RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

June 18, 1979

Subject: Monitoring Report #1

Cargill Burns Harbor Elevator

Burns Harbor, Indiana

Cargill Inc.

Project: [redacted]

Date of Monitoring: June 6, 1979 (working day 111)

Actions taken:

- Reviewed current status of project
- Reevaluated contract packaging
- Continued work on network models for contract documents and awards
- Prepared study model for construction of concrete storage mat and the scale tower pit

General Summary

After a brief review of the current status of work, we began a comprehensive discussion of contract document packaging. Mr. Johnson and Mr. Weis requested we reevaluate the design packages for the concrete silo, mat and tunnel, the rail and truck pit, and the scale tower pit. A comparative evaluation was made of several different schemes with the decision being made that we would proceed to incorporate design of the concrete silo, mat and tunnel, and the design of the scale tower pit into the slip form contract.

The intent presently is to have Fling Associates prepare a scale tower pit, silo mat and tunnel design which will be incorporated into proposal documents upon which the slip form contractor will propose. The slip form contractor will design the silos but will have a ready made design for the silo tunnel and mat and the scale tower pit.

It was also decided that a separate contract would be let for all H piling. The total contracts presently anticipated are shown in 12 packages as defined below:

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1 - Site work

2 - Temporary power

3 - Fixed form concrete (minus concrete silo tunnel and mat and the scale tower pit)

4 - Steel tank design, fabrication and erection

5 - Slip form (including construction of concrete silo tunnel and mat and scale tower pit)

6 - Office

7 - Structural and mechanical and dust control

8 - Electrical

9 - Steel piling (H piling only)

10 - Paving

11 - Railroad work

12 - Temporary utilities (other than power)

Identification of the contents of these packages is shown on the matrix for Burns Harbor revised as of June 6, 1979 (working day 111).

As we discussed packaging of contract documents, it became apparent that a critical point was how and when construction of the scale tower pit, the concrete storage tunnel and the concrete storage base mat would be done. Therefore, we prepared a preliminary diagram (not for construction) Sheet 1, Issue #2, June 6, 1979 (working day 111) to simulate how construction could proceed under the revised packaging system.

Using a separate contract document package (CD-9) for sheet piling, driving at the concrete storage area and scale tower area could possibly start as early as October 24, 1979 (working day 209). Work would then proceed on the concrete storage mat and tunnel except for that work adjoining the scale tower pit.

Under the present plan, sheeting at the scale tower pit probably would be able to begin about January 10, 1980 (working day 262). Attempts are being made to gain an earlier starting point, and we shall review the process in depth at subsequent sessions.

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Once scale tower pit walls have been brought up close to grade, silo foundations can be completed. This allows the mat to be completed about April 29, 1980 (working day 340) with slipping to start about May 13, 1980 (working day 350). The dates given are preliminary and must be completely reviewed for validity. The task times assumed for constructing the scale tower pit were made optimum. Since construction is proceeding in winter weather, the durations might have to be increased.

In reviewing the entire project, it is obvious that issuance and approval of contract documents along with letting of contracts requires careful interfacing with the Indiana Port Commission (IPC). The IPC will issue contract documents, receive proposals, and award contracts for each of the 12 packages. I have stressed to all memebers of the project team the importance of early establishing well defined, agreed upon, written procedures for all the various activities which must be accomplished by Cargill and the Indiana Port Commission. This is presently being done by Mr. Johnson.

Because of the complexity of the contract package analysis, we were not able to focus at this meeting on other project activites. We plan to do this at subsequent sessions. Meanwhile, the engineer will again review his present sequence of operations and confirm they can meet the target dates we discussed in our monitoring session.

Since a new contract document package (CD-9) was added for piling we prepared on Sheet F-3, Issue #2, dated June 6, 1979 (working day 111) a diagram of the process to obtain proposals and award contracts. Steel piling contract documents will be started June 25, 1979 (working day 124). They will be issued for review and approval by the IPC and Cargill after which IPC will issue the drawings and receive proposal. Prior to this, advertising must be done for the contract by IPC. Once proposals are received, they will be reviewed, the contractor selected, contracts awarded, and steel piling fabricated and delivered. It is hoped at present that piling can be on the job by October 24, 1979 (working day 209) for start of work at the most critical areas.

Prior to start of field work, it will be necessary to make a perimeter primary power changeover. Present plans are to do this in late August or early September 1979. At the changeover point, the temporary load center for the project will be energized and the existing primary service at the new concrete silo location will be deactivated. This work is shown on Sheet S-1, Issue #1, dated May 30, 1979 (working day 106).

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We shall plan to again meet and continue diagramming early critical work shortly. I will be in touch with Mr. Johnson and Mr. Kleinschmidt to select an appropriate and agreeable date.

Ralph J. Stephenson, P.E.

RJS:sps

Original to Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Don Biorn
Mr. Dean Kleinschmidt

Further internal distribution to be made by Mr. Johnson

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Subject: Monitoring Report #2

Cargill Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39

Dates of Monitoring: October 24 and 25, 1979 (working days 209 & 210)

Actions taken:

- Reviewed current status of project
- Continued evaluating contract packaging
- Prepared summary diagram for grain receiving area
- Prepared preliminary construction diagram for receiving pit, scale tower pit, concrete storage silos and steel tank foundations
- Began evaluation of control systems work

Contract document preparation

Contract documents are being prepared according to the revised contract packaging matrix updated at this session. This matrix was issued to those at the meeting, with the major change being incorporation of fixed form and slip form concrete into one package.

A brief review of the status of each contract package is given below:

CD 1 - Sitework

It was decided to include the following items in site work contract documents:

Fire protection
Water
Sanitary sewer
Gas

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Oil piping
Grain sampling line casing
(All above to within 5 feet of point of use.)

Rough and finish grading
Landscaping
Miscellaneous concrete

Present plans are to issue site work contract documents no later than June 27, 1980 (working day 382), and award a contract by September 2, 1980 (working day 427). If an earlier date is desired, appropriate adjustments should be made to the starting date for design.

CD 2 - Temporary power

The contract document package is prepared and ready for printing and issue. Present plans are to award a temporary power contract by December 6, 1979 (working day 239). This is essential in order for the temporary load center to be constructed, and work to proceed on installation of the new primary perimeter line.

The primary perimeter changeover is presently due to be completed no later than January 10, 1980 (working day 262). This is an extremely important point because it frees up the start of pile driving at the truck and rail receiving, and scale tower pits. Presently this work is due to begin no later than January 23, 1980 (working day 271).

CD 3 -

This package has been combined with CD 5.

CD 4 - Steel tank design, fabrication and erection

Some miscellaneous work is presently in progress on the steel tank proposal package. It is the intent to award a contract for steel tanks no later than March 21, 1980 (working day 313). To do this, it will be necessary to issue the proposal package for CD 4 no later than February 1, 1980 (working day 278). This appears feasible at present.

CD 5 - Slip form and fixed form concrete work

The contract documents are presently in work and will be ready for a final review on November 30, 1979 (working day 235). After Cargill's and the Port Commission's review and approval, revisions will be made and the CD 5 documents will be issued December 20, 1979 (working day 249).

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It is intended to receive proposals, review these and select the contractor, then to issue a letter of intent for contract package 5 on February 12, 1980 (working day 285) or earlier. This will allow early detailing and delivery of pit resteel. Present intent is to begin the pit mats and walls by March 31, 1980 (working day 319).

CD 6 - Office and other buildings

Included in this package are the office building and electrical buildings 1, 2, 3 and 4. The electrical buildings have been located and identified on the Cargill preliminary general arrangement drawing.

Preparation of the office building program is presently near completion and will be approved by November 30, 1979 (working day 235). Following approval of the program, final contract documents will be prepared and completed, ready for final review by January 15, 1980 (working day 265). These documents will be issued by February 4, 1980 (working day 279) with a contract award being made by April 7, 1980 (working day 324).

CD 7 - Structures, machinery and dust control

This is the most critical and difficult package of the group with the possible exception of the electrical package CD 8. Work on the structures, machinery and dust control contract package is presently in work and expected to be complete February 29, 1980 (working day 298). Following that will be a review and approval, and a minor revision period, after which the documents will be printed and issued by April 8, 1980 (working day 325). A contract is to be awarded for the C CD 7 package by July 2, 1980 (working day 385).

Strenuous efforts must be made to improve the date of issue and the award of contracts on this contract package because it is so critical to the project. Some suggestions have been made to bring issue to an earlier date. Each suggestion will be followed and analyzed for its appropriateness immediately. It is of the utmost importance, so as to avoid gaps in continuity of construction, that a way be found by which proposal package CD 7 can be delivered earlier.

CD 8 - Electrical

We approached the analysis of this package on the basis it would consist of the regular electrical work, presently planned

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for issue, review and approval by February 29, 1980 (working day 298), along with control information from the grain lab. It is expected that the two elements of the CD 8 package will proceed concurrently with printing and issuing of the CD 8 proposal package, including control work to be done by April 18, 1980 (working day 333).

Contract award for CD 8 is presently set for July 8, 1980 (working day 388). As with the structures and machinery contract, this set of proposal documents must be issued earlier if at all possible. Consideration of compression of time for CD 7 and 8 will proceed together.

CD 9 - Piling

It was decided to incorporate sheet piling in the steel piling contract. The CD 9 package will be issued November 2, 1979 (working day 216) for final review and approval. A letter of intent will be issued by December 17, 1979 (working day 246), after which we have allowed approximately 33 working days to detail, approve, fab and deliver sheet piling; and about 25 working days to acquire early steel piling for start of pile driving and work.

This brings start of pile driving at the truck and rail receiving (TRR) and the scale tower (ST) to January 23, 1980 (working day 271).

The pile contract CD 9 is a milestone contract since it is the first major construction unit to be let and is the key to starting the entire project once the primary power relocation has been completed.

CD 10 - Paving

The intent presently is to pave either in late 1980, prior to cold weather, or in early spring of 1981. CD 10 is not a large contract document package and presently poses no major difficulties to issuing.

CD 11 - Rail

Present plans are to award a contract for rail work no later than October 1, 1980 (working day 448). This will allow rail work to be completed prior to the onset of cold weather in 1980 and permit construction to be completed at the receiving pit area.

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CD 12 - Temporary utilities

Has been eliminated.

Summary diagrams

We monitored from sheet S1, Issue #1 dated May 30, 1979 (working day 106), updated to Issue #3 dated October 24, 1979 (working day 209). This network shows installation of the primary perimeter changeover, which is an essential ingredient to starting work in the field. As noted above present plans are to complete this changeover by January 10, 1980 (working day 262), with start of driving piles by January 23, 1980 (working day 271).

The other summary diagram prepared was for the receiving system, sheet S2, Issue #3 dated October 24, 1979 (working day 209). This sheet shows the activities required to activate the receiving system. The elements of the receiving system are straight forward but many are contained in the structures and machinery package CD 7 and the electrical package CD 8. Therefore, it is important we continue to identify methods by which we can issue these two packages earlier.

No durations were put on the summary diagram sheet S2, since there was not adequate data available at this session to complete quantification.

Construction diagrams

Next we prepared a detailed model for installation of the concrete storage mat, concrete storage silos, the scale tower pit, the truck and rail receiving pit, the steel tank tunnels and foundations, and piling for the grain dryer. Present plans are to start driving piling on January 23, 1980 (working day 271), and to continue on through in sequence from the scale tower and truck and rail receiving to the grain dryer, finishing up on the concrete storage mat.

When pile driving at the receiving pits and scale tower is complete, sheet piling can be driven, followed by excavation, bracing, pile cutoff, then construction of the pits themselves. It presently appears that the scale tower and truck and rail receiving pits will be completed by late July, 1980. There is a difficulty here in that the structures and machinery contract CD 7 will not be awarded until about July 2, 1980 (working day 385). Thus, we will be ready for the equipment in July, 1980 with little, if any, equipment available to install.

Construction of the concrete storage mat will be able to start once the tunnel under the mat has been built for about two-thirds of its length

RALPH J. STEPHENSON, P.E.
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and after we have placed 50 to 70 percent of the engineered fill at the steel tank area. Present plans are to complete the concrete mat, ready for completion of slip forms, by June 17, 1980 (working day 374). The forms will be ready for slipping by July 14, 1980 (working day 392), with the silos slipped out and the roof deck poured by August 4, 1980 (working day 407).

It should be kept in mind that the network model shown on sheets C1 and C2 represent a conceptual plan that appears presently achievable. However, it will take extremely close managing of the contract document package and award of contracts, along with early procurement, for this plan to be achieved.

It also is going to take good managing of the procurement process for acquiring, checking, approving and returning shop drawings. On sheet P1 (for procurement), Issue #3 dated October 24, 1979 (working day 209) we showed the process presently planned for approving shop drawings. Normal time for turnaround is 31 working days from receipt of shop drawings by the CD contractor to receipt of approved shop drawings (1 cycle only) by the supplier. The expedited time is 15 working days and the super-expedited time is 10 working days. Thus, we must carefully consider these turnaround times when establishing early deliveries of key materials, such as piling, sheeting, pipe, resteel and other such items required in early 1980.

General Summary

Overall, the project is now taking form and a pattern of design and construction is emerging. I suggest strongly that continual and detailed attention be given to monitoring design package progress on a day-by-day basis from here on out, due to the critical nature of practically all contract document packages. A superintendent has been appointed to the job and active field preparations are underway.

I shall be in touch with Mr. Johnson soon to set the next session. Meanwhile I suggest that drafting of the material that has been prepared as a result of this session be considered, and I shall talk with Mr. Johnson about this in the near future.

Ralph J. Stephenson, P. E.

RJS:jc

cc: Mr. Allan Johnson (O)
Mr. Bruce Weis
Mr. Dean Kleinschmidt
Mr. Don Biorn

Further internal distribution
to be made by Mr. Johnson.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

February 5, 1980

Subject: Monitoring Report #3

Cargill Burns Harbor elevator

Burns Harbor, Indiana

Cargill Inc.

Project: 79:39

Dates of Monitoring: January 17 and 18, 1980 (working days 267 and 268)

Monitored from Issue #3 dated October 24, 1979 (working day 299)

Actions taken:

- Reviewed current status of project work
- Completed diagramming additional CD packages
- Completed diagramming pre-construction network for truck and rail receiving pits, scale tower pit, and concrete storage
- Continued preparing procurement networks (sheet P-2)
- Prepared scale tower network model (sheet 3)
- Began preparation of network model for major electrical installation (sheet 4)

Contract document preparation

Work on contract documents is proceeding fairly well and overall, design work is meeting most targets between early and late starts and finishes. A brief review of each of the contract packages is given below:

CD 1 - Site work

No major work has begun on the site work package. However, discussions will be held shortly with the port commission to review the content of the package, and preparation is expected to begin on April 28, 1980 (working day 339). This is the present target date shown in the Issue #4 network.

The content of contract package 1 - site work is shown on pages 1 and 2 of Monitoring Report #2.

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CD 2 - Temporary power

A temporary power contract was awarded about December 21, 1979 (working day 250). The change over for primary power is being made now and work on pile driving has begun in the field.

CD - 4 - Steel tank

The proposal package will be printed and issued on February 1, 1980 (working day 278). A contract is expected to be awarded by March 21, 1980 (working day 313). Steel tank work could become quite critical due to the fact that the tanks and the adjoining conveyor systems are necessary for putting the receiving system into operation.

I suggest that all front end procurement for steel tank work be done as quickly as possible.

CD 5 - Slip form and fixed form concrete work

The proposal package has been issued and proposals are due to be received by Cargill and IPC on February 8, 1980 (working day 283). A letter of intent is expected to be issued by Cargill by February 18, 1980 (working day 289).

This is an important package since it includes both fixed form and slip form concrete work. Pile driving has begun on the site and soon after this contract is let there will be CD 5 package work to be started at concrete storage and the steel tanks. Work on mass excavation is expected to begin at the steel tanks by February 25, 1980 (working day 294).

CD 6 - Office and other buildings

The final office building contract documents are being prepared with present plans to print and issue the package by March 21, 1980 (working day 313). A letter of intent will be issued by May 5, 1980 (working day 344).

Since the office building package contains other structures including motor control center buildings #1, #2, and #3 along with the shop, it is a key package. The desire presently is to get the electrical buildings up and secure as quickly as possible, so electrical work can proceed at an early date.

In addition, of course, the need to get the office building started will be important since it is the facility that houses the major control console. Thus an early award of the contract will allow start of procurement on long lead time items.

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CD 7 - Structures, machinery and dust control

This package has been sub-divided into two section, CD 7 which includes the items shown on sheet CD 4 , Issue #4, dated January 17, 1980 (working day 267) and a package CD 13 which primarily relates to structures and machinery at the scale tower.

Package CD 7 is in work with expectations it will be prepared and submitted for initial review by February 29, 1980 (working day 298). The present goal is to issue it for proposals on April 8, 1980 (working day 325) and to issue a letter of intent by June 12, 1980 (working day 371).

This package will also be important to unlocking sizable numbers of long lead time delivery items.

CD 8 - Electrical

We discussed at some length the relationship between issuance of the electrical package and the control work to accompany this package. Presently the design electrical package is to be submitted February 29, 1980 (working day 298), with printing for issue to be started on April 11, 1980 (working day 328).

Before these drawings are printed, however, it will be essential to make a final review and approve the CD 8 control system. This control system has dropped behind projected targets over the last two months, but if constant attention is given it now and field device locations are incorporated into the CD 8 package as it is prepared, we can make the final target for review by April 10, 1980 (working day 327).

The field device locations drawings will be complete and submitted January 24, 1980 (working day 272). Meanwhile, the grain lab is providing the architect engineer with location information as the package is being prepared. Close cooperation between the grain lab and the architect engineer along with the remainder of the project team is essential if we are to make our target dates.

CD 9 - Piling

A letter of intent has been issued and the piling contractor began driving yesterday, January 17, 1980 (working day 267). It is expected he can proceed in sequence as outlined on sheet 1, Issue #4, dated January 17, 1980 (working day 267).

RALPH J. STEPHENSON, P.E.
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CD 10 - Paving

A decision tree analysis was made of how best to let the paving contract. This decision tree is shown on CD 5, Issue #4, dated January 17, 1980 (working day 267). It was decided that a paving sub-base contract would be let at an early date to allow installation of sub-base materials to proceed during early construction. This is so as to provide a construction road system that will remain usable during poor weather.

The paving sub-base letter of intent is expected to be issued by April 1, 1980 (working day 320). Meanwhile, the paving contract document package #10 will be prepared, with a contract to be awarded sometime between mid-1980 and mid-1981. This will allow good traffic compaction of the sub-base to be achieved before installing a final base and wearing course.

CD 11 - Rail

Present plans are to explore the possibility of combining the contract rail work with the port commission's off site rail contract work. This matter is being investigated at present and a decision will be made soon. Present target is to have the package ready for issue by February 28, 1980 (working day 297).

CD 13 - Scale tower

The scale tower package has been issued, and proposals are due February 8, 1980 (working day 283). This will allow a letter of intent to be issued by February 25, 1980 (working day 294).

Scale tower work is very important, and we have prepared a considerable amount of detail on early procurement of items in this package. This work is shown on sheet P-2, Issue #4, dated January 17, 1980 (working day 267).

CD 14 - Paving sub-base

Discussed above.

Procurement

The procurement sheets will be given sheet numbers with a prefix "P". To date there are two sheets - P-1 and P-2, being used for planning procurement and front end work.

RALPH J. STEPHENSON, P.E.
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On sheet P-1 is shown the shop drawing turn around time which we prepared at our previous monitoring session. A quick review of these turn around times indicates we should maintain a normal turn around of 31 working days, an expedited time of 15 working days, and a super expedited time of 10 working days. I suggested further to the Cargill project team that a clarification of the architect engineer's responsibilities and activities in the approval period of shop drawings be made so that needed checks and balances on shop drawings can be maintained.

On Sheet P-1 was also shown preparation and submittal of the slip form design documents. We are still maintaining a target of April 7, 1980 (working day 324) for Cargill and Fling's review and comments on the slip form contract documents.

Procurement shown on sheet P-2 contains most of the long lead time items to be installed at the scale tower as well as the beginning items that are a part of the electrical package. I suggest strongly that careful attention be given this sheet to insure that early acquisition of shop drawings and their prompt processing be aggressively maintained. Procurement work on many recent projects indicates it is becoming increasingly important to an effective construction program. We shall continue to prepare additional procurement networks as the detail diagrams are made.

Truck and rail receiving and scale tower pits and concrete storage work

On sheets 1 and 2, Issue #4, dated January 17, 1980 (working day 267) is shown the projected plan of work expected at sub-grade in the scale tower, truck receiving, and rail receiving areas. Also included is the sub-base work for concrete storage and the steel tanks.

Work is presently under way on driving piling at the truck and rail receiving and the scale tower. From there piling installation will move to the west side of the concrete storage mat, then to the east side, and concurrently piling will be driven at the grain dryer with sheet piling also proceeding at the scale tower and receiving pit.

The network indicates we can expect to be done with most of the concrete work at the truck and rail receiving area by about early August 1, 1980. The steel tank foundation should be ready to start steel tank work about mid-June, 1980, and slipping of the concrete storage silos is presently planned to begin by June 13, 1980 (working day 372). It should be emphasized that all of these dates must be confirmed as the contract packages are awarded since presently there are shown only as desired targets.

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Scale Tower (ST)

On sheet 3, Issue #4, dated January 17, 1980 (working day 267) we have shown the projected construction diagram for scale tower structural steel and equipment. This network model will be reviewed in detail by the field forces for Cargill , and we will monitor progress from this network on an interim basis.

Presently, it is expected to begin erection of structural steel lower area by July 24, 1980 (working day 400). The importance here is that we bring the pit section of legs 30, 31, 33 to the job about the same time so that they can be installed prior to work on the structural steel moving substantially up above the pits. Presently plans are tohhave lower leg equipment on the job by July 17, 1980 (working day 395).

Electrical Work

On sheet 4, Issue #4, dated January 18, 1980 (working day 268) we began planning the electrical installation work particularly that which involves site work and conduit runs to the various motor control centers. We also identified approximate targets for completion of motor control centers #1, #2, and #3 structures. We will continue this work at subsequent diagramming sessions.

Receiving system summary diagram

A brief review was made of the receiving system summary diagram, sheet S-2, Issue #4, dated January 18, 1980 (working day 268). Due to the fact that detail logic has been revised slightly over what was assumed in the original issue of this summary diagram, we used only very rough milestone evaluations of the date by which we could expect receiving to be on line. The goal presently is to ready the elevator for receiving in the first one to three months of 1981. As the work proceeds in the field, and our planning work continues we will progressively refine this date to establish realistic targets for full grain receiving operations.

General Summary

Overall, the project team is still deeply involved with getting contract document packages issued in timely fashion. Field work has begun, and present plans indicate the job is running in fairly close conformance to the planning we have been doing over the past several months. Again, to be emphasized, is the careful and continuous attention that must be paid to first,preparation and issue of contract documents, and second, procurement operations which require close cooperation between Cargill, the architect engineer, and the contractors involved.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Mr. Johnson has said that we should process the diagrammed information presently on the sheets into a standard computer run format. I shall do this and issue it to the project team for early use sometime in the near future.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Dean Kleinschmidt
Mr. Don Biorn

Further internal distribution to be made by Mr. Johnson.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

February 16, 1980

Subject: Monitoring Report #4

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39

Date of Monitoring: February 5, 1980 (working day 280)

Target completion date: to receive grain by early 1981

Monitored from Issue #4, dated January 17, 1980 (working day 267)

Actions taken:

- Continued work on procurement networks (sheets P-2 and P-3)
- Prepared network model for above grade steel tank system
- Prepared network model for partial installation of electrical work (sheet 4)
- Prepared network model for below grade work on truck and rail receiving (sheet 6)
- Added miscellaneous items to scale tower and truck and rail receiving pit networks (sheets 1 and 2)

General Summary

The main activity at this session was to continue diagramming, and as a part of the diagramming, monitor contract document progress.

The major package presently in work is the structures/machinery/dust control, package CD-7. It is still the intent to complete, prepare, and submit the package for preliminary review by Feburary 29, 1980 (working day 298). This allows a letter of intent to be issued by June 12, 1980 (working day 371). The steel tank package (CD-4) was issued today, February 5, 1980 (working day 280) two days later than had been intended. However, it is hoped to pick up some time in the review and approval period and to issue a letter of intent close to the original date projected, March 4, 1980 (working day 300). Work on other contract packages is apparently moving well, although we did not monitor these in depth at this session.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

The prime planning thrust today was to obtain a better feeling for the date of completion and activation of the receiving system. Components of the receiving system that must be workable by the time grain is to be accepted include the following:

- The truck and rail receiving hoppers along with conveyors, BC 201 and 203.
- The receiving and shipping leg including all equipment and spouting.
- Motor control center #3 at the top of the concrete bins activated.
- Steel tanks 300, 400, and 500 with related conveyors 215, 214, and 213 and accompanying valves, spouting, and gates
- Motor control centers #1 and #2 activated

The scale tower had been diagrammed at a previous session and completion of it set for about January 30, 1981 (working day 532). This signified completion of installation of the samplers. There will be other work following, primarily in hydraulics, electrical, and control installation.

At this session we diagrammed the electrical work contained in package ED-8. This includes installation of site electrical distribution from the northern Indiana service company primary entrance to the north side of the rail into electrical building #1, and out from there to the motor control centers, the shop, the probe station, the office, and the truck and rail receiving area.

We also prepared as much as possible of the plan for installing motor control centers #1, #2, #3, and to some extent #4. The remaining two motor control centers, one at the office and one in the Peco crane, were not analysed during this planning meeting.

Installation of electrical work can proceed with fair continuity at motor control centers #1, #2, and #3, but the control conduit and wire to these motor control centers must await installation of related equipment and field devices before being completed. Thus, finishing work at these areas depends almost totally upon having the equipment to which it relates in place and substantially complete.

At the truck and rail receiving (TRR) once supported floor slabs are poured out at the receiving pit, installation of hoppers and load cells followed by conveyors, spouting, and samplers

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

February 29, 1980

Subject: Monitoring Report #5

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39

Date of Monitoring: February 20, 1980 (working day 291)

Target completion date: Receive grain by early 1981

Monitored from Issue #5, dated February 5, 1980 (working day 280)

Actions taken:

- Completed major portion of electrical work network model (Sheet 4)
- Continued preparing critical procurement plans (sheets P-2 and P-3)
- Added additional work items on truck and rail receiving diagrams (sheets 1 and 6)
- Revised CD-8 (electrical) package sequence plan (sheet CD-4)

General Summary

Our main objective at this session was to complete, as far as possible, the network plan for installation of electrical work at the four major electrical buildings, EB-1, 2, 3, and 4. This work is shown on sheet 4, Issue #6, dated February 20, 1980 (working day 291).

In addition, we also completed the plan for installing the underground secondary system and for bringing permanent primary power to electrical building #1. A brief review of the elements of the electrical system and other parts of the program is given below:

Permanent primary power

To install permanent primary power the Northern Indiana Public Service Company (NIPSCO) must install their primary cable to the Cargill property entrance. Also, when electrical conduit has been installed by the electrical contractor from the primary

gear to the utility corridor through utility sleeves under the railroad, NIPSCO can construct the outside equipment bases at motor control center #1.

After switch gear and transformers have arrived on the job site (presently expected at October 17, 1980 (working day 460)), these can be set and NIPSCO will pull and terminate cable from the transformers to the switch gear and also from the utility corridor to the switch gear. Once the cable is pulled and terminated to the switch gear, it can be energized and the transformer will be energized so permanent primary power is available by October 30, 1980 (working day 469).

There is some concern by the project team that a work stoppage might be encountered which would prevent NIPSCO from completing their work on schedule. There is no present way by which the probability of a work stoppage can be evaluated accurately, so it is imperative we expedite all work to the greatest extent possible once the electrical contractor is selected and a letter of intent issued. It is planned to issue an electrical letter of intent for package CD-8 by June 17, 1980 (working day 374).

Underground secondary

This work consists of installing electrical conduit between the various major project elements including the primary manhole outside electrical building #1, the office building, the shop building and probe station, electrical building #2, electrical building #3, electrical building #4, and truck and rail receiving. Target dates for this work are shown in the electrical work diagram on sheet 4, Issue #6, dated February 20, 1980 (working day 291).

Electrical building #1 - (EB-1)

This is a key facility since completion of EB-1 restrains pulling wire to most of the major areas of the project. It is planned to install the underground electrical work at EB-1 as soon as the electrical contractor has mobilized and moved on the site. Also needed for this activity to start is completion of the engineered fill at the steel tanks.

The installation of electrical underground is followed by pouring the EB-1 slab on grade and walls and then installing the switchboard. The switchboard is to be placed before the roof is erected on EB-1.

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Following construction of EB-1, control panels and motor control centers can be set and wire pulled for the system served by this facility. In addition, since EB-1 occupies a central distribution point for primary power, this building must be closed in before wire is pulled to other major terminal points. Areas EB-1 serves include:

- Dust system
- Dryers
- Aeration fans
- Tank draw offs

Of these, the dust system is needed for receiving.

Electrical building #2 - (EB-2)

Following construction of EB-1 slab on grade and walls, EB-2 will be constructed to close in and made secure. Control panels and motor control centers can then be set, followed by installation of control conduit to the control panel, and power conduit to motor control centers. EB-2 serves the following areas:

- Truck dumps
- Hydraulics
- Receiving conveyors
- Samplers
- Personnel hoist
- Rail loadout
- Dust receiver

The critical activity is to get the elements wired so grain can be received as early as possible. Receiving elements needed are truck dumps, hydraulics, receiving conveyors, and samplers.

For the purpose of these network models we have taken as much information as is available from our other summary construction diagrams and established points at which we could start control and power conduit to the various field devices and motors. These assumptions were made so as to obtain a preliminary look at what completion date can be expected for electrical work.

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Electrical building #3 - (EB-3)

EB-3 is at the bin tops and can be built once a portion of the roof and silo forms have been stripped. The target date for beginning work on EB-3 is presently set for July 24, 1980 (working day 400). Once the building is up, the control panels and motor control centers can be set followed by installation of power and control conduit.

At EB-3 there are housed some solid state starters which presently have a later delivery date than the motor control centers. Delivery of the solid state starters is estimated for September 10, 1980 (working day 433) while motor control centers are expected on the job July 16, 1980 (working day 394).

EB-3 serves the following areas:

- Steel tanks
- Steel tank distribution
- Silo distribution
- Legs
- Cleaners
- Two dust systems

For receiving to be operative, it is necessary to have the steel tanks, steel tank distribution, legs, and the dust system available.

Electrical building #4 - (EB-4)

EB-4 is located at the dock area and will not be installed until dock area work is well along and ready for construction of the small masonry structure. This electrical building is not required for making the receiving system operative.

Control panel design and fabrication

Major control panel work can begin once Cargill has made their final review and approval of the electrical CD's. This is expected to be by April 4, 1980 (working day 323). The plan for receiving this approval is shown on sheet CD-4, Issue #6, dated February 20, 1980. Once approval has been given of the CD's, the grain lab will prepare field connection diagrams for all the following control panels:

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- Peco control panel (1)
- Grain dryer control panels (3)
- Truck dump control panel (1)
- Sampler control panel (1)
- Office control panels (4)
- Electric room control panels (6)
- Car loadout control panel (1)
- Truck probe control panel (1)

We prepared design and fabrication plans for control panels 2, 1, 3, and 4. To start this work, field connection diagrams will be prepared for all control panels, after which design and drafting for control panel #2 will be initiated. This will be followed by fabricating and delivering control panel #2. The other control panels will be designed, drafted, fabricated, and delivered in sequence.

Field connection diagrams can be printed and issued as soon as they are prepared, and these will be used by the electrical contractor to actually install, wire, and terminate control panels in the field. The schedule dates set up for control panel work meet the targets required for those elements considered necessary for receiving grain. However, these plans must be reviewed on a continuing basis to insure that all portions of the receiving control system have been identified.

Truck and rail receiving system

A difficult problem encountered in planning truck and rail receiving (TRR) was late deliveries of conveyors 201 and 203, and of hoppers S-11, S-12, and S-13. Therefore, it was decided at our session today that we would assemble and issue for proposals, an early procurement package for truck and rail receiving that would include the hoppers, gates, and belt conveyor 201 and 203 casings and supports. It is presently planned to issue the early procurement package on March 10, 1980 (working day 304) with proposals due back by March 31, 1980 (working day 319). A purchase order will be issued for this early package by April 8, 1980 (working day 325). This procedure will allow procurement for these elements to start much earlier than had been originally considered. Early

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deliveries will, in turn, allow completion of conveyors 201 and 203 at truck and rail receiving to be set at a point that permits installation of control and power conduit work at electrical building #2. The early procurement package will be assigned later to the structures and machinery contractor once that contract has been let.

Procurement information is shown on sheet P-3, Issue #6, dated February 20, 1980 (working day 292).

Dust systems

As our planning proceeds, it becomes apparent that installation of the dust systems could exercise a major restraint and potentially delay early receipt of grain if early purchasing is not initiated. Therefore, at our next meeting I strongly recommend that we review the present plans for installing the dust control system.

Presently dust control work is a part of contract document package #7 for structures, machinery, and dust control. The letter of intent for this project is to be issued on June 12, 1980 (working day 371) and presumably dust control procurement would begin immediately. It would be well for the project team to make a detailed analysis of acquisition of dust equipment to insure it does arrive on the job site when needed, and that we are able to begin its installation as early as possible.

Reviewing the structures and machinery and dust control package (CD-7) indicates that dust control system foundations are in this package. Therefore, they will be started only after a CD-7 letter of intent has been issued. Since dust control is such an important part of receiving grain, we may wish to incorporate construction of the foundations and delivery of materials into summary diagrams at an early date. Again, dust control could prove to be a very critical item and must be considered now.

General

Overall, the project work is presently moving quite well and we are maintaining a fairly good control on the work by the constant attention given to planning CD package issues and letters of intent. There are some items that should be given close attention including issuance of the early procurement package for hoppers, conveyors, and gates at the truck and rail receiving, construction of the dust control system, constant expediting of all electrical equipment, and provision of areas

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in which this equipment is to be set, connected, and wired. Planning items we consider important and that should be done at subsequent sessions include the following:

- Prepare office building summary diagram
- Prepare shipping system summary diagram
- Prepare network model for dust collection system
- Possibly prepare network model for early installation of grain dryers (in the event of a wet crop stimulating need for grain drying at the early receiving point)

I shall be in touch with Mr. Johnson to set our next monitoring and diagramming session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Dean Kleinschmidt
Mr. Don Biorn

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

April 24, 1980

Subject: Monitoring Report #6

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39

Date of Monitoring: April 17 and 18, 1980 (working days 332 and 333)

Target completion date: Receive grain by early 1981

Monitored from Issue #6, dated February 20, 1980 (working day 291)

Actions taken:

- Inspected site
- Monitored project from Cargill network drawings (Cargill network drawings are those prepared with the Cargill staff prior to award of contracts. Contractor network drawings are networks prepared with the contractors once awards have been made. Contractor networks are identified by the word contractor over the job number shown in the lower right hand corner of the network sheet. Contractor networks are also identified distinctly in the computer printout.)
- Conferred with Cargill project staff re current progress of contract document preparation
- Reviewed procurement work to date
- Prepared contractor networks for all major concrete elements of the project
- Prepared contractor network for scale tower contract
- Diagrammed contractor networks for procurement

General Summary

Structure and superstructure contractors are now being brought to the job, and we will be preparing network models with their participation (see note above). These networks will be

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processed and issued for field operations and evaluation of project progress. We will continue to maintain a check on contractor network progress against the original Cargill network model which were prepared with the in-house Cargill staff.

Presently job progress is quite good in the field with major work being under way at the concrete storage area (COS), the scale tower (ST), the truck and rail receiving pit (TRR), and the steel tank area (TK). At this session, we worked closely with the concrete package contractor to prepare network models for major concrete work. This is the prime activity presently under way on the site. Scale tower structural steel and some related equipment is being procured and will follow closely after the concrete foundation work at the scale tower pit.

At this meeting, we issued the computer runs and the dated network models for Cargill networks, sheet CD-1, CD-2, CD-4, CD-5, P-2, P-3, and sheets 1, 2, 3, 4, 5, and 6, Issue #6, dated February 20, 1980 (working day 291). This material was further distributed by Mr. Allan Johnson to the project team.

A brief review of the status of each major job area is given below:

Electrical power supply

It is expected that power will be available for construction operation of permanent equipment late in the year, probably by October 1, 1980 (working day 448). This power will be needed for scale tower, and probably some of the conveyor and leg operations.

Contract documents

The site work contract documents, CD-1, are just being started. Although we have shown them as critical they probably will float out to a later date than presently shown in the initial network model. They were made relatively critical so as to focus continual attention on them.

Steel tank contract documents, CD-4, have been issued and a contract letter of intent provided. This was done about February 29, 1980 (working day 298). The fixed form and slip form concrete work in package CD-5 has been awarded, and major work is actively under way at the job site. The office contract document package, CD-6, was issued April 16, 1980 (working day 332), and proposals are expected back shortly. The structures and machinery package, CD-7, has been issued and it is still expected that a letter of intent can be provided

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by June 11, 1980 (working day 370). This is a very important contract, and the work under it will have to be interfaced closely with the scale tower contract already let. The electrical contract document package, CD-8, was issued April 17, 1980 (working day 332) and a letter of intent is expected to be provided by June 16, 1980 (working day 374).

Paving documents, CD-10, have not yet been started. Rail contract document preparation, CD-11, are just now getting under way. The scale tower work package, CD-13, has been issued and a letter of intent provided to the contractor. Procurement work is actively under way. Preparation of paving sub-base, drawings, CD-14, is just beginning. It would be wise to follow this package carefully because there is a possible need for improvements to the site to allow it to be worked without difficulty particularly during winter weather later this year.

Concrete storage

The concrete storage drawoff tunnel walls are substantially complete, and work on the base mat is expected to begin shortly just as soon as some engineered fill can be placed at the steel tank foundation area. Presently the intent is to construct the concrete storage mat in three sections and to allow the slipforming contractor to begin construction of his forms on the mat by May 16, 1980 (working day 353).

The network model prepared for the concrete storage area indicates that the mat will be ready for final work on the slipforms by June 2, 1980 (working day 363) and the slip is planned to begin June 23, 1980 (working day 378) and be complete July 8, 1980 (working day 388). All work on the concrete silos is expected to be substantially complete by October 8, 1980 (working day 453).

Scale tower and truck and rail receiving pit (ST and TRR)

This is a very critical part of the work with present expectations that the scale tower pit lift #3 will have the sheeting pulled and be backfilled by July 15, 1980 (working day 393). At this point work on scale tower legs #30, #31, and #33 base sections can begin. Again, this is an important date since it marks the beginning of scale tower leg and steel erection, a very important pivot point in the entire elevator.

The truck and rail receiving pit is expected to be complete with sheeting pulled and backfilled by July 25, 1980 (working day 401). This also is a critical date so as to clear the entire ST and TRR area for unimpeded field operations which must occur at grade.

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Steel tank foundations (TK)

The tank tunnel base mat is expected to begin April 29, 1980 (working day 340) and to allow steel tank ring foundations to be constructed ready for erection of the first tank by June 19, 1980 (working day 376). This is an important plan of work since presently the tank fabricator indicates that he would like to begin delivering tank sections to the job site just as quickly as possible.

Transfer Tunnel (TT)

Transfer tunnel work will begin once a portion of the steel tank tunnel walls has been completed, the revisions to the TT issued, and resteel delivery is complete. Work on the transfer tunnel will begin about May 28, 1980 (working day 360) and be completed by approximately June 19, 1980 (working day 376).

Dryer foundation (DR)

This work will begin about June 12, 1980 (working day 371) and be complete in about a week. However, due to the fact that it is not as critical an item as other parts of the project, some float time will be available in construction of the dryer foundation.

Truck dump (TD)

Excavation at the truck dump can begin as soon as TRR sheeting is pulled and the truck and rail receiving pit is backfilled. Starting date for excavation is approximately July 25, 1980 (working day 401) with completion of the truck dumps by August 27, 1980 (working day 424).

Scale Tower

Scale tower structural steel below grade is expected to begin by July 17, 1980 (working day 395) and proceed continuously, with installation of garners, hoppers, the cleaner, leg casings, and other equipment moving with erection of structural steel.

Structural steel for the scale tower will be installed in three major sections - that below 599', between 599' and 754', and between 754' and the top of the tower. Structural steel is presently scheduled to be completely erected, plumbed, and bolted by October 1, 1980 (working day 448). This work is shown on sheet #4, Issue #1, dated April 18, 1980 (working day 333).

Procurement

Procurement work is shown on sheet P-1, Issue #1, dated April 17, 1980 (working day 332). This sheet shows all procurement items

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that are essential to completion of concrete work below grade and early erection of the scale tower. The network model was prepared with the contractor for this work, and presently represents a valid plan of action for his field operations.

General

Overall, the project is moving well with contract document preparation and issue in fair shape and field work in fair to good shape.

I shall subject the contractor network, sheets P-1, 1, 2, 3, and 4 to computer processing and issue the model as discussed with the project team. Meanwhile, we shall also prepare a project status report of the work as compared to the Cargill network as referred to previously.

I shall be in touch with Mr. Johnson shortly to set the next planning and monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Dean Kleinschmidt
Mr. Don Biorn

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

June 15, 1980

Subject: Monitoring Report #7

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39 (Cargill plan) and A 79:39 (contractor plan)

Date of Monitoring: June 10 and 11, 1980 (working days 369 and 370)

Target completion date: to receive grain by late February, 1981

Monitored from Issue #1, dated April 17, 1980 (working day 232) (contractor network)

Actions taken:

- Briefly reviewed current job status
- Reviewed project with prospective structures and machinery contractor (contract CAR-5)
- Prepared contractor networks for scale tower, truck and rail receiving pit, truck shed, rail building, truck dump, and top of silo equipment installation
- Prepared procurement networks for above elements of project
- Reviewed total project with scale tower contractor, prospective structures and machinery contractor, and Cargill field and office project staff

General Summary

This session was basically for the purpose of preparing network models for the structures and machinery package work at various functional sections of the job. The Cargill contract designations for various work areas have now been set, with the structures and machinery contract being called CAR-5. Other designations according to the responsibility codes used in our network models for the contractors are as follows:

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Responsibility code in network model	Contractor
11	Site work contractors, CAR-8
13	Steel tank contractor, CAR-4
15	Office contractor, CAR-7
16	Structural and mechanical contractor, CAR-5
17	Electrical contractor, CAR-6
27	Concrete contractor, CAR-2
31	Scale tower structural steel contractor, CAR-3

These designations will be used from now on as the official responsibility codes. I shall put the full responsibility code list on the network models at a future meeting. The code designations are presently shown on the project status report being prepared by Mr. Johnson from the computer runs presently being used.

Our work at this session first focused on a brief review of the current job status. Currently the structural steel and reinforcing steel iron workers are on strike having stopped work June 2, 1980 (working day 363). The site is closed to construction workers, and there is no current word on when work will resume. For the purpose of our network models today, we found it was necessary to make some assumptions, and therefore presumed in our planning that there would be a return to work within seven working days or by June 19, 1980 (working day 376). There is, however, no assurance that this actually will occur. Meanwhile, job operations have, for all intents and purposes, been stopped.

The concrete storage mat is nearly complete, with about ten linear feet remaining to pour out. Engineered fill is well along and a good share of tunnel work for the steel tanks is complete. No work on ring footing has begun as yet. At the scale tower and truck and rail receiving pit, lift #2 at the scale tower is complete, waterproofed, and backfilled while at the truck and rail receiving area, lift #2 bracing is partially removed. We have considered that the pit will be complete, sheeting pulled, and the pit backfilled by July 16, 1980 (working day 394). This date, however, is subject to change depending upon negotiations of the iron worker's work stoppage.

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It is estimated that the silo slip which was originally planned to begin on June 23, 1980 (working day 378) will probably be about 10 working days late. Present plans are to start the slip on July 22, 1980 (working day 398). We have used this date as the basis for evaluating other work depending upon the slip and concrete storage (COS) roof being poured out.

There was not adequate time at this session to evaluate the current status of the contract documents. However, critical to our work is that within the next week it is expected to provide a letter of intent to the CAR-5 contractor for structures and machinery. This contractor very kindly participated in our sessions, and most of the work at this planning meeting consisted of diagramming with their input along with that of the Cargill project team. At this pair of sessions, we prepared the following network models:

- Completion of scale tower equipment and machinery (sheet #4)
- Work at the truck and rail receiving pit area (sheet #5 and #6)
- Work at the top of the concrete storage bins (sheet #8)
- Installation of structures and machinery at the scale tower (sheet #4)
- Procurement plans for the truck and rail receiving area, the scale tower, and the top of silo work (sheets P-2 and P-3)

A brief review of each of these areas is given below:

Scale tower (ST)

Information about the scale tower is contained on sheet #4, Issue #2, dated June 10, 1980 (working day 369). Here we showed installation of all structures and machinery work that goes into the scale tower structure. It appears that we probably can bring most major structures and machinery work at the scale tower to completion by about mid-December, 1980 although there will remain, of course, electrical and control work to be completed. This network model, as will all the models prepared during this session, will have to be reviewed and checked by the CAR-5 contractor since we prepared the network without the benefit of his sub-contractor input. The reason for this was that his letter of intent has not yet been issued.

Field work was related closely to the procurement network shown on sheet P-2, Issue #7, dated June 10, 1980 (working day 369). It should be cautioned that at this area as well as the others

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procurement is practically all critical or has minimal float time available. Thus, the procurement process which starts with preparation and submittal of shop drawings must be initiated immediately upon issue of the letter of intent or we will be in serious difficulty quickly on procurement of critical items.

Truck and rail receiving pit work (sheet #5)

Our major effort here concentrated on getting the hoppers S11, 12, and 13 into the pit so that work at grade level on the pit could begin. Of particular importance is the air isolation gate fabrication and delivery of baffles and grating. Work at the truck and rail areas including the truck dump, truck shed, and rail building is presently planned to be complete by mid-December, 1980 to avoid extensive cold weather construction. Presently the plan appears feasible to maintain as a target date provided the strike is settled soon.

Concrete storage top of bin work (sheet #8)

This area is the most critical since our procurement diagram shows late deliveries of turnheads which, in turn, restrain a substantial part of the installation of structures and machinery at the concrete storage rooftop. Efforts are to be made over the next two days to obtain more authentic information about the processing and fabrication and delivery of turnheads than available now since it will be essential to get most of the work at the top of the concrete storage area done by late this year, 1980. If not, most exposed work will be forced into winter weather conditions which will make it difficult if not impossible to complete the work at the bin tops within the time frame expected.

The network model, Issue #7, sheet #8, dated June 11, 1980 (working day 370) shows the present plan of work which must be compressed. This represents the basic plan from which revisions will be made as additional information is obtained.

General

I left the network model sheets with Mr. Johnson, and he will print and distribute these for contractor use. I shall evaluate the advisability of incorporating the work into the present contractor issue networks, but probably will wait to actually tie them in until the iron worker's strike ends. At that time, we shall update the networks and evaluate the advisability of re-issuing the computer runs. Meanwhile, however, the networks will be used to do the extensive early job planning needed by the structures and machinery contractor.

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On most of the diagrams we were able to compute the early and late starts and finishes. These should be reviewed carefully to assure their accuracy and relation to the desired logic path. I would like to urge that this job be monitored on a careful and frequent basis since the amount of time between now and the receipt of grain in late February, 1981 is extremely short. This means that even small slippages from our required plan of work could become extremely serious and disruptive. In addition, I recommend that we make a full evaluation of the status of control systems design and fabrication at our next session since the work on controls is going to be especially critical for receipt of grain.

We also are going to have to carefully evaluate construction of the office building since it is essential it be built and closed in prior to the onset of cold weather. I shall be in touch with Mr. Johnson shortly to set the next session. Meanwhile, I shall begin drafting the contractor networks into final form for issue.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Don Biern

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

August 6, 1980

Subject: Monitoring Report #8

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39 (Cargill plan) and A 79:39 (contractor plan)

Dates of Monitoring: August 4 and 5, 1980 (407 and 408)

Target completion date: Being re-evaluated due to strikes and rebidding of CAR-5 contract package

Monitored from Issue #1, dated April 17, 1980 (332) and Issue #7 dated June 10, 1980 (369)

Note: These are both contractor networks

Actions taken:

- Inspected project
- Prepared network model for office building
- Prepared network model for electrical buildings
- Prepared network model for installation of electrical conduit runs and permanent power
- Reviewed installation of control equipment at office building in depth
- Prepared additional procurement model for office building and control systems.

General Summary:

The project was delayed by a strike of structural steel and reinforcing steel iron workers which stopped the job on June 1, 1980 (363) until resumption of work on June 23, 1980 (378) This strike was very disruptive since much of the work in progress then was reinforcing steel installation particularly at the truck and rail receiving and concrete storage areas.

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However, the job is now back in production and we reviewed the network models for the contracts let to date using a startup point based upon current project status.

Another problem that has been encountered is that the CAR-5 package for structures and machinery must be rebid. It is presently anticipated that a letter of intent is to be issued on August 27, 1980 (424). This then will free up all work previously diagrammed, after rechecking estimates of procurement time, installation logic and durations.

We will reproject the network models drafted into final form from this date now, so as to provide a base from which further analysis of the job can proceed. I shall have this done and forwarded in rough to Mr. Johnson within the next few days. The major task accomplished during our sessions on August 4 and 5, 1980 (407 and 408) was planning for construction of the office building and installation of control-related equipment. Grain lab personnel came to the sessions to aid in diagramming procurement of necessary materials and equipment.

At the site, the slip is complete and work is about ready to begin on forming and setting in-floor work for the silo tops. The truck and rail receiving pit is being brought to completion, and by August 29, 1980 (426) pit work will be complete and sheet piling pulled so work will be able to proceed on the scale tower. Foundation work for the steel tanks is complete and the steel tank tunnel is installed. Erection of steel tanks is started with all of them presently in progress.

Dock work is also moving well, although we do not have a network model by which to evaluate progress there. However, it is far enough along so that within the next four weeks it is expected we can begin construction of electrical building #4 at the dock area.

A brief review of our planning sessions is given below:

<u>Office building (0)</u>

Work on the office building is in progress with foundations well along and underground electrical and mechanical work just starting at the perimeter of the building. The present intent is to completely install foundations and underground utilities after which the first floor slab on grade will be built. The plan calls for 2nd floor steel to be erected starting September 17, 1980 (438).

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Once the steel is up and the metal deck is down, bearing masonry to the roof can be started with erection of roof and penthouse steel, joists and deck to follow.

Plans are to complete the structure including the penthouse floor slab and bases by October 31, 1980 (470). Close in is expected to follow shortly after that with the roof complete on all areas by mid-November, 1980, and roof top units set shortly after.

Our present target is to have the building completely closed to weather by November 20, 1980 (484). Finish work will follow with the target for clean up and move out for the CAR-7 at the 1st floor being approximately January 27, 1981 (529). Second floor work completion will follow shortly after, probably 10 to 15 working days later. The calculations for this network are to be rechecked since there were many influences and constraints added in later to the interior work. However, presently the above dates are being maintained as preliminary targets.

On our second day's session we gave careful attention to work by the Grain Lab and by the CAR-6 package contractor. It is this contractor who will install the power and control work on the job. Their work in the office building is considerable in relation to the control systems and it must be remembered that the CAR-6 contractor must work closely with the office building contractor CAR-7 to install underground utility work, above ceiling rough electrical work and all work in the control room.

We prepared a detailed plan of operation for the major units to be installed as part of the control system in the office building, and also prepared a detailed procurement plan for each.

Procurement is shown on sheet P-4, Issue #8, dated August 4, 1980 (407)

Key delivery items for the total office building are:

- Structural steel and joists
- Underfloor duct
- Sloped roof metal deck
- Roof top units
- Hollow metal frames and doors

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- Hardware
- Toilet partitions
- Millwork delivery could be a problem, due to millwork's close relationship to control equipment that either sets on it or must be fed to it from outside.
- CP-6
- LC-6
- CPPLC
- SP
- SCP
- RP
- CPFG
- Scale instruments, printers and remote displays
- CPTI

The design and fabrication information provided for this work indicates that the Grain Lab will attempt to meet targets close to installation needs of the office control room.

Electrical buildings (EB)

This work is shown on sheet #9, Issue #8, dated August 5, 1980 (408). Here we have planned the construction of each of the four electrical buildings including setting electrical equipment and bringing the interior of the building including equipment to a point where wire can be pulled through the external distribution system.

Electrical building #1, which is the central building, is due to start in the field on August 18, 1980 (417). It is important to remember that to expedite installation we are planning to set control panels and motor control centers, if possible, at each of these buildings before the precast roof deck is erected; thrrefore, close management of control panel deliveries will be essential so as not to delay erection of precast and subsequent closing in of the buildings. All motor control centers are available as needed.

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At electrical building #1 themost critical item is the main switchboard. Presently the delivery of this switchboard is set for November 19, 1980 (483). Since this equipment is a major key to activation of the permanent electrical system, it would be wise to make strong efforts to bring the switchboard to the job site as early as possible. Mr. Halverson is presently working to expedite delivery with the supplier.

Electrical building #2 is due to begin once a portion of the hopper fill is placed at the concrete storage area (expected to be in place by September 30, 1980 (447). Work will follow a similar pattern to electrical building #1.

Electrical building #3 is on top of the concrete silos, and masonry there can begin as soon as the slip forms have been completely stripped. Work start there is presently planned at September 30, 1980 (447).

EB-4 will be starting within the next 20 working days. This start of construction now planned for September 3, 1980 (428) is set by the progress being made in construction of the dock.

The two electrical manholes, power and control, located near electrical building #1 are to be installed beginning in about two weeks and should be complete within a week. These are critical structures since they allow installation of electrical conduit runs to be started from the optimum point.

Electrical conduit and permanent power

Electrical conduit on the site is to be installed from the manhole, to the office, to the shop, to the probe station, and then from the manhole to electrical building #2. Conduit will next be installed concurrently with utility sleeves, under the track and extending out to EB-4.

Once the east-west utilities are in under the road (CAR-5 contract package) the conduit from the south side of the track to the primary base can be installed. This will be followed by installation of conduit from the south side of the track to the manhole.

Concurrently the Northern Indiana Public Service Company will be laying out and constructing the transformer and switchgear base while also installing primary service from the site boundary to the Cargill entry. When the outside transformer and the outside switchgear are set, the primary

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service is installed to the entry, and electrical conduit is installed to the primary base, the primary cable can be pulled and terminated. After the outside transformer is set and the main switchboard is placed in EB-1 the CAR-6 contractor can pull and terminate cable from the transformer to the main switchboard. When the primary cable and the cable from the transformer to the main switchboard is all pulled the system can be energized at the main switchboard. Present target date for energizing is December 5, 1980 (494). If earlier delivery can be obtained on the main switchboard, this date can be improved.

General

Heavy concentration of effort will be placed on getting the truck and rail receiving pits complete, the sheeting pulled, and the area backfilled so work can proceed on surrounding construction. Concurrently work on the office building, the shop, and underground site electrical installation will continue.

Of importance is to get as much work done early that is sensitive to cold weather as is possible. Probably weather will be getting difficult by mid or late November, 1980 with a possibility of this date being earlier based upon the past two years. Therefore, all exterior concrete and masonry that can be completed early should be given high priorities.

In our diagramming these two days, we prepared sheets #7, #8, #9 and #10 along with procurement sheet P-4, Issue #8, dated August 4 and 5, 1980 (407 and 408). These were given to Mr. Halverson for printing and distribution as desired. I shall proceed to draft these into final form and diagram the 1st and 2nd floor of the office building from our preliminary network models. I shall also date the final drafted network model sheets P-1, P-2 and P-3 and 1 through 6 to reflect current information about when the CAR-5 contractor will be able to proceed at the job. When these are dated, I shall forward them to Mr. Johnson and Mr. Halverson for their review and use. I shall also be in touch with Mr. Johnson shortly to set the next planning and monitoring session.

RJS:po

Ralph J. Stephenson, P.E.

To: Mr. Allan Johnson
CC: Mr. Bruce Weis, Mr. Don Biorn

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

October 11, 1980

Subject: Monitoring Report #9

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39 (Cargill plan) and A79:39 (contractor plan)

Dates of Monitoring: September 29 and 30, 1980 (working days 446 and 447)

Target completion date to receive grain: May 11, 1981 (working day 603)

Target completion for entire facility: July 15, 1981 (working day 648)

Monitored from contractor Issue #8, dated August 5, 1980 (working day 408)

603
446
141

Actions taken:

- Briefly inspected project
- Reviewed procurement schedule prepared to date and added additional items
- Reviewed and updated structures and machinery installation network model
- Updated scale tower contractor network model
- Prepared network model for early steel tank and conveyor work
- Prepared network model for installation of mechanical site work

General Summary

Those attending the sessions were as follows:

September 29, 1980 (working day 446)

Gene Smith, Calumet
Don Short, Calumet
Bob Halverson, Cargill
Allan Johnson, Cargill
Les Jones, Cargill
Jim Kelly, (part time) Aeroglide

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September 30, 1980 (working day 447)

Gene Smith, Calumet
Don Short, Calumet
Bob Halverson, Cargill
Allan Johnson, Cargill
Les Jones, Cargill
Jim Peterson, Calumet
Len Tomaka, Borg Mechanical
Jeffrey Berg, Borg Mechanical

The project is now feeling the impact of earlier delays caused by the structural steel strike and by problems in letting the structures and machinery contract. Therefore, at this session we focused intently on preparing a work plan that encourages as much field activity as possible prior to the onset of cold weather. The weather in the area can be expected to turn difficult between November 17, 1980 (working day 481) and December 1, 1980 (working day 490). It now appears that because of procurement delay potentials, we may have to assume most of the work on the scale tower by the structures and machinery contractor as well as installation of conveyors and other elements of the system will be done during cold weather months in order to meet the present target for receiving grain by May 11, 1981 (working day 603). This is a must date and is being committed to in depth by the entire Cargill project team. Thus, all work must aim at hitting this key point.

In the field, construction of concrete silo tops continues, hopper fill is being installed, and work on the scale tower superstructure is expected to begin within the next five to ten working days. During our review of scale tower steel erection, we were able to reduce total erection time slightly and ongoing efforts will be made to further reduce this time as far as possible.

An item to watch carefully on all structural work is the field painting required. It is observed that most of the structural steel work will not be available for painting until cold weather; therefore, consideration of how painting is to be done should be an integral part of discussions of structural erection.

Steel tank work has moved fairly well, and tank #300 is about ready to receive the roof structure. Tank #400 will follow soon after with tank #500 following in about 40 working days. Tanks #300 and #400 are needed for grain receiving operations and will prove crucial since deliveries on structures and machinery structural elements could force installation of structural work there to proceed on a concurrent basis.

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Dock work continues to move fairly well although we presently do not have a network model to gauge progress. Cell work is proceeding at the west cell, with sheeting nearly complete all around the circumference as of today.

Work at the support structures, office building, shop, sub-station, and electrical buildings is proceeding fairly well and is generally in accordance with our current plan of operations.

Of critical importance to the entire job is procurement, and we spent considerable time in further planning procurement activities so a careful and continuous monitoring can be maintained. Generally, procurement is divided into three sections - prepare and submit submittals, review and approve submittals, and fabricate and deliver the item.

It is urged that these procurement network drawings be reviewed as carefully as possible by all concerned. We will proceed to draft them into final form as quickly as possible. In the interim, prints of sheets P-1 through P-6, as prepared in our network modeling session today, will be distributed to the contractors involved. In addition, sheets 2, 3, 4, 5, and 6 which were updated during our session will be printed and distributed. The new sheets prepared today 12, 13, and 14 Issue #9, dated September 30, 1980 (working day 447) will also be printed and distributed. We will begin preparing computer input for the project plan now that we have a substantial logic for most major portions of the job.

A brief review of each major area is given below:

Procurement

Critical procurement items for the entire job still are those contained in the scale tower and the concrete storage area. Of prime importance are the air isolation gates and turnheads #8 and #9. Heavy efforts are to be made by the SM contractor to improve deliveries over those dates presently anticipated. To be effective he has requested that every effort be given to smoothing the review and approval process and where possible to have those involved in that review and approval spend some time at the job site to expedite approvals. This matter is under consideration presently. No decision has been made as yet. The present bunching of early starts and early finishes on reviews and approvals is of such magnitude that it is of concern. Therefore, an analysis of late starts and

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late finishes is an important consideration. We will try to make this analysis on an ongoing basis and adjust for the high priority items as they appear.

Due to the large number of critical procurement items, it is again suggested that a careful review by the project team by made of sheets P-1 through P-6, Issue #9, dated September 30, 1980 (working day 447).

Scale tower

The truck and rail receiving pit is complete and being backfilled. Installation of scale tower legs #30, #31, and #33 boot sections are expected to start on October 6, 1980 (working day 451) with erection of structural steel to begin soon after on October 8, 1980 (working day 453). Present plans are to complete erection of all scale tower structural steel, plumbed and bolted, by December 4, 1980 (working day 493). This will, in turn, free up the structures and machinery contractor to install his work in the superstructure of scale tower.

An important area to concentrate upon is the truck and rail receiving pit (TRR). One of the most critical items there presently is delivery of the air isolation gates which allows assembly and temporary placement of these gates in the pits. Prior to this placement it will be necessary to place, and temporarily secure receiving hoppers S-13, 12, and 11. Once the air isolation gates have been assembled and temporarily placed, the structural steel at grade can be erected followed by installation of baffles and grating, and completion of work on hoppers, conveyors, and gates. This work is extremely important and must be given a high priority. The key, of course, as with most other areas is procurement of structural items.

Calumet feels that delivery of structural steel at grade for the truck and rail receiving is also a key date and although they do not consider much improvement can be made on the presently planned delivery of December 8, 1980 (working day 495) they will still make efforts to improve. It should be noted that to bring the start of erection of structural steel at grade to meet its present delivery date we must improve delivery of air isolation gates considerably.

We also discussed installation of siding at the scale tower and at our session it was decided to remove the restraint on erection of the upper scale tower siding from the lower scale tower siding. This arrangement

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is being studied presently. Also, as noted above, the matter of steel painting is under review since painting work probably cannot be completed until most steel is up, and yet must be done before those areas that attach to the scale tower are installed.

Concrete storage

Construction of the roof deck is in progress and concurrently hopper fill is being placed. The present intent is to complete pouring out the concrete storage roof deck within the next three working days and to have hopper fill installed complete by November 13, 1980 (working day 479) or earlier. This would bring completion of hopper finishes to about November 20, 1980 (working day 484) or earlier. Thus, the silos should be available for structures and machinery installation in adequate time for the SM contractor to start work when structures start arriving.

Steel tank areas (TK)

The major concentration of attention is presently on tank #300 and #400 the two northernmost tanks. Both are relatively well along with roof structure about to begin on tank #300 to be followed within the next ten days after the start at #300 by work in tank #400.

We reviewed the plan of action at the tanks in some detail and it was noted for tank #400 to be served properly it will be necessary to initiate field activities to allow spouting at the intersection of conveyors #214 and #215 to be installed so tank #400 could be used early. This does not appear to be a major problem.

We also concentrated heavily on planning installation of the drawoff conveyor underneath the steel tanks. There are some procurement items there that should be given careful attention and the installation sequence must be studied carefully since the tunnel deadends at the south. Therefore, all work must be brought in from the north end of the tunnel which determines to a large extent the sequence by which the conveyor is to be installed.

In addition, it should be noted that there is a sizable traffic problem which may cause conflict between installation of the grain dryer, the dust bins, and conveyor #213. The construction pattern should be worked out in detail just as soon as possible so that the proper sequence of installation can be followed. This activity is in work, and Mr. Jones feels the problem has been resolved.

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Office building

At the office building roof structural steel is erected, metal deck is in place at the 2nd floor, and a portion of the first floor slab on grade has been poured out. The second floor pour is expected to be made sometime within the next two weeks. Overall, work at the office building is moving relatively well.

Some of our diagramming work today dealt with installation of utilities outside the office building where care must be taken to insure that minimal interference from office construction is encountered in installation of these utilities. This is a field matter to be resolved on a day to day basis at the site.

Miscellaneous buildings

The structure for the shop building is erected and work is presently proceeding on slab on grade. No work has started at the probe shed as yet.

Major efforts are presently being to get electrical building #1 underground work in place concurrent with installation of the outside transformer bases. Construction of EB-4 is expected to begin soon.

General

Overall, this monitoring report has been kept somewhat general since the detail contained in the planning documents prepared at this session is complex and can best be seen by looking directly at the network models.

I shall have these models drafted into final form just as quickly as possible for issue to the parties involved. Meanwhile, Mr. Johnson will get prints of the roughs and distribute these as interim reference plans. I shall be in touch with Mr. Johnson shortly to set the next planning and monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Don Biorn

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

November 11, 1980

Subject: Monitoring Report #10

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39 (Cargill plan) and A79:39 (contractor plan)

Dates of Monitoring: October 21, 22 and 23, 1980 (working days 462, 463, and 464)

Target completion date to receive grain: May 11, 1981 (working day 603)

Target completion for entire facility: July 15, 1981 (working day 648)

Monitored from contractor Issue #9, dated September 30, 1980 (working day 447)

Working days remaining to receipt of grain: 141

Actions taken:

- Inspected project
- Updated network model
- Diagrammed major electrical work for various systems
- Reviewed procurement of major items
- Reviewed control systems installation with grain lab staff

General Summary

Those attending the sessions were:

October 21, 1980 (working day 462)

Allan Johnson, Cargill
Don Short, Calumet
Gene Smith, Calumet
Jim Peterson, Calumet
Lynn Vardaman, Calumet
Les Jones, Cargill

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October 22, 1980 (working day 463)

Allan Johnson, Cargill
Don Short, Calumet (part-time)
Gene Smith, Calumet
Don Harrington, grain lab (part-time)
Bob Halverson, Cargill (part-time)
Les Jones, Cargill
Don Rose, electrical (part-time)
Bob Snyder, electrical (part-time)

October 23, 1980 (working day 464)

Allan Johnson, Cargill
Bob Halverson, Cargill
Don Harrington, Cargill
Les Jones, Cargill
Don Rose, electrical
Bob Snyder, electrical
Gene Smith, Calumet (part-time)

Our major activities were at this series of meetings was to update the procurement networks and to add all items not previously included in the P series. We also monitored the project and updated the structures and machinery work along with electrical work planned at previous sessions. Our main efforts were to complete planning as much as possible of the major electrical work including installation of permanent power and secondary power wiring (SPW). We also continued the planning for installation of various critical systems needed to receive grain.

A review of each major segment of the project is given below:

Procurement

Front end work is shown on sheets P-1 through P-6. We have now established tentative delivery targets for major items of equipment on the project. These are shown on the P sheets and will not be reviewed in detail in this report.

In light of the short amount of time remaining to the receipt of grain (141 working days from October 21, 1980 (working day 462)) constant, intense attention will have to be given to practically every item in the procurement schedule. Deliveries for truck and rail receiving and the scale tower are basically shown on sheets P-1 and P-2. Sheet P-3 shows delivery for the concrete storage area

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and the steel tanks. Sheet P-4 contains office items while sheets P-5 and P-6 are devoted to miscellaneous items found at various sections of the site.

The information shown on the Issue #10 network model dated October 22, 1980 (working day 462) has been reviewed in detail by the contractors responsible, and we are now using this data as our present guide for scheduling delivery of critical items. We shall continue at future sessions to review these procurement sheets to insure they remain valid.

Still of a high degree of importance is fabrication and delivery of structural steel at grade for the truck and rail receiving pit. Other critical items at this area include the air isolation gates, the baffles and grating. Structural steel, baffles and grating are due on the job December 26, 1980 (working day 508) with air isolation gates presently scheduled for delivery by December 15, 1980 (working day 500).

Concrete storage (COS)

The slip forms are presently being stripped out with the work expected to be complete by about November 17, 1980 (working day 481). Concurrently hopper fill is being placed along with the hopper finishes. Our new projected date for all concrete work to be finished and the slip form contractor to be out of the concrete storage area is set for December 5, 1980 (working day 494). Work there is moving well and is not presently a critical restraint provided the current target date noted above can be met.

Scale tower (ST)

Structural steel for the scale tower is just starting and some of the lower leg casing and early structural framing for the scale tower is in place. A revision of our network model shows the current target for completing scale tower steel to elevation 754' (approximately the top of the concrete storage tanks) is November 18, 1980 (working day 482). Completion of structural steel to the top of scale tower is presently anticipated at about December 10, 1980 (working day 497).

As the steel is being erected garners, hoppers, and other equipment that goes into the interior of the structural frame will also be installed.

An important element to be installed as steel is erected is the secondary power wiring. As each piece of equipment is set, the power wiring can be terminated at each of these

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operating elements. During our analysis we tried to identify all equipment at which wiring had to be terminated and have shown this for each major piece of equipment in the scale tower. Most work at the scale tower is shown on sheet #3 of our network model.

The present date for completing terminations of all secondary power wiring at the scale tower is approximately April 27, 1981 (working day 593). This is very close to the target date for receiving grain and will have to be constantly evaluated to insure it can be met.

Truck and rail receiving pit (TRR)

There was considerable discussion regarding delivery of the receiving hoppers and belt conveyors #201 and #203 components. It was decided that these should be brought to the job to be set or installed by October 27, 1980 (working day 466). The equipment is to be unloaded and assembled after which it can be placed and temporarily secured in the pit areas. Once the items are in the pit and temporarily secured, and air isolation gates are on the job, these gates can then be installed followed by installation of the structural steel at grade. Next, baffles and grating can be set and the rest of the equipment installation completed.

Truck and rail receiving is an important element of the early operations package and as with practically all sectors of the project must be given ongoing attention particularly in procurement of critical items.

Truck dump (TD)

The truck dump is complete and installation of following work will proceed shortly. There presently appears to be no major difficulty in completing the truck dumps by the required target dates.

Truck shed (TS)

Work at the truck shed is restrained presently by completion of baffles and gratings at the truck and rail receiving pit and delivery of truck shed structural steel. Structural steel is due on the job by January 5, 1981 (working day 513); however, the baffles and gratings will not be completed until about February 2, 1981 (working day 533).

Present plans are to erect the truck dump building and then to install the truck dump control building structure. This includes setting the control panel for the truck dump in place and protecting it from construction and

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weather damage. Of importance to the area is delivery of the truck shed bifold doors and rolling doors. These are scheduled to be on the job by January 15, 1981 (working day 521). This should allow adequate time to complete secondary power wiring concurrently with installation of the control panel at the truck dump.

Rail building

Rail building structural steel is due on the job January 12, 1981 (working day 518) and work there should be able to proceed through to completion within our present time constraints.

Procurement still must be watched carefully.

Structures and machinery work at concrete storage (COS)

Turnhead support steel can be erected as soon as the slip forms are stripped out and the steel is on the job. Delivery targets are December 11, 1980 (working day 498) for this steel to arrive. Following erection of structural steel, turnhead #8 and #9 can be installed. Delivery of turnheads is presently set for January 22, 1981 (working day 526). When the turnheads have been installed, the turnhead support steel can be completed followed by erection of belt conveyor #208 and #209 trusses. The details of this conveyor installation are shown on sheet P-6, Issue #10, dated October 23, 1980 (working day 464).

At our session with the electrical contractor it was determined that we would be able to install the temperature cables, high level sensors and continuous level sensors as soon as they are delivered to the job site. Delivery is set for December 4, 1980 (working day 493). We must also install bin empty devices, but these are restrained by delivery and installation of drawoff spouting and gates.

Present plans are to complete major work at the top of the concrete storage area by late April, 1981. As with all other areas this will be a very important sector of the building to finish, and it must be kept in mind, when evaluating the probabilities of completing the work presently planned, that most of it is being done during the winter. Some account has been taken of this in the assignment of durations to the tasks.

Office building

The structural frame is nearly complete at the office building and efforts are being made now to complete close in of the facility as soon as possible. The 1st floor

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slab on grade is complete, and most interior masonry at the 1st floor is erected. The 2nd floor supported deck should be poured out by late October or early November, 1980 and rough overhead work at the 2nd floor will begin as soon as the floor slab is complete. The penthouse floor slab and bases will be completed shortly which will allow the penthouse to be closed in and work on equipment installation to start.

At present, projecting from the current position of the office building, it appears the facility will be complete by about March 31, 1981 (working day 574). It should be kept in mind that the office building is the nerve center of the grain elevator and that there is considerable control equipment yet to be set, installed and checked out. This includes the shipping panel, scale panel, receiving panel, truck identification panel, scale printers, remote readouts, and FDIS control panel, along with other related control panels and electronic equipment.

Expected delivery of these items according to the information available at this meeting from both the grain lab and from the electrical contractor fits well with the proposed installation schedule for interior work at the office building.

Again as with the entire facility care must be taken to monitor and expedite on a continuous basis to insure that no slip up in fabrication and delivery is encountered. Delays even to delivery of miscellaneous pieces of equipment can cause resulting serious setbacks in being able to receive grain.

The office building is now being monitored from Issue #10, dated October 22, 1980 (working day 463). This work is shown on sheets #7, #8, and #9. Procurement is shown on sheet P-4.

<u>Electrical building and manholes</u>

Electrical building #1 erection has moved fairly well, and masonry is now being erected to the roof level. Once masonry is complete, control panels and other electrical equipment can be set at the interior of the building.

Electrical building #2 is also in construction with the foundation complete and underground electrical conduit and duct installed. Floor slab on grade is about to be poured out.

At electrical building #3, work is expected to begin on masonry to the roof by November 3, 1980 (working day 471). At electrical building #4 foundations are to start on

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October 23, 1980 (working day 464). At all electrical buildings precast roof deck is to be erected after the heavy equipment is set. Delivery of precast deck is planned now for November 17, 1980 (working day 481). Thus, all masonry to roof level at each of the four electrical buildings is to be complete by that time.

It will be important to immediately close in the structures with roofing, insulation, and doors so they each can be made weather tight and secure. This will allow work inside the facilities to proceed during the winter months.

Electrical conduit and permanent power

This network model shown on sheet #11 is a plan for electrical site work and the secondary power wiring (SPW). Electrical conduit has been run from the manhole to the office, the office to the shop, and the shop to the probe station. There still remains some additional conduit to be installed prior to pulling and terminating the primary cable. The transformer and primary base is to be completed by October 31, 1980 (working day 470) and NIPSCO will set their outside transformer and outside switchgear immediately afterward. Once the equipment is set and the primary cable is pulled and terminated, and after the cable from the transformer to the main switchboard has been pulled and terminated we can energize the main switchboard. Present plans are to do this by December 5, 1980 (working day 494). At that time we will have permanent power at electrical building #1.

Installation of secondary power wiring will proceed in a sequence from electrical building to electrical building as shown on the network model on sheet #11, Issue #10, dated October 22, 1980 (working day 463). This sequence was one considered desirable at our session; however, there is a possibility of minor changes depending upon the way field work proceeds.

Steel tanks (TK)

The network model for the tanks is shown on sheet #12, Issue #10, dated October 2, 1980 (working day 463). At tank #300, side walls are up and the roof structure substantially installed. At tank #400, wall plates are complete and the roof structure is in work. Wall plates at tank #500 are moving well, and it appears presently that the work at all three tanks is in fair alignment with the Issue #10 network model shown on sheet #12. It may be that work at tank #300 lags slightly in erection of roof members and roof sheeting. However, overall progress at the tanks is presently holding to target dates.

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Conveyor #202, #204, and #205 (sheet #13, Issue #10, dated October 21, 1980 (working day 462))

Start of work on these conveyors is awaiting delivery of major components. Completion of each is presently planned to be well within the desired target range.

Dryer system (DRS)

Work on the dryer is also presently awaiting delivery of components. The dryer structural supports are scheduled to be on the job by March 5, 1981 (working day 556). Delivery of legs 34 and 35 components are due on the job about January 27, 1981 (working day 529). Dryer components themselves are to be delivered by January 26, 1981 (working day 528) and will be partly assembled on the ground. Erection of the dryer is due to begin by February 24, 1981 (working day 549) and is to be complete by mid-April, 1981.

Shipping system (sheet #15, Issue #10, dated October 21, 1980 (working day 462))

This sheet depicts the work for BC 225, 226, 227, 228 and the Peco installation. Present target for completing major components exclusive of final electrical work is presently being held at late May or early June, 1981. This network plan should be rechecked at our next session.

Dust system (sheet #16, Issue #10, dated October 22, 1980 (working day 463))

We have decided to show all components of the dust system (DUS) on a single sheet. The dust system is a fairly critical item and careful attention must be given it since the completion target shown on sheet #15 brings completion of installation very close to the required target operating dates. The system has been broken into three major components which are identified by capacity designations. We had initially identified these by the capacity number - 44M, 27M and 21M; however, the contract documents refer to these respectively as systems 61, 62, and 63. Therefore, the straight number designation is used in the network model.

Site utilities

Considerable work has been done on the site utility installation, but there still remains much underground work to be completed in the office-scale tower area and also from the office building to the shop building. This work will continue with heavy efforts made to complete it prior to freezing of the ground.

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General

Overall, the project is now almost completely planned with the exception of some electrical hookup and activation items. The entire job is under a very tight network model control system and of particular importance is going to be the need to accomplish as much construction of the facility as possible prior to the onset of winter weather in late November and early December, 1980. Also of prime importance, as has been stressed repeatedly, is that constant expediting and management attention be paid to procurement of all items. With the small amount of time remaining to completion of the facility and receipt of grain it will be critical that all items be brought to the job site and made available as needed. In our monitorings we should pay particular attention to the submittals and procurement tasks.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Don Biorn

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

November 26, 1980

Subject: Monitoring Report #11

Burns Harbor Elevator

Burns Harbor, Indiana

Cargill, Inc.

Project: 79:39(Cargill plan) and A79:39 (contractor plan)

Date of Monitoring: November 18, 1980 (working day 482)

Target completion date to receive grain: May 11, 1981 (working day 603)

Target completion date for entire facility: July 15, 1981 (working day 648)

Monitored from contractor Issue #10, dated October 23, 1980 (working day 208)

Working days remaining to receipt of grain: 121

Actions taken:

- Updated selected portions of network model
- Completed diagramming electrical work
- Inspected project
- Reviewed current job status

General Summary

Those attending the session were:

Allan Johnson, Cargill
Les Jones, Cargill
Don Harrington, grain lab
Bob Halverson, Cargill
Don Rose, Tri-City electrical
Bob Snyder, Tri-City electrical

At this session we concentrated on completing installation plans for the secondary power wiring and terminations at all the major grain receiving and shipping equipment.

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In our discussions it was decided that secondary power wiring (SPW) would include related control wiring as well as power wiring on the elevator side of the transformation equipment.

We also identified and diagrammed fabrication and delivery of remaining control panels related to the various functional systems. The non-electrical portions of the network model were left as is except that we added in construction of the probe station along with its related electrical installations.

The entire network model is presently being drafted into final form, the computer run is being checked, and the entire package will be issued in 10 to 15 working days. We will incorporate the revisions and additions made today into the final run. This may delay its issue slightly but we will attempt to send out the network within the time identified above.

A brief review of the electrical work added is given below by sheet number:

Sheet P-4 Procurement

On this sheet we identified equipment that has already been delivered. The lighting contactors at each of the electrical buildings was removed from the control panel delivery tasks since most of the remote control panels are on the job, and lighting contactors will be delivered within the next 5 to 10 working days.

Sheet 5

The interconnection between the rail building and installation of equipment in the rail loadout cab was added to this sheet. Once interior finish work is done at the cab then work can begin on the CPRL, the secondary power wiring, and terminations at the rail building.

Sheet 6

Terminations at turnhead #9, BC208, BC209, BC263, were augmented by the addition of terminations at leg #35.

Sheet 9 (office 2nd floor)

On this sheet we originally showed the pulling of control wiring from the vario s major elements of the job to other areas on the project. This control wiring installation is not directly related to the office building and thus will be included with the non-office network model. If

possible, we will also put this on another sheet than the office building sheet.

Sheet 10

Revisions here were limited to eliminating the lighting contactor from the activity of setting the control panels #1, #2, and #3.

Sheet 12 Steel tanks (TK)

For each steel tank we added the terminations and secondary power wiring at the aeration fans. In addition, the note was made that terminations at belt conveyors #213, #214, and #215 include secondary power wiring at the roof tanks 300, 400 and 500 respectively.

Sheet 13 (BC202, 204 and 205)

Here we added delivery of the drawoff modules and also installation of secondary power wiring and installation on belt conveyors 202, 204, and 205.

Sheet 14 Dryerr system

Deliveries of control panels 41, 42, and 43 were set at March 18, 1981 (working day 565). These then were shown as being installed, connected, and secondary power wiring being run and terminated at the dryers. Secondary power wiring terminations were also shown for leg #34, DC260, DC261, and DC262.

Sheet 15 Shipping system (SS)

Deliveries were shown for the CPRL and the CPPA (control panel Peco auxiliary). We also included the secondary power wiring and terminations for BC225, 226 and for the pivot tower and Peco at the water front. It will be necessary to closely interrelate erection of the Peco gantry with major SPW and terminations at the shipping systems. This is the longest duration of those used for this equipment and will have to be overlapped carefully with installation of the Peco itself.

On this sheet, we also showed a brief summary model of the truck probe (TP). This indicates that the CPTP will be delivered by January 30, 1981 (working day 532) with installation presently to be complete with the panel and secondary power wiring with terminations by February 9, 1981 (working day 538).

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Field monitoring

After our morning planning and diagramming session, I inspected the job with Mr. Johnson and we made an evaluation of the present status of field work. A brief description of each of the major areas is given below:

Procurement

No specific review was made of procurement at this session. However, I wish to urge that continuous and intensive attention be paid to the entire process of procuring materials and equipment. Of special importance at this stage of the job is to insure that submittals are made promptly, and reviewed and approved promptly. According to general conversations we had during our inspection of the job, there appears to be some lag in a few of the major items. This tendency to lag is serious since it only requires a few delayed items and the entire job is set back on a sequential project of this nature.

I highly recommend that at a future session the procurement process be evaluated in depth. Meanwhile, the project team should keep constant watch on all material and equipment deliveries to insure that they are projected to be meeting dates as close as possible to the established target dates.

Concrete storage (CS)

Stripping out of slipforms is 5 to 10 working days from completion. Meanwhile, work has proceeded well on hopper fill and hopper finish. According to Mr. Johnson these activities are nearly complete. We had set in our network model a moveout date for the slipform contractor of December 5, 1980 (working day 494).

Scale tower (ST)

The structural steel and leg casings are presently being erected to the top of the concrete silos. A portion of the steel has reached this elevation but basically erection presently lags target early start and finishes (which we have maintained as critical) by about 10 to 15 working days. This lag is important to pick up since the scale tower represents the central point of the entire job. In addition, cold weather is not far away and productivity can be expected to decline once the weather turns. Therefore, it is important to get as much of this work installed as possible during the relatively good weather of mid and late November.

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Truck and rail receiving pit work

The receiving hoppers S11, S12, and S13 along with BC201 and 203 components have arrived on the job site and are presently being assembled prior to placement in the pits. This work appears to lag target early starts and finishes by about 2 or 3 working days. However, because of the current delivery of air isolation gates and at grade structural steel the matter of their placement has not yet become overly serious. Again, as with all other activities exposed to weather it would be wise to complete getting these hoppers into the pit as quickly as possible so as to insure that work can flow continuously from that point on.

In addition, the equipment presently being assembled around the pit area is large and bulky. It, in conjunction with the scale tower equipment, makes circulation around the various work areas difficult.

Truck dump (TD)

Truck dump hydraulic piping is presently being installed, the underground work at the shed is complete, and shed footings are installed.

Truck shed (TS)

Work has not yet begun on the superstructure at the truck shed. Structural steel is due on the job about January 5, 1981 (working day 513).

Rail building

No work has yet begun at the rail building.

Office building

The second floor slab at the office building has been poured out, and overhead work along with other rough trades has begun at the 2nd floor. Apparently there has been a delay to some of the close in elements of the building and if these do not arrive soon it would be well to consider temporary protection on the building opening. Close in of the structure will be important since once finish trades begin it will be necessary to maintain controlled temperatures inside the structure. There has been some control panel work delivered to the job site. Temporary protection is to be provided for this equipment.

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The office building still needs constant attention to insure it is left in appropriate condition to work on over the winter period.

Electrical conduit and permanent power

NIPSCO has set their electrical equipment at the transformer and primary base and most underground electrical conduit has been installed. Presently the cable from the transformer to the main switchgear is being pulled and terminated. I was not able to determine whether the current target for permanent power is still being held. In Issue #10 dated October 22, 1980 (working day 463) we established a date of December 5, 1980 (working day 494) to energize the main switchboard. This should be reviewed by the project team.

Steel tanks (TK)

At tanks 300 and 400 the roof steel plate is nearly complete with only miscellaneous roof openings and vents left to be completed. Work there is generally meeting targets between early and late starts and finishes. At tank #500 roof structural members are nearly complete and undoubtedly steel plate roof sheeting will be started soon. Work on tank #500 is also meeting targets between early and late starts and finishes.

Conveyor work

No major conveyor work has yet been put into operation.

Dryer system

Dryer foundations are complete; however, work on above grade elements of the dryer will not begin until early 1981.

Shipping system

Work at the dock area appears to be moving somewhat more slowly than had been anticipated. Weather will be a factor in how well the work can move as the temperature begins to drop. Therefore, the work should be moved ahead as rapidly as possible during the good weather.

Dust system

No field work has yet begun for major elements of the dust system. Delivery of these items will begin early in 1981 and proceed on through to completion near the target date for receipt of grain. It would be well to insure that all concrete work for the dust system is complete just as quickly as possible.

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Site utilities

Although a detailed review of the utilities was not made at this session it appears that much of the underground work is complete for fire protection, gas, fuel oil, sanitary and potable water.

General

Overall, the project is moving well at the present time. It is still to be remembered that only 121 working days remain to receipt of grain. This means that heavy efforts are going to have to be made now to get as much work in place as possible before the onset of heavy winter weather. Also, as has been pointed out frequently, we must constantly monitor, review and continue to evaluate and work on material submittals, reviews and approvals and deliveries. These activities will continue to be some of the most important we can engage in over the next few weeks, since our total time span for installation remaining for receipt of grain is so short.

Most of our work on preparing the network model is now complete and my participation will probably be now on whatever monitoring or updating will be required. I suggest that regular monitorings by the project staff be maintained to insure that project progress is being held in adherence to the desired plan of action.

Meanwhile, I am completing the drafting of the networks into final form and preparation of the computer runs. These will be issued as they become available. I shall keep in touch with Mr. Johnson regarding any future participation he may desire on the project.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Allan Johnson

cc: Mr. Bruce Weis
Mr. Don Biorn