on the Saint Lawrence Seaway project, which he considered comparable. Mr. Ludwig utilized the information garnered from these conversations in blasting on the Illinois Waterway project. Although having reviewed the drawings and specifications provided by Mr. Cipollone, Mr. Ludwig stated that he had never reviewed the contract between plaintiff and the Corps. Mr. Ludwig also indicated that he was not familiar with the provisions in the contract specifying the compressive strength or other data related to the concrete on the Illinois Waterway project, nor did he review any folios of the original construction of the locks before beginning this project.

Mr. Camodeca, the Chief Blaster on this project, who "made the final decisions with a lot of help from the other blasters and drillers that were on the job site," also stated that he never reviewed the contract between plaintiff and the Corps. The following exchange took place during cross-examination of Mr. Camodeca:

Q: Okay. Have you ever seen the contract between [plaintiff] and the [Corps] of Engineers with regard to this project?

A: No, I haven't.

Q: And so you don't know of any concrete data that may or may not be listed in the contract, correct?

A: That's correct.

Q: And you've never looked at any drawings or specifications specific to this contract, correct?

A: That's correct.

Q: And you've never seen any as-built drawings of the Illinois Waterway project, correct?

A: No, sir.

Q: And you've never seen any original construction drawings of the Illinois Waterway project, correct?

A: That's correct.

Q: And you didn't do any investigation for this project, correct?

A: I don't believe so.

Q: As this project progressed and you were experiencing the [over] breakage, did [Mr.] Price tell you to keep blasting?

A: I wouldn't say that the feeling was more or less that he said or urged us to keep blasting. The impression that I got is that we got together and said, hey, we need to do something different. We need to get better results here.

Q: But is it your impression that [plaintiff] wanted Ludwig . . . to continue blasting?

A: Yes, with better results, of course.

In fact, the testimony at trial reveals that only Mr. Allen, plaintiff's Chief Estimator, reviewed the contract documentation and the on-site conditions. Mr. Allen testified that, during the site investigation, he did not observe anything that would cause him to think excessive overbreak would occur if blasting were employed on this project. Mr. Allen reviewed "[t]he standard specifications and plans which were a part of the bid documents," which included the contract drawings in preparing his estimate, but he did not review other materials referenced in the contract that were not included in the bid package.

Neither plaintiff nor its subcontractor, Ludwig, discharged its responsibility to review the pertinent contract documents. **See Stuyvesant Dredging**, 834 F.2d at 1581. Plaintiff failed to consult the concrete data information incorporated directly within the contract, as well as other referenced materials. The essential element of reliance therefore is wholly lacking from plaintiff's claim, **see id.**, because plaintiff cannot be misled by documents on which it never relied. **See H.B. Mac**, 153 F.2d at 1347-48; **cf. Woodcrest Constr.**, 187 Ct. Cl. at 254-57, 408 F.2d at 408-11 (finding contractor, who relied on misleading description of site, was entitled to extension of time under changes clause). A Type I differing site conditions claim is intended to compensate a contractor that, in good faith, relies upon the available information to its detriment. Under these circumstances plaintiff cannot demonstrate that (1) it consulted relevant contract documents or those referenced therein; (2) it relied on these documents; or (3) its damages resulted from reliance on such documents.

Plaintiff's July 3, 1996 letter to the contracting officer stands as an admission that no basis for a Type I differing site conditions claim exists. With regard to its blasting claim, plaintiff took the position that neither Ludwig nor plaintiff had "specific information as to the nature of the concrete to be demolished and removed. [Plaintiff] relied upon the Corps in its approval process to assure that the plan for demolition and removal was reviewed in light of the nature of the concrete." Plaintiff and Ludwig submitted the blasting plan "without any information as to the nature of the concrete . . ." In light of the foregoing, plaintiff has failed to prove the existence of a Type I differing site condition.

2. Type II differing site condition

A Type II differing site condition exists when the conditions at the work site differ from those normally encountered. **See H.B. Mac**, 153 F.3d at 1343. Plaintiff must demonstrate that the physical condition it experienced was unknown, unusual, and "differed materially from those [conditions] ordinarily encountered and generally recognized as inhering in the work of the character provided for in this contract." **Youngdale & Sons**, 27 Fed. Cl. at 528 (citing **Servidone Constr. Co. v. United States**, 19 Cl. Ct. 346, 360 (1990), **aff'd** 931 F.2d 860 (Fed. Cir. 1991)); **see Stuyvesant Dredging**, 834 F.2d at 1581; **Kaiser Indus.**, 169 Ct. Cl. at 315, 340 F.2d at 325. "The alleged unknown and unusual physical condition must be one that was not foreseeable by a reasonable contractor after a review of the contract documents, a site investigation and the contractor's general experience." **J. Lawson Jones Constr. Co.**,

86-1 BCA ¶ 18,719, at 94,172; see **Weeks Dredging & Contracting, Inc. v. United States**, 13 Cl. Ct. 193, 219 (1987) (noting that either Type I or Type II "differing site condition claim 'stands or falls upon what is indicated in the contract documents'" (citation omitted), **aff'd** 861 F.2d 728 (Fed. Cir. 1988). A Type II differing site condition claim may prevail when the contractor has come across "[u]nanticipated characteristics or behavior of . . . material." **J. Lawson Jones**, 86-1 BCA at 94,172 (citing cases); see **Charles T. Parker Constr. Co. v. United States**, 193 Ct. Cl. 320, 333, 433 F.2d 771, 778 (1970) (finding plaintiff faces "relatively heavy burden of proof"). The applicable standard with regard to a Type II differing site conditions claim is "that of the reasonably intelligent and experienced contractor with construction experience" in the area and type of work "who reviewed the contract documents and made a site investigation." **J. Lawson Jones**, 96-1 BCA at 94,173.

Plaintiff's expert Dr. Calvin J. Konya, analyzed the concrete conditions in the lock wall that plaintiff reasonably should have anticipated from the contract drawings and the conditions it encountered on site. Dr. Konya explained the mechanics of blasting in detail, describing the manner in which shock energy and gas energy affect the way in which material will split and break. A lack of homogenous or uniform material will increase significantly the difficulty of controlling the blast. When the material is uniform, a blaster can predict with "fairly good accuracy" the fragmentary distribution that will occur. Dr. Konya's theoretical experience was pertinent to the Illinois Waterway project because the blasting involved splitting and fracturing.

Based upon the pre-bid documents, Dr. Konya concluded that the concrete was monolithic, suggesting that the structure did not present problems or represent a particular cause for concern. With regard to the prior work at the lock sites, Dr. Konya surmised that the concrete was sound and tight, *i.e.*, no voids existed in the concrete. "[A]ll of the monoliths look very sound based on the coring data. You then have further information that says [the concrete is] well consolidated, it's sound concrete, and that every crack thicker than this sheet of paper is going to be pressure grouted."

Dr. Konya distinguished between the face blasts and recess blasts, noting that they did not function in the same manner. The face consisted of relatively new and strong materials, but the features behind the face may cause the concrete to react differently than expected. Dr. Konya explained that overbreak may result from gases being pushed back into open joints and remaining there for period of time, such that, when the wall face falls, the gases move back out and take with them the sides of the wall. The sawcuts were insufficient to relieve the blast pressure, in his opinion, because only a certain amount of blast energy may be released at one time. In these instances the sawcuts provided insufficient relief for the blast energy, which, in turn, retreated back into the lock wall. According to Dr. Konya, the reinforcement in the concrete wall face caused the blast energy to seek the plane of less resistance in the weaker concrete of the wall recesses. This was also true of the blast energy's response to fractures and planes of weakness, which he considered to be fairly pervasive in the concrete. ⁽²²⁾ Dr. Konya opined that these planes of weakness, rather than Ludwig's blasting techniques or use of explosives, resulted in the overbreak. ⁽²³⁾ He concluded that, although this was a uniform process, the presence of variably open joints and other planes of weakness resulted in random overbreak that did not improve with each blast.

On cross-examination Dr. Konya conceded that a reasonable blaster would have adjusted the drilling and loading of holes if aware of the conditions of the concrete, although such adjustment would be unhelpful if the conditions were sporadic. ⁽²⁴⁾ A reasonable blaster, in his opinion, would know that voids or seams would affect the quality of blasting, but would not necessarily know to what extent. The blasting plan could be modified to deal with conditions in the concrete if plaintiff knew of the location of voids and seams; the manner in which the plan should be altered would require specific information regarding such conditions. The age of the concrete would also have an impact on blasting. Not troubled

by the lack of test blasting before performance, Dr. Konya nonetheless acknowledged that the conditions in the concrete causing overbreak, *i.e.*, the extent of the fractures, voids, and seams, would not be fully apparent until excavated completely.

Defendant's blasting expert, John M. Loizeaux, provided a markedly different analysis of the overbreak and its causes. Mr. Loizeaux criticized Dr. Konya's theoretical analysis as inapplicable to on-site, practical, "real world" conditions. In Mr. Loizeaux' opinion, a reasonable contractor would not only have been one experienced in the work to be performed, but also would have been aware of the variable conditions at the lock sites and would have verified actual conditions prior to proceeding. He noted that the contractor should have expected, *inter alia*, variable aggregate, utilities, joints, and reinforcements as typical in this type of project. Mr. Loizeaux perceived the contract's repeated statements that the contractor should conduct its own investigation to indicate that the reasonable contractor should assume the "worst case" scenario. Although agreeing that blast energy will seek the plane of least resistance, it was Mr. Loizeaux' opinion that the contractor should look for planes of weakness in the contract documents. On this particular site, as depicted by the contract documents, a reasonable contractor would not expect all of the joints to be tight and would have expected some weeping water.

Mr. Loizeaux read the contract documents to depict the existence of joints, rebar, aggregate, wall armor, and -- in one monolith -- a weathered fracture. He considered that this information was intended to alert the contractor of the conditions that must be accounted for in blasting and that a reasonable blaster would have anticipated the effects of these conditions on blasting. His reasonable contractor would have expected hard, new reinforced concrete that contained rebar dowels, horizontal and vertical joints, planes of weakness, and a high probability of water damage to the rebar and/or the concrete, as well as older, unreplaced concrete. Pointing to the use of sawcuts for either mechanical removal or blasting, Mr. Loizeaux contended that the sawcuts were not intended for blast relief to control overbreak, but were intended merely to demarcate the limits of concrete removal. The excavation of a deep channel in place of the sawcuts, which was not prohibited by the contract, would have been sufficient to release the blast energy. (25) Mr. Loizeaux's reasonable blaster would have taken other steps to facilitate the removal of the concrete, including cutting through the rebar in the middle of the intended FMB.

Defendant's expert thus concluded that the overbreak resulted from Ludwig's excessive use of explosives, as evidenced by the absence of half-casts and periodic areas of crushed indentations in the recesses. The amount of explosives utilized resulted in an excess of energy for which no means of release was available. The energy radially cracked and chamfered the concrete. He stated that a reasonable contractor would have excavated the overbreak to assess its causes, particularly because of the resultant increase in costs. (26) The darker areas in the concrete, which Dr. Konya referred to as evidencing planes of weakness, actually were the result of black residue from the detonating cord.

Mr. Loizeaux considered that Ludwig properly performed its drilling operation, surmising that the blasting improved as Ludwig learned more about that with which it was dealing. Nonetheless, it was his view that Ludwig was inexperienced in this type of blasting and should have dealt with on-site conditions differently, as would have a reasonable blaster. In sum, he concluded that Ludwig encountered no unforeseen conditions, that everything related to this project was customary, and that no differing site conditions existed at the three lock sites.

Dr. Konya on rebuttal elaborated on the differences between his analysis and that of Mr. Loizeaux. (27) Noting that his perspective was more theoretical and research oriented, stemming from more extensive experience with blasting and explosives than general demolition, Dr. Konya characterized Mr. Loizeaux' analysis as inaccurate as to "some of the laws of physics." Dr. Konya also stressed his experience as a consultant and "troubleshooter" in the field and mentioned several lock projects on which he had

worked. (28) Dr. Konya did not agree that a blaster must assume the "worst case scenario" on a project. According to the contract documents, "there was no information that . . . would give you a clue that there should be something wrong. In fact, just the opposite occurred."

Although Fed. R. Evid. 702 contemplates that expert testimony will aid the court in determining the cause of the overblast, the opinions of Dr. Konya and Mr. Loizeaux are irreconcilable. Both experts explanations for the overbreak at the lock sites stem from two differing perspectives -- the theoretical and the practical -- and directly conflict. The court declines to credit either as the more persuasive because neither expert offered a theory that accounted fully for the other's testimony, especially the phenomena that the other observed. Among the services rendered by these experts is troubleshooting. Hindsight analysis is easy, but the court is impressed that these gentlemen are precisely the type of consultant that plaintiff could have employed to assist Ludwig when overblast occurred at more than one site. The court does not fault plaintiff in this regard, yet the competence of Dr. Konya and Mr. Loizeaux, despite the former's demurrer on point, stands in marked contrast to the experience and skill that Ludwig brought to the task. Because expert testimony ultimately is not helpful to resolve this case, the court bases its decision on the issues of plaintiff's and Ludwig's competence, including the reasonableness of the decision to continue blasting, and the need to give the Corps actual notice of a differing site condition while the overblasting was occurring. (29)

The Differing Site Conditions clause in this contract provides, in pertinent part:

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting officer of (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or (2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

This clause contemplates that the contractor will notify the Corps upon encountering a differing site condition.

Although precedent confirms that notice may be oral or written and need not conform to any particular protocol, notice must be given such that the Government is generally informed of the pertinent facts. **See Dawco Constr.**, 18 Cl. Ct. at 693. "Plaintiff bears the burden of proof that oral notice was given, but the trier of fact must make the determination in the case of conflicting testimony. Moreover, once notice is given it need not be given again when the same conditions recur on the site." **Id.** (citations omitted). A differing site condition need not be identified immediately for prompt notice to be given because it may be unclear if the condition is localized or pervasive throughout the site. **See id.** "It is not until the contractor has had more time to work in an area that it would become apparent that the site condition differed from what the contractor was told to expect It is only after . . . discovery time that 'promptness' can reasonably be measured." **Id.** at 693-94. Moreover, notice may be waived in instances

in which the Government suffers no prejudice, *i.e.*, no other course could or would have been taken under the circumstances.

Ludwig completed the blasting operation for this project over an eight-day period. Blasting began on July 17, 1995, at the Marseilles lock site for FMB No. 1. The second and third shots for this FMB took place on July 18, 1995. On July 19, 1995, Ludwig blasted FMB No. 3 at Marseilles, and completed the blasting for FMB No. 2 on July 24, 1995. The blasting for the four FMBs at the Brandon Road site occurred from July 20, 1995, to July 22, 1995. Ludwig completed the blasting for the one FMB at Dresden Island on July 25, 1995.

Prior to blasting, Mr. Cipollone expected the concrete to be sound, homogenous, and monolithic. After converging on the first blast, "we realized we had a big problem. Everything broke beyond the limits of the saw cut. You know, we realized that something was different than what we had anticipated, and we discussed what we could do. It didn't come off the wall. It broke, it separated, but it did not fall to the floor of the lock." Mr. Cipollone explained that "he expected the concrete to split and to stop at the saw cut. . . . In a uniform, monolithic concrete mass, you would expect the saw cut to adequately stop the split, to control the overbreaks." Although aware that plaintiff was encountering a problem, Mr. Cipollone did not know "what the cause really was." He discussed potential corrective action with Mr. Ludwig. Consequently, "[w]e changed our loadings and all, but the results were variable." Mr. Cipollone acknowledged that he did not keep notes on the conditions of the concrete, even after the first blast, when he learned that something was other than expected. He had no knowledge "of all of these conditions that existed [in the concrete, including] [s]heer [sic] zones and broken joints and things." (30)

According to Mr. Cipollone, the work plaintiff performed in anticipation of this project, including building forms for each of the FMBs, scaffolding, gang planks, and painting, was no longer useful because of the overbreakage. For example, plaintiff was required to refabricate the FMB forms and perform extra anchor-bolt work. If the concrete had broken merely to the limits of concrete removal, the anchor bolts would have required much less work to install. Absent the overbreak, plaintiff would not have been required to extend the rebar dowels or create templates to assist in installation of the FMBs. Mr. Cipollone acknowledged that the costs incurred would have been much less if plaintiff had anticipated the overbreak and that plaintiff's "bid would have been higher."

Mr. Cipollone's testimony was confirmed by the statements of Mr. Price with regard to the overbreak and resultant changes in pre-shut down preparatory work. In response to the following deposition question quoted during trial, however, Mr. Price stated:

Q: "Was there anything below the surface of the lock wall concrete that the contract did not indicate?"

A: "Not that I can recall."

Mr. Price noted both that plaintiff directed Ludwig to continue blasting and that the extent of the overbreak was not readily ascertainable until all of the concrete was removed and plaintiff was able to examine the FMB recess.

In this regard Mr. Cipollone stressed that the schedule did not permit plaintiff to stop blasting. Plaintiff was to complete the blasting within the eight days allotted in the schedule. He maintained that plaintiff was compelled to persist, given the pressure from the Corps. Discontinuing the blasting operation and changing methods was not an option even though overbreak occurred at every FMB. (31) Therefore, plaintiff and Ludwig consulted and made changes in order to minimize the overbreak.

Although not encountering any conditions in the concrete that he did not expect, Mr. Ludwig also indicated surprise after the initial blast. (32) In a corrective effort, Mr. Ludwig changed the blast timings and amount of explosives. He instructed Mr. Camodeca to change the blasting loads if problems persisted. Although encountering continued problems, Mr. Ludwig, encouraged by plaintiff, "decided to keep blasting [and] to accept whatever would take place" In Mr. Ludwig's opinion, the overbreak "would get better, then get worse, get better, get worse. It was so unpredictable." In contrast, Mr. Camodeca, who was on site for all of the blasts, had the "feeling that what we were doing was working" to decrease the overbreakage.

Written notice of a differing site condition was not given to the contracting officer. Victor P. Gervais, the Contracting Officer's Representative on site, also testified that plaintiff did not orally notify him of differing site conditions at any time. Although Mr. Gervais was present for the first blast, no one communicated with him regarding the overbreak or conditions in the concrete. He observed the subsequent blasts and, in his opinion, the amount of overbreak improved with each FMB site. Mr. Gervais opined that if he had received notice he would have reviewed the entire project to formulate an appropriate strategy to address the situation. Mr. Gervais considered that the FMB work could have been eliminated entirely because it was not a necessary function of the lock and there were existing FMBs at the lock sites. (33) He viewed the critical work on the project as centering around the mitre gates. (34)

Trial established that plaintiff failed to provide the Corps with actual notice of any differing site conditions encountered on the project. (35) Although the timeliness of notice is dependent upon the attendant circumstances, no indication was registered that plaintiff or Ludwig ever considered that plaintiff had come across differing site conditions. In fact, the evidence showed that plaintiff formulated its claim for differing site conditions *post hoc*. This conclusion is reinforced by the absence of any explicitly alleged claim for differing site conditions in either the October 2, 1995 claim letter, the July 3, 1996 letter, or plaintiff's complaint prior to amendment. (36) The court credits plaintiff's assertion that identifying the cause of the overbreaking may not have been possible without expert analysis; however, it was improvident of both plaintiff and Ludwig to continue blasting when faced with extensive, costly overbreak for which neither had an explanation. Assuming that plaintiff and Ludwig did not realize on the first blast that the overbreak resulted from anomalous conditions in the concrete, continuing to blast through the remaining seven FMBs was improvident.

The parties presented visual evidence of the overbreak. It was catastrophic; the damage, immediate and visible. Having seen the videotapes and photographs of the blasts and damage, as well as hearing the witnesses' vivid descriptions, the court finds that plaintiff gambled by electing to continue blasting when each successive blast wreaked havoc. While impressed with plaintiff's evidence that the Corps insisted on timely reopening of the locks and would not have welcomed -- and might have resisted -- a delay in the blasting in order to determine the cause of the overbreak, plaintiff cannot avoid the fact that it elected to proceed. Plaintiff did not know the cause of the overbreak, but its consequences were evident. Either plaintiff or the Corps would be responsible. Inexplicably, plaintiff's on-site personnel pressed ahead. (37) The failure to notify the Corps of a differing site condition under these circumstances was prejudicial to the Corps, especially when considered in light of potential remedial alternatives.

Plaintiff contends that the contract obliged and permitted the Corps to discontinue the blasting operation upon observing the extent of the overbreak and the resultant impact of this overbreak on the rest of the project. If the extent of the overbreak were to constitute constructive notice to the Corps of a differing site condition, plaintiff would have to establish that the Corps knew of the cause of the overbreak. Indeed, plaintiff took the position at trial that, despite the measures adopted by Ludwig in response to the overbreak, the effect of the blasting remained more or less the same. In light of the differing causes ultimately advanced by the parties' experts, the overbreak did not put the Corps on notice of anything

other than problems attributable to plaintiff's and/or Ludwig's actions, particularly because on-site Corps personnel testified that the concrete observed on the project was sound.

Although extreme difficulty in removal may alone be indicative of abnormal or unusual concrete, **see Illinois Constructors Co.**, 91-2 BCA ¶ 23,728, at 118,845 ("The inability of the grinder in this case to remove concrete expeditiously and efficiently is indicative of abnormal, unusual concrete."), plaintiff's proof did not demonstrate sufficiently that other variables, including Ludwig's general inexperience with concrete blasting, were not more significant causes of the overbreak than any conditions in the concrete. Even though the Corps may not avoid liability through the use of general exculpatory clauses, plaintiff has presented no evidence to suggest that the contract documents were misleading or to establish that the concrete was *per se* unusual. When considered in conjunction with plaintiff's and Ludwig's admissions that they did not encounter anything different in the concrete than what was represented in the contract documents, plaintiff fails to meet its burden.

3. Unusually severe heat conditions

"Weather conditions generally are considered to be acts of God. Neither party is obligated to the other for additional costs or price increases resulting solely from acts of God." **Turnkey Enters., Inc. v. United States**, 220 Ct. Cl. 179, 186, 597 F.2d 750, 754 (1979) (footnote omitted). Consequently, additional costs or losses resulting solely from unanticipated weather conditions are typically not recoverable. The present contract, however, contained the standard Differing Site Conditions clause. Although this clause is a risk-shifting device, it is not designed to shift all weather-related risks to the Government. **See id.** at 186-87, 597 F.2d at 754. Nonetheless, a contract may contemplate adjustments for extreme and unusual weather entitling the contractor to compensation. The issue presented is whether the contractor experienced unusually severe heat conditions.

To overcome weather delays, a contract may be accelerated by specific direction or by means of a constructive order. No question arises regarding a contractor's right to compensation when dealing with a clear directive to accelerate. To prove constructive acceleration, five elements must be established:

First, there must be an excusable delay. Second, the Government must have knowledge of the delay. Third, the Government must act in a manner which reasonably can be construed as an order to accelerate. Fourth, the contractor must give notice to the Government that the "order" amounts to a constructive change. Fifth, the contractor must actually accelerate and thereby incur added costs.

McNutt Constr. Co., 85-3 BCA ¶ 18,397, at 92,279; **see Electronic & Missile Facilities, Inc.**, 1964 BCA ¶ 4,338, at 20,989. "An order to accelerate, to be effective, need not be couched in terms of a specific command. A *request* to accelerate, or even an expression of concern about lagging progress, may have the same effect as an order." **Norair Eng'g Corp. v. United States**, 229 Ct. Cl. 160, 165, 666 F.2d 546, 549 (1981) (footnote omitted); **see Tombigee Constructors v. United States**, 190 Ct. Cl. 615, 632, 420 F.2d 1037, 1046 (1970). If the initiative for the acceleration is at the behest of the Government for the Government's convenience, the difference between a request and an order, as well as the contractor's willingness to comply, is insignificant. A contractor will be entitled to recover for work that is performed in a manner other than that required by the contract. **See Norair Eng'g**, 229 Ct. Cl. at 165, 666 F.2d at 549 (citing **Tombigee Constructors**, 190 Ct. Cl. at 632, 420 F.2d at 1046). A claim may be viable, notwithstanding a failure to complete by the original contract deadline. **See Norair Eng'g**, 229 Ct. Cl. at 164, 666 F.2d at 548. The analysis devolves to whether plaintiff accelerated its performance in response to the direction of government representatives and what costs were incurred as a result.

Generally, plaintiff must provide prompt notice either by oral or written communication to the contracting officer or the contracting officer's representative. Although detailed evidence is not required, plaintiff must provide general information regarding the claim. Plaintiff is not to proceed until defendant has had a reasonable opportunity to investigate the site. Notice need not be given repeatedly for the same conditions. Plaintiff, however, may be permitted to recover in the absence of notice, if defendant cannot show that the Government was prejudiced or at a disadvantage due to the lack of notice. **See Dawco Constr.**, 18 Cl. Ct. at 693; **see also Schnip Bldg. Co. v. United States**, 227 Ct. Cl. 148, 163-65, 645 F.2d 950, 959-60 (1981) (noting that defendant may demonstrate prejudice by, *inter alia*, indicating how the Government could have minimized costs if notified); **Calfon Constr., Inc. v. United States**, 18 Cl. Ct. 426, 438-39 (1989) (discussing purpose of notice requirements in context of changes clause), **aff'd**, 923 F.2d 872 (Fed. Cir. 1990). In the instant case, the contract required plaintiff to provide written notice if 1) it believed it was being directed to accelerate, or 2) it suffered from unusually severe weather entitling it to an extension of time.

The contract permitted time extensions for unusually severe weather pursuant to section H, Special Contract Requirements, ¶ 53(c). To invoke this clause, "[a]ctual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day." The contract contemplated monthly adverse weather delays and directed the contractor to incorporate into its scheduling these anticipated adverse weather delays. The contract forecast a total of six adverse weather delay days in June, five days in July, and seven days in August. (38) Section H, Special Contract Requirements, ¶ 5(b), listing the average maximum and minimum temperatures for the month, as well as the monthly average, states, in pertinent part:

Average Average Monthly

Maximum Minimum Average

June 83 60 72

July 86 65 76

August 84 63 74

September 78 55 67

Plaintiff submitted three volumes of exhibits containing its daily Quality Control Reports ("QCRs") submitted to the Corps. These reports were prepared for the Marseilles lock site by plaintiff's Quality Control Manager, John C. McDonald. (39) In otherwise unilluminating testimony, Mr. McDonald explained that he completed the three-page form each day and kept one copy, while giving another to the Corps. The information in a QCR included, *inter alia*, the number of employees per shift, the contractors present for that day, the activities performed, and weather data. Mr. McDonald stated that these reports were "a compilation of the daily activities and the inspections that [plaintiff] performed." Mr. McDonald retrieved weather information, including the maximum and minimum temperatures, from the lockhouse at the respective locks each morning for the preceding day. This information was required by section H, Special Contract Requirements, ¶ 53 of the contract, entitled TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER, which provided:

(a) This provision specifies the procedure for determination of time extensions for unusually severe weather in accordance with the Contract Clause entitled "DEFAULT (FIXED-PRICE CONSTRUCTION)". In order for the Contracting Officer to award a time extension under this clause,

the following conditions must be satisfied:

- (1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.
- (2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the Contractor.
- (b) The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The Contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY

WORK DAYS BASED ON (7) DAY WORK WEEK

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec (31) (27) (25) (12) (06) (06) (05) (07) (05) (10)
(23) (31)

(c) Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the Contractor will record on the daily Contractor's quality control report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled work day. . . .

Mr. McDonald typically did not record the incidents of adverse weather and its impact on the QCRs because "these reports usually go . . . to the construction reps, and so they can fill out their reports, this rarely makes it pas[t] that point." When asked to clarify his answer, Mr. McDonald indicated that, based upon his prior experience on jobs for the Corps, the QCRs rarely went beyond the Corps representatives, who "would not be the person[s] to contact for something like a change" Instead, Mr. McDonald would record the actual data on the QCRs and then "[u]nder separate cover, we would put the owner on notice and reference a change clause or whatever . . . a pertinent clause was [a]nd then those pieces of correspondence were addressed by the people that would really address those kind of things." Although he believed that someone would record incidents in which the weather had a negative impact upon the work, he did not recall whether he reviewed the reports to note a pattern of hot days or the problems such conditions might cause. (40) The witness repeated on cross-examination that he was not surprised that none of the QCRs reflects any days of delay due to weather

because as I stated before, these reports go to the construction reps. And then they fill out their report kind of based on our and their own observations. And then they go in some file somewhere. And I don't know where else they go. But I guess what I'm saying is if I notice something weird or unusual, I would note it in a journal, and then tell the project manager. [(41)]

Based upon his experience working in the midwest, as well as the adverse weather indicated in the contract, Mr. Cipollone explained that plaintiff's scheduled activities were "padded" with extra time. Although Mr. Cipollone did not expect to cease working at any time during the shutdown, he did expect time extensions for weather in extreme circumstances. He noted that the risk attendant to a contract that did not envision time extensions would be prohibitive. During performance of the contract, however, Mr. Cipollone asserted that it became increasingly evident that the Corps had no intention of granting a

time extension for any reason.

Initially, plaintiff and Mr. Cipollone failed to recognize the effects of the heat. Although contending that the heat was an issue from the first day, Mr. Cipollone thought that the heat could not last "forever" and that plaintiff could "overcome this." When asked about the failure to make a connection between the heat and delay, Mr. Cipollone answered:

We didn't put all that together.

What we had to do was assemble enough data to be able to analyze it, and ultimately it took [Daniel E. Frisbee, a Senior Vice-President and Business Unit Manager for plaintiff], quite honestly, to come to the job with a fresh set of eyes and fresh perspective, to come to the job and see what was happening and review all of these numbers . . . and the month end data that give you more than just man hours to realize what was happening.

Over the course of the project, Mr. Cipollone realized that the heat had prevented plaintiff's employees from working "[a]ll the time. From the very start, it prevented us from working. . . . But we never sent the people home." Despite its inability to complete 50% of the anticipated work during the course of some days, plaintiff did not halt its operation. The impact of the heat was not indicated in reports, because the multitude of factors inhibiting plaintiff's production obscured the effects of the heat. Nor did the reports record lost time for heat-related injuries. Reasoning that the Corps would not look at the reports, Mr. McDonald testified that he did not describe on-site conditions. Mr. Cipollone nonetheless insisted that "everybody knew what was happening here. Everybody knew we had extremes in temperature."

After discussions with Mr. Frisbee, Mr. Cipollone, on August 22, 1995, submitted a written request to the Corps for a time extension for unusually severe weather. Although the request did not disclose the actual number of delay days plaintiff attributed to the heat, Mr. Cipollone took the position that the Corps possessed all of the necessary knowledge to make a decision. ⁽⁴²⁾ As noted previously, the Corps denied the request by letter dated August 24, 1995, from Contracting Officer Bonnie R. Donelson. Mr. Cipollone did not submit any follow-up data in support of plaintiff's request, because the Corps letter indicated that the request was denied, and because Mr. Cipollone viewed past practice on this project as demonstrating that the Corps would not grant any time extensions. Mr. Cipollone acknowledged that the Corps could hold plaintiff to the contract schedule, "if there weren't these outstanding factors." Aside from the August 22, 1995 letter, Mr. Cipollone did not alert the Corps, in writing, of excusable delays due to weather because, according to Mr. Cipollone, the Corps conveyed that both parties were too busy to be bothered by more requests.

Mr. Price, plaintiff's Operations Manager, stated: "In my entire career I have never experienced heat like that. It was the worst conditions I ever worked in." He explained that the heat had an impact on a daily basis, such that it was an "implied automatic statement," even if not written in the daily reports. In addition to the fatigue from the heat, Mr. Price also noted that the workers were suffering from general physical fatigue.

Mr. Frisbee was responsible for supervising Mr. Cipollone, whose activities Mr. Price supplemented as an advisor. Mr. Frisbee visited the site on July 20, 1995. Although aware of a decline in productivity, ⁽⁴³⁾ Mr. Frisbee took no action at that time. Preparation for a monthly meeting of plaintiff's board of directors and receipt of disturbing information from the job site caused Mr. Frisbee to return to the site on August 21, 1995. Upon arrival, Mr. Frisbee observed added equipment and the "sluggish" manner of the workers. He immediately had concerns with regard to the safety and state of exhaustion of the

workers. Mr. Frisbee believed that plaintiff was being accelerated because of a constant heat condition, which he referred to as a "death wave." He returned to the site on August 22, 1995, and, after conversations with Mr. Cipollone, decided to shut down the project and regroup. Plaintiff eliminated the night shift at this time, save for essential operations, to "bring ourselves back into line and back into control from a management standpoint." The elimination of the night shift was not an effort to accelerate. Mr. Frisbee directed Messrs. Cipollone and McDonald to develop a realistic schedule, without regard for the Corps' concerns with eliminating negative float. Mr. Frisbee addressed his concerns to Corps personnel, who proved unreceptive to his proposals.

At this time Mr. Frisbee directed Mr. Cipollone to write the previously referenced August 22, 1995 letter to the Corps requesting a time extension. When asked why such notice was not sent at an earlier date, Mr. Frisbee responded:

I don't . . . have an answer to that. I mean, the answer is that I was there. I saw a condition that was, you know -- our staff and the people were not in a productive mode. They were being . . . directed to do things that they . . . were not aware of from the standpoint of the impacts of . . . the overall progress of the job and the cost of the job.

And so from my perspective, I'm a fairly fresh person to walk onto the site. I can see this thing with my experience and level of understanding of what was . . . supposed to be going on. And it wasn't happening. So . . . I'm telling these guys, "Do this right now."

Mr. Frisbee interpreted the Corps' subsequent denial of plaintiff's request as a direction to complete. In response Mr. Frisbee notified the Corps by letter dated August 25, 1995, that the matter was disputed and that plaintiff claimed entitlement to a minimum of ten days because of the heat delay. [\(44\)](#)

Mr. Frisbee's impression of Contracting Officer Donelson's August 24, 1995 letter denying plaintiff's request was that plaintiff would not be granted time extensions during the shut down and that the parties would "deal with this" after the work was completed. Ms. Donelson responded with a letter dated August 28, 1995, stating:

Our letter of August 24, 1995 to you did not deny your request for a time extension due to unusually severe weather; it denied *any* time extension for *any* reason and directed you to hold to the original contract schedule calling for completion of all lock closure work and the reopening of the three locks to navigation as of September 9, 1995.

Ms. Donelson then went on to explain that the Corps did not consider this a constructive acceleration because

[t]o date you have stated no firm claim for a specific number of delay days, nor any facts, information, documents, analysis or other evidence supporting your claims for a time extension due to unusually severe weather.

. . . .

Because of the importance to the nation of the resumption of navigation on the Illinois Waterway, we must hold you to the original contract schedule to complete the lock closure work and open the locks to navigation as of September 9, 1995. Any constructive acceleration claim will be reviewed and decided after [plaintiff] has submitted the appropriate evidence and analysis.

....

Should [plaintiff] refuse to comply with our direction or fail to regain scheduled progress, we will consider termination for default and offer [plaintiff's] surety the opportunity to take over and complete contract work on an emergency basis.

Mr. Frisbee reasonably assumed that the last sentence of this letter was a directive to accelerate. In his August 29, 1995 letter to Ms. Donelson, Mr. Frisbee noted the daily discussion of the severe weather in newspapers and his belief that the Corps was issuing a change order to accelerate the work under the Changes clause of the contract. Ultimately, plaintiff continued its performance during the lock closure period despite the heat. Mr. Frisbee explained: "We wanted to continue. We felt that the Corps wanted us to continue and that's what we did."

In response to the court's question regarding why plaintiff failed to direct either Mr. Cipollone or Mr. Price to record the impact on every activity of the heat and Teamsters strike, Mr. Frisbee ascribed the absence of recordation to the project's short duration. Mr. Frisbee explained that no one kept a diary because on-site personnel suffered mental fatigue, the Corps exerted domineering pressure, and the impact was not apparent until mid-August. In contrast to plaintiff's position regarding the futility of requesting extensions of time, however, Mr. Frisbee acknowledged that plaintiff applied for a time extension for the days lost due to the Teamsters strike in an effort to preserve its rights.

Defendant's account of the weather and any resultant impact is diametrically opposed to that of plaintiff. Michael D. Hamilton, the Corps' Quality Assurance Representative and Inspector for this project, opined that the summer in question was "just another summer." Mr. Hamilton, who was on site daily at the Brandon Road lock, was responsible, *inter alia*, for ensuring that plaintiff adhered to the contract specifications, for writing daily Quality Assurance Reports ("QARs") and for communicating with plaintiff's quality control representative. The weather did not seem unusually hot "by any means" to Mr. Hamilton, either on the top of the lock or down in the chamber. He did not observe many reactions to the heat and was not aware of the reports indicating that heat-related deaths were occurring in nearby Chicago. Recalling one individual who suffered from the heat, Mr. Hamilton noted that the Corps assisted in reviving him. The witness also recalled two incidents in which plaintiff did not provide sufficient quantities of drinking water for on-site workers, in one instance because the water was used to cure the concrete prior to pouring. (45) Mr. Hamilton did not observe the any effect of the weather on plaintiff's rate of progress, noting that such a slow down, intentional or not, would be apparent to him due to his experience. According to Mr. Hamilton, while the addition of an extra shift did not decrease the rate at which the workers were progressing, the impact on plaintiff's progress was more a result of tension between plaintiff and its workforce, (46) as well as a series of inefficiencies for which plaintiff was responsible, including a lack of equipment and breaches in the lock culvert. (47) Mr. Hamilton recorded in his QARs the inefficiencies that he observed. With regard to time extensions, Mr. Hamilton took the position that he was unaware of any policy prohibiting extensions and that he personally did not convey to plaintiff that there would be no extensions or that the work had to be accelerated.

James E. Farris, a Construction Representative for the Corps at the Brandon Road lock site and later at the Dresden Island lock site, was responsible for the Corps' scheduling, daily interaction and communication with plaintiff and the workers. Mr. Farris attempted to visit every part of the site each day, including the internal portion of the lock chamber when dewatered. Conceding that some days were hot, Mr. Farris characterized the summer in question as "not unusually hot." He did not notice any change in the normal work rate because of the weather. Indeed, the workers within the lock chamber were unaffected by the varying temperatures. Although Mr. Farris spoke with plaintiff's supervisors each day, he was not informed that the heat was affecting the workers. (48) In fact, Mr. Farris provided

specific direction that any weather-related problems be included in plaintiff's QCRs. He neither observed any heat-related problems, nor received any information of such problems. With regard to time extensions for such a delay, Mr. Farris stressed that he retained no control over such matters or plaintiff's workforce, but monitored reports, documented the work, and ensured its quality and conformance. He was unaware of a policy prohibiting time extensions.

Wesley L. Larsen, the Lead Inspector for the Corps at the Marseilles lock site, was responsible for administering the contract and ensuring that the work was performed properly. Mr. Larsen's inspection of the work required that he be outside and at times in the lock chamber. According to Mr. Larsen, a number of days were hot, but the conditions were "no different than any other summer." Hot days were typical, during the summer in Illinois, "but you get used to it . . . that's your job." Mr. Larsen was personally familiar with many of the workers on the site, none of whom brought to him concerns regarding the heat. Mr. Larsen did recall one incident in which the heat interfered with laying concrete, and the concrete pipes had to be separated and cleaned. Even though acknowledging that the heat may have an effect on some of the workers and that some people work slower because of the weather, Mr. Larsen did not recall any other incidents or believe that the work rate/productivity was impeded by the heat. (49) He confirmed other Corps employees testimony that a policy prohibiting time extensions did not exist, stating that no one ever requested a time extension to his knowledge. On cross-examination Mr. Larsen admitted that, although he did not observe additional laborers being added, he believed that the locks would open on time. He retained this belief until plaintiff discontinued the night shift on August 23, 1995.

Defendant called Contracting Officer Donelson, who was not familiar with the contract. Together Ms. Donelson and Janet K. Hall administered this contract with equal authority. In response to questioning concerning plaintiff's August 22, 1995 request for an extension, Ms. Donelson stated that plaintiff's claim was denied because it was unsupported. She held plaintiff to demonstrating that the weather was more severe than that delineated in section H, Special Contract Requirements, ¶ 53 by documenting that it could not perform 50% or more of the scheduled work on critical path activities for these days. (50) Because plaintiff failed to make the requisite showing and because she was not authorized to grant an extension without adequate supporting information, Ms. Donelson denied the request. Ms. Donelson testified unconvincingly that her August 24, 1995 letter did not constitute constructive acceleration. She regarded the letter as merely restating plaintiff's obligation to take every step necessary to adhere to the schedule. Ms. Donelson reiterated that no policy prohibited time extensions.

Cross-examination elicited that Ms. Donelson did not investigate plaintiff's claim, reasoning that such an investigation was unnecessary in the absence of other complaints. She relied, in part, on the field personnel to assess the purported conditions, which plaintiff's letter "just didn't justify." (51) With regard to plaintiff's August 25, 1995 letter in which Mr. Frisbee wrote: "We are not able to determine the specific number of days delay we are entitled to for weather at this time but it appears it will be in excess of ten days based on the National Weather Service 30 year average and taking into consideration what should have been anticipated," Ms. Donelson asserted that plaintiff failed to indicate the specific days or the work affected. Plaintiff did not miss any days of work because of the heat. In sum, she believed that plaintiff's information was insufficient to justify a time extension.

Ms. Donelson testified more persuasively that timely notification would have allowed for alternatives to acceleration. For example, work could be resequenced or deleted from the project's scope of work. However, because plaintiff's evidence for any time extension for weather or differing site conditions was insufficient, the Corps did not delete work from this project. (52)

The only person on the job site with full authority was the Contracting Officer's Representative, Mr.

Gervais, who reported to Ms. Donelson, was responsible for administration of the contract, and functioned as the resident engineer on site. Mr. Gervais was aware of the warm weather, but was not aware of any impact on the work and did not recall expressions of concern that the heat was affecting job performance from either the workers or plaintiff's supervisory personnel. (53) Following plaintiff's claim for heat, Mr. Gervais assessed the impact of the heat on plaintiff's rate of progress. He discovered a number of delays caused by plaintiff's failure to have or properly use equipment on site. Mr. Gervais also remarked on the animosity between plaintiff and its workers due to the absence of "normal construction tool[s]." To his knowledge no policy existed against granting a time extension, and he did not tell anyone that time extensions would not be granted for any reason or direct plaintiff to accelerate. (54)

The foregoing testimony depicts two remarkably different scenarios, with each party's account portrayed consistently by its respective witnesses. The court is inclined to credit the testimony of plaintiff's witnesses, given the rote responses of Corps personnel that this summer was no different than any other. The union affiliations held by Messrs. Hamilton, Farris, and Larsen, that plaintiff emphasized, are noted. However, the conspicuous absence of a written record undermines plaintiff's case. **See G & H Machinery Co. v. United States**, 16 Cl. Ct. 568, 574 (1989) (finding conclusory statements "largely unsupported by evidence with any independent guarantee of reliability" insufficient to support recovery); **see also Wunderlich Contracting Co. v. United States**, 173 Ct. Cl. 180, 199, 351 F.2d 956, 968 (1965) (stating that contractor has "essential burden of establishing the fundamental facts of liability, causation, and resultant injury"). **See generally Paragon Podiatry Lab., Inc. v. KLM Labs., Inc.**, 984 F.2d 1182, 1187 (Fed. Cir. 1993) (holding "'subjective intent . . . unavailing without objective evidence to support that contention'" (citation omitted)). "[I]t is well-established that mere assertions or allegations, standing alone, do not constitute proof of facts." **Park Constr. Co.**, 95-2 BCA ¶ 27,777, at 138,528 (citation omitted). Plaintiff failed to record any information regarding the impact of the heat on its productivity. Also absent is evidence of the effect of the heat upon the workforce. Although plaintiff's QCRs record the daily high and low temperatures, they do not contain anecdotal information or descriptions. **See id.** at 138,529 ("The contemporaneous actions of parties which arise prior to the heat of the dispute, by word or conduct, will be given great, if not controlling weight."). Plaintiff thus not only failed to avail itself of the opportunity to document what its personnel on site all viewed as obvious handicaps caused by extreme weather, but also failed to discharge its obligations with regard to recordkeeping under the contract of which, as a sophisticated contractor, it should have been aware. (55) **See id.** ("These contemporaneous written records are presumed . . . to represent actual job site conditions.").

The excuses proffered by plaintiff's witnesses that the duration of the project prohibited such record keeping and that such recordkeeping would be futile, are rejected. Plaintiff was aware of the necessity of recordkeeping to preserve its rights under the contract, as evidenced by its submission of a request for a time extension for the Teamsters strike at Brandon Road and Mr. Frisbee's admission in this regard. Plaintiff also was on notice to keep records, if it had not been doing so, from Ms. Donelson's August 28, 1995 letter in which she indicated that any claim for constructive acceleration would be reviewed and decided upon submission of appropriate evidence. (56)

Given the fulsome rendition of the ravages caused by heat on the workers and progress on site, it is inexplicable that plaintiff waited until August 22, 1995, to alert the Corps of how the heat had impacted productivity. Even assuming that the August 22, 1995 letter provided adequate notice, the record remains deficient. In the absence of notice and supporting documentation, plaintiff is unable to demonstrate an excusable delay and therefore unable to prove acceleration. **See Broome Constr., Inc. v. United States**, 203 Ct. Cl. 521, 531-32, 492 F.2d 829, 834-35 (1974); **Park Constr.**, 95-2 BCA at 138,529; **McNutt Constr.**, 85-3 BCA at 92,279; **cf. Electronic & Missile**, 1964 BCA at 20,983-84

(holding contractor, who provided 30 written requests for time extensions due to weather, entitled to recover).

Plaintiff's attempt to provide missing productivity information through the testimony of its expert did not compensate. Dr. James J. Adrian focused his investigation on lost productivity. (57) In Dr. Adrian's opinion, productivity will decrease with an increase in temperature and difficulty of the task. A typical loss of productivity due to increased temperatures would be approximately 20% to 30%. Small increases in temperature can have a significant effect on productivity once the temperature reaches a certain point. In his efficiency analysis, Dr. Adrian focused on four factors: temperature, overtime, overcrowding, and difficulty of the work due to overbreak. (58) Noting that the sum total effect of all four factors was greater than each individual factor and that other factors were not accounted for, but which would have had an impact, Dr. Adrian concluded that plaintiff lost a minimum of 31,024 hours. Dr. Adrian's analysis did not account for instances in which plaintiff was inefficient or made an error resulting in delay, e.g., the mitre gate skirt work and setting of the bulkheads. Nonetheless, he was confident that such probabilities were accounted for because his calculations also resulted in a delta. (59) Dr. Adrian explained:

[T]he issue becomes that I took the actual hours that were incurred and calculated the lost productivity because of the factors of heat, et cetera.

Those specific events that may or may not have happened are not calculated individually by me, and the reason they aren't is I'm not concerned. I have a significant delta that I believe was more than looking at that list, is greater than the sum of hours that you're talking about. That's why I didn't do that.

The court is unable to discern from Dr. Adrian's analysis a causal relationship between the weather and plaintiff's loss of productivity. Plaintiff's loss of 31,024 man hours appears to be the result of factors that were not included in Dr. Adrian's calculations. For example, Dr. Adrian does not account for physical or mental fatigue or errors such as breach of the lock culvert. Most significantly, Dr. Adrian's analysis does not delimit a specific loss attributable to weather. Coupled with the lack of contemporaneous records, the lack of a specific loss due to weather precludes a finding in plaintiff's favor. "The claimant bears the burden of proving the fact of loss with certainty, as well as the burden of proving the amount of loss with sufficient certainty so that the determination of the amount of damages will be more than speculation." **Lisbon Contractors, Inc. v. United States**, 828 F.2d 759, 767 (Fed. Cir. 1987);

Having failed to establish that the delay was the fault of the Government or to prove its losses with sufficient certainty, plaintiff may not recover damages. **See William A. Smith Contracting Co. v. United States**, 155 Ct. Cl. 1, 9-10, 292 F.2d 847, 852 (1961); **see also Tyger Constr. Co., Inc. v. United States**, 31 Fed. Cl. 177, 259 (1994).

CONCLUSION

Plaintiff has failed to establish that it encountered either a Type I or a Type II differing site condition. Due to the lack of contemporaneous documentation, plaintiff failed to demonstrate that unusually severe weather affected its productivity, thereby resulting in an excusable delay over which plaintiff was constructively directed to accelerate. Accordingly, based on the foregoing, plaintiff has failed to prove its case by a preponderance of evidence. The Clerk of the Court shall enter judgment for defendant.

IT IS SO ORDERED.

Christine Odell Cook Miller

Judge

1. Section C-02140, ¶ 6 provided: "LIMITATIONS: Operation of the lock(s) shall be disrupted only upon approval by the Contracting Officer. The locks will be closed to navigation a maximum of 60 calendar days from 11 July 1995 to 8 September 1995. No extended width restrictions to navigation will be allowed." Section H, Special Contract Requirements, ¶ 1.2 further provided, in pertinent part:

The closure of the Brandon Road Lock, Dresden Island Lock, and Marseilles Lock will commence on 11 July 1995 and be completed not later than 8 September 1995. During the 60-day period, the Contractor shall be required to complete all work at the three project sites as listed below. As of 9 September 1995, the three locks shall be fully operable for navigation traffic.

2. The Oliver lock and dam project was under construction from May 1988 to August 1992. Both Mr. Allen and Mr. James J. Cipollone, plaintiff's Project Manager, participated in the Oliver lock and dam project, which involved new construction, blasting, selective concrete removal, concrete placement, and work on FMBs. Mr. Allen and Mr. Cipollone based their estimate for the Illinois Waterway Project, in part, on their experiences estimating and working on the Oliver lock and dam site.

3. The parties frequently utilized the terms construction joint, lift joint, and cold joint interchangeably when referring to the joint resulting from two pours of concrete. A construction joint is an intentional break between different pours of concrete. A cold joint results from concrete that is poured a different times and does not bond chemically.

4. Mr. Allen also testified that if the bid estimate had been prepared with blasting as the method of removal, "that would have made a large difference in the way we prepared it," particularly because blasting would require a different drilling pattern and plaintiff would have had to hire a blasting consultant prior to bidding.

5. Plaintiff's bid allotted \$143,000.00, \$37,000.00, and \$110,000.00 for removal of concrete at Brandon Road, Marseilles, and Dresden Island, respectively. The Corps estimated that the same concrete removal would cost \$144,811.00, \$58,928.00, and \$106,994.00, respectively.

6. Plaintiff is a sophisticated contractor with significant prior construction experience. Plaintiff describes its background, as relevant to this project, as follows:

[Plaintiff], an experienced contractor on large, complex civil works projects, had performed contracts for the [Corps] prior to bidding upon and receiving award of the Project to rehabilitate the Brandon Road, Dresden Island and Marseilles locks. [Plaintiff] had performed concrete removal for refacing the Dashields Lock in Pittsburgh, Pennsylvania and original construction at Oliver Lock on the Black Warrior River in Tuscaloosa, Alabama, including blasting 200,000 cubic yards of rock. The work [plaintiff] performed at Dashields also included removal of concrete for installation of FMBs. [Plaintiff]

performed the Dashiels lock work during a shutdown period of about the same length as that provided under the Contract for this project.

Plf's Br. filed Oct. 29, 1998, at 2.

7. Ludwig was also charged with developing a plan for the blasting, which was later submitted to and approved by the Corps.

8. Although he had not taken any courses in concrete blasting and had limited experience in blasting lock and dam sites, Mr. Ludwig testified that the company was qualified to perform the required work on this project because it "had extensive work in . . . quarry blasting, . . . quarry blasting is harder than concrete blasting," and its employees were highly qualified.

9. Prior to working for Ludwig, Mr. Camodeca had no experience in blasting or with explosives. He recently had graduated from the Citadel with a major in political science and a minor in criminal justice.

10. Due to the limited success of the first two blasts, Ludwig detonated a third blast to remove the remaining concrete at FMB No. 1 at Marseilles on July 18, 1995.

11. Overbreak is the removal or loosening of concrete in excess of intended limits. Spalling is a form of overbreak localized on the lock chamber wall that exceeds the lines of limitation or, in this instance, the sawcuts.

12. The contracting officer also took the position in her August 28, 1995 letter that plaintiff's evidence "does not yet support a time extension for unusually severe weather." Plaintiff sent a written response, dated August 29, 1995, in which it explained that it "did not send detailed evidence of unusually severe weather since the extreme weather throughout the midwest and its disastrous [sic] effects on people is being documented daily in the newspapers."

13. Sills are concrete ledges on the bottom of the chamber floor that the lock gates close against when they are shut. Quoins are metal blocks, one on the lock wall and one on the gate itself, at the point where the gate closes.

14. Negative float indicates that the lock work was behind schedule and would not open as required on September 8, 1995. By adjusting the schedule and adding more workers and equipment, plaintiff was able to remove negative float from the schedule. Plaintiff maintains that readjustment of the schedule, as well as the introduction of more labor and equipment, masked the delay resulting from both the heat and differing site conditions through which it was accelerating.

15. Additional work was completed after the lock reopened, including the pouring of a four-foot section of concrete and minor clean-up work.

16. The record reveals that plaintiff, charging the Government with superior knowledge of the site conditions, relied frequently upon the Corps to review submissions with regard to their feasibility, rather than for simple compliance with the contract documents. For instance, in its July 3, 1996 claim letter, plaintiff stated:

The plans submitted by [plaintiff] made reasonable inferences about the nature of that concrete from site inspections. The [Corps] with superior knowledge of the details of the concrete to be removed, approved the submittals and authorized the implementation of those plans. Without the detailed knowledge of age,

tensile strength, weathering, etc[.], of the concrete, [plaintiff]/Ludwig met its obligations under the Contract and reasonably assumed that the submittals approved by the Corps would accomplish the result that the Corps specified in the Contract Documents; that such pre-drilling, saw cutting and blasting would result in blasting within the concrete removal lines and enable [plaintiff] to use the length of rebar dowels and concrete anchors specifically specified in the Contract Documents.

Plaintiff's position stands in stark contrast to the submittal procedures as outlined in the contract. Section C-01305, ¶ 2 of the contract provides:

The approval of submittals by the Contracting Officer shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error which may exist, as the Contractor under the Contractor's Quality Control requirements of this contract, is responsible for the dimensions and design of adequate connections, details and satisfactory construction of all work. . . .

17. In her October 31, 1996 letter, the contracting officer concluded that "the solicitation and contract disclosed the information possessed by the Government concerning the concrete at each of the work sites. Reference Drawing No. R320, set out information on concrete cores taken at Marseilles in 1974." (Citations omitted.) Special Clause H-5, ¶ 8 disclosed additional physical data regarding the concrete at the three sites and indicated where other reference documents were located. In describing the concrete, the contracting officer found that the concrete in question "was typical of concrete on locks in the region. The referenced inspection reports showed no unusual distress or conditions at the areas for the new floating mooring bitts. There was nothing about the concrete which rendered removal to the dimensions shown, without tremendous overbreakage, impossible." (Citations omitted.)

18. Although denying plaintiff's claims in all other respects, the contracting officer concluded that plaintiff was entitled to recover \$4,539.10 for additional concrete work involving the quoins.

19. When plaintiff submitted its claim letter, the claim for cardinal change was premised, *inter alia*, upon ten modifications and two pending change orders. The largest modification, P00011, which was negotiated and executed prior to the shut-down period, provided for the installation of structural members in the lower sills of the mitre gates permitting future installation of spare mitre gates. Modification P00011 was applicable to all three sites and was covered by line item No. 0090 for \$343,759.50. In her October 31, 1996 letter denying plaintiff's claim, the contracting officer determined: "The modified work was merely an extension of the planned labor force and equipment that was utilized

19/ (Cont'd from page 12.)

throughout the lock outage period; the change merely increased the quantities of concrete removal, concrete replacement and structural steel members." After reviewing each modification and pending change order, the contracting officer found that "the contractor's own errors, inefficiencies and misjudgments were much more important in determining the course of this project." A review of the modifications reveals that the work encompassed therein was generally the same as that of the original contract scope. Aside from concern regarding the loss of incentive payments for early completion in the context of P00011, plaintiff did not seek time extensions for these modifications. Plaintiff declined to pursue this theory at trial and has failed to demonstrate that such modifications constituted a fundamental change to the contract. See **Krygoski Constr. Co. v. United States**, 94 F.3d 1537, 1543 (Fed. Cir. 1996), **cert. denied**, 520 U.S. 1210 (1997) ("[C]ardinal change . . . occurs when the government effects an alteration in the work so drastic that it effectively requires the contractor to

perform duties materially different from those originally bargained for. By definition, then a cardinal change is so profound that it is not redressable under the contract . . .").

20. This amount was reduced by \$941,052.00 to \$6,098,589.51 upon settlement of plaintiff's claim for work involving gate fabrication.

21. On October 16, 1998, defendant also filed a motion to dismiss ¶ 17 of plaintiff's First Amended Complaint on the ground that plaintiff had failed to present the differing site conditions claim to the contracting officer. The October 7, 1998 order ruled that the operative facts in this claim were before the contracting officer.

22. Dr. Konya relied on photographs and a videotape of the blasts in which water staining and rusting were apparent on the concrete as evidence of planes of weakness based on the migration of the water through the concrete for a period of time.

23. Dr. Konya maintained that the presence of half-casts indicated that plaintiff did not overload the drilling holes with explosives.

24. Dr. Konya opined: "If all the holes are loaded the same and if the pressures are the same from the explosives, then the results should be the same if the concrete's the same. But if the results change, then it has to be because of the concrete and nothing else."

25. Mr. Loizeaux suggested that such a channel would also sever the rebar dowels in the face of the lock wall concrete and assist in its removal. Although agreeing that channels would have provided more relief for the blast energy, Dr. Konya did not share Mr. Loizeaux's opinion regarding the rebar dowels.

26. Mr. Loizeaux stated:

I don't know of anyone, . . . who on a project of this type of material, and I'm not talking about my company; I'm talking about people that I have worked with in the industry, who would go in and blast and keep blasting without excavating to see exactly what the overbreak was specifically because those blasters, at least in the industry that I'm familiar with, would have had their general liability insurance on the line.

Apparently that was not the case here for some reason, but if your reputation, your general liability insurance is on the line, you have to do everything you can to protect that. That means you keep your best and most experienced people there with it.

27. Defendant objected to the rebuttal testimony of Dr. Konya and moved to strike it from the record contending, *inter alia*, that it was prejudiced by the absence of its blasting expert, who had left the country on another job. The court reserved its ruling until the conclusion of the proceedings and now overrules defendant's objection. Any prejudice to defendant was offset by permitting defendant's scheduling expert to testify similarly on rebuttal after plaintiff's expert had departed.

28. Dr. Konya, however, acknowledged that a good deal of his consulting work was conducted via telephone.

29. The court's reasoning in this regard is bolstered by the constantly evolving nature of plaintiff's theory of recovery in this case. Due to plaintiff's addition of a differing site conditions claim incident to trial and the resultant prejudice to defendant, any inferences should weigh in defendant's favor.

30. Mr. Cipollone conceded that he believed initially that Ludwig was responsible for the overbreak, and intended to hold Ludwig liable for the cost of repairs and scheduling delay. Plaintiff withheld the sum of approximately \$125,000.00 due under the subcontract as a result of the overblasting. The court draws no inference against plaintiff on this point.

31. Mr. Cipollone testified that plaintiff attempted to use the splitters, in areas where blasting was not allowed, with little success. "We didn't feel that it was reasonable to stop and try to evaluate other methods. We had tried our splitters. That was Plan B. That was what the holes that we drilled were designed to accept, the splitters . . . didn't work." Mr. Cipollone admitted, however, that plaintiff did not look for more powerful splitters, which, in his opinion, were unavailable. Mr. Price concurred in the assessment that other splitters would not prove useful in removing the concrete.

32. Mr. Ludwig did recount one instance in which the drillers encountered a void, which was subsequently grouted. He was unaware of any other voids and acknowledged that Ludwig did not maintain a drilling log.

33. That the FMB work could have been deleted is supported by Mr. Cipollone's statement that

the Corps suggested that maybe we should focus on the gates, ignore the bits, and open this lock, and if there is a big, gaping hole in the lock wall because we didn't finish the mooring bits, that's okay; we'll finish it with active traffic. So they did suggest that we might be proceeding in that direction [*i.e.* focusing on the gates regardless of the state of the FMBs], and I resisted that.

34. In mid-August Mr. Gervais directed Mr. Cipollone to focus plaintiff's efforts on the mitre gates instead of the FMBs. Mr. Gervais indicated that some of the work could be completed after the locks were reopened.

35. Even assuming that plaintiff is correct in that the blasting did not improve at each site, which is suggestive of a differing site condition, plaintiff failed to provide defendant with notice enabling it to address the developing situation.

36. Additional support can be found in the following exchange during Mr. Cipollone's testimony regarding plaintiff's responses to interrogatories:

"[Interrogatory:] Identify all documents which state the overblasting was caused by differing site conditions.

[Response:] The expert report of Dr. Calvin Konya, the transcripts of Dr. Konya['s] September 4, 1998 deposition and [plaintiff's] July 3 certified claim letter state overbreak was caused by differing site conditions."

36/ (Cont'd from page 30.)

Q: Is that accurate?

A: To the best of my knowledge, yes.

Q: So, no other documents in [plaintiff's] possession state the overblasting was caused by differing site conditions then. Is that correct?

A: To the best of my knowledge.

37. Plaintiff's contention that it was unable to stop blasting to engage in such analysis due to scheduling pressures is unpersuasive, when viewed in the context of the Teamsters strike at Brandon Road, which shut down the work site for four days. Due to the status of the project and the timing of the strike, the Corps directed plaintiff to accelerate over the strike-induced delay and compensated plaintiff for this acceleration. Similarly, Mr. Gervais indicated that, if he received notice of a problem, the FMB work could have been deleted or remained unfinished. Although the record reveals constant pressure to complete the project prior to September 9, 1995, which increased steadily through August, as evidenced by the contentious exchange of correspondence regarding the weather, the fact that the locks reopened between three and ten days thereafter did not result in a calamity for either party. In other words, although pressure may have existed, sufficient flexibility existed within the schedule during July to permit plaintiff or Ludwig to investigate the cause of the overbreak and present any problem to the Corps or to alert the Corps that plaintiff did not accept responsibility for the situation. The failure to do so was inexcusable.

38. Although the contract does not state specifically whether the days of delay for which plaintiff must account are due to precipitation delays or temperature delays, the contract indicates the baseline number of adverse weather days that plaintiff was required to incorporate into its schedule.

39. Although not aware of the exact manner in which data was obtained, Mr. McDonald testified that the same information was gathered at the other two lock sites by plaintiff's personnel.

40. Mr. McDonald testified that the measures taken to address the heat included supplying the workers with extra electrolytes and altering the work schedule such that two workers would work on the same task switching off every 15 minutes.

41. The daily construction reports at Marseilles reflect only one day during which work was delayed due to heat, and Mr. McDonald's journal was not presented as evidence in this matter. Delays due to heat were not recorded on any other documentation. A review of the reports for all three sites reveals one incident in which a worker suffered from a heat-related headache. Plaintiff also recounted one incident in which a worker was lifted out of the lock chamber and taken to the hospital to be treated for a heat-related injury. The only other delays reflected in the daily construction reports were those resulting from the Teamsters strike at the Brandon Road lock from July 25-July 28, 1995.

42. Plaintiff's August 22, 1995 letter listed the following facts in support of its claim for a time extension due to excessive and unusual heat and humidity:

1. The high temperature for a series of days in both July and August of 1995 was in the upper nineties and lower one-hundreds.

42/ (Cont'd from page 37.)

1. The normal high temperature for this region of the State is below those temperatures experienced under the duration of the shutdown period.
- 2.
3. During these periods of excessive heat, we experienced loss of efficiency at all jobsites, thus decreasing production, requiring additional days for completion of the shutdown.
- 4.

5. The unusual heat has affected production and is a safety hazard to our employees and work-force. We have experienced numerous instances of heat exhaustion, fatigue and employees becoming unconscious induced by unusually excessive heat.

43. Mr. Frisbee believed that the negative turn in productivity was a result of the heat. Although unaware of the extent, he acknowledged that the overblasting was also a factor.

44. According to Mr. Frisbee, the letter did not request a definitive number of days because the impact of the heat was continuous, and because the actual delay was difficult to discern having been masked by plaintiff's acceleration. Mr. Frisbee's August 25, 1995 letter also stated that plaintiff was assuming that the Corps was directing plaintiff to accelerate to meet the original contract date.

45. Mr. Hamilton stated that tension existed between plaintiff and the workers on site, which was exacerbated by the lack of sufficient water, proper equipment, information, and direction. With regard to the lack of water, Mr. Hamilton noted that little or no productivity occurred on those days due to protests by the workers.

46. Mr. Hamilton spoke with the workers on site and "no one ever talked to [him] about [the heat]." He pointed out that, as union members, the decision to work on a particular day was made by employees. In other words, if the temperatures were extreme, a union worker could choose not to work. Mr. Hamilton stressed his lack of supervisory control over plaintiff's workforce.

47. The lock culvert is a tunnel within the lock wall that supplies water to the lock chamber when it is being filled.

48. On cross-examination Mr. Farris was questioned regarding an incident in which a worker was lifted in a basket out of the lock chamber from the heat on August 20, 1995. Mr. Farris did not recall this incident and stated that he was present only for part of the day. He did note that this would be the type of incident about which he would receive a report.

49. Mr. Larsen also stated that, if the weather were too severe, the workers would have chosen to stop for the day.

50. Contract clause I.80 recited, in pertinent part: "If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Government." The contracting officer "may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained."

Contract Clause I.86 provided, in pertinent part:

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes --

. . . .

(4) Directing acceleration in the performance of the work.

(b) Any other written or oral order . . . from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating (1) the date, circumstances, and source of the order and (2) that the Contractor regards the order as a change order.

(Emphasis added.)

51. Ms. Donelson was questioned regarding a separate lock project in which another contractor was directed to accelerate over delays and compensated therefor. When comparing that project to this one, she stated that each determination must be made on a case-by-case basis; in contrast to the other project, plaintiff did not provide adequate notice permitting directed acceleration within the original contract deadline.

52. Mrs. Hall concurred with Mr. Donelson that plaintiff's evidence, absent quantification, was insufficient to justify compensation or a time extension. Although acknowledging pressure from external interested parties to complete the work by the shutdown deadline, it was not her understanding that the work could not be extended.

53. Notably, in a November 13, 1995 letter to a retired Corps' employee, Mr. Gervais stated: "I appreciate all the hard and grueling hours you worked under the extreme heat from mother nature and also the extreme heat from the contractor trying to skate by on some of the work."

54. Defendant does not dispute that plaintiff was directed to accelerate over the four-day delay at the Brandon Road site.

55. Section H, Special Contract Requirements, ¶ 53(c) required that "the Contractor will record on the daily Contractor's quality control report, the occurrence of adverse weather and resultant impact to normally scheduled work." (Emphasis added.)

56. The October 2, 1995 claim letter demonstrates that plaintiff was aware that it would be required to prove an excusable weather delay. The letter stated: "This constitutes acceleration if [plaintiff] establishes weather delays."

57. Plaintiff also offered the testimony of Scott D. Gray of the Barrington Consulting Group, Inc., regarding a quantification of increased costs and damages resulting from, *inter alia*, the overbreak and weather conditions. Mr. Gray did not separate his analysis to reflect those costs and damages attributable to weather and those to overbreak, although defendant had requested this information from Mr. Gray during deposition. Prior to trial Mr. Gray had

57/ (Cont'd from page 46.)

ample opportunity to revise his analysis and provide defendant with the requested information. Consequently, the court did not permit Mr. Gray during trial to revise his analysis and delimit such costs, reasoning that such late revision was prejudicial to defendant. Prohibiting Mr. Gray from revising his analysis also counterbalanced any prejudice to defendant resulting from plaintiff's late-noticed differing site conditions claim.

58. Dr. Adrian explained that overcrowding not only concerned having extra people on the job site, but also raised a managerial sequencing issue.

59. Dr. Adrian conceded that "there are at least . . . a hundred factors that can affect productivity," including morale.