

May 27, 1981

Subject: Monitoring Report #1
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - Contractors

Project: 81:13

Date of Monitoring: May 13, 1981 (working day 94)

Monitored from Issue #4, dated May 13, 1981 (working day 94)

Actions taken:

- Continued planning project
- Reviewed equipment activity tabulation
- Discussed in detail the early restraints on activities in Shmina's contract affected by activities not included in Shmina's contract

General Summary

The preparation of a network model for this program was initiated on February 20, 1981 (working day 86) with the first issue of the working model. We have met subsequently on April 8, 1981 (working day 69), April 21, 1981 (working day 78), and May 13, 1981 (working day 94) to continue identifying the method by which Shmina intends to proceed and the plan of action that is to be used. Our activities to date are summarized on sheets P-1, 1, 2, 3, and 4, Issue #4, dated May 13, 1981 (working day 94).

In addition, the J.F. Cavanaugh Co. and Shmina have prepared an equipment activity tabulation dated April 21, 1981 (working day 78) that displays the needs of both existing and new equipment relative to its installation and its impact upon the project. There probably will be additional information to be included in this document as the project proceeds.

Sheet P-1 is the procurement network to date and contains miscellaneous information about preparation and submittal of shop drawings, along with their review and approval, and fabrication and delivery of the equipment. It also contains a submittal turnaround tabulation for normal, expedited, and super-expedited conditions. The construction manager has said that under normal conditions it can be expected that from the time they (the construction manager) receive shop drawings

to the time by which the shop drawings will be back in Shmina's hands will be 20 working days. Therefore, we have used this as a base in our planning efforts.

On sheet P-1 is also shown at the left hand side a tabulation of the various pieces of new mechanical equipment along with their location and approximate delivery dates. These delivery times will be analyzed and adjusted at each of our session to reflect current conditions.

Sheet #1 contains dewatering, piling, and base mat work at the north building and the tank farm. It should be noted that there are many activities which are to be done by others that restrain the start of mass excavation. These are activities that deal fundamentally with deactivation, relocation, or removal of existing utility lines or equipment at the north building. Prompt attention by the owner to these is essential if we are going to maintain work continuity once the site has been dewatered sufficiently for start of mass excavation.

The notice to proceed was given on April 27, 1981 (working day 79), and there has been some mobilization and move on the site within the past few days. Presently efforts are concentrated on getting dewatering system materials to the job and work started on dewatering immediately. We have assumed a start of installation date at May 21, 1981 (working day 100) with the site to be dewatered sufficient to start mass excavation by June 26, 1981 (working day 125). As noted above, by June 26, 1981 (working day 125) or earlier it will be essential that the area of the north building be cleared of all interferences or obstructions to continuing work on mass excavation. In addition, it should be noted that a temporary source of power will be required for dewatering operations to begin. Dewatering is expected to start June 12, 1981 (working day 115).

Once mass excavation is well along test piles can be installed followed by start of production piling at the north building (NB) and the tank farm (TF). This start date for production piling is currently set for August 3, 1981 (working day 150). Following installation of part of the auger piling it will be necessary for the construction manager's other contractors, primarily mechanical and electrical, to install underground work at the north building in order to build the base mat at the north building and tank farm. It is anticipated at the present time that auger piling will be sufficiently far along at the north building and the tank farm by August 24, 1981 (working day 165) for underground work to begin.

Thus, it can be seen that all early operations including those not a part of the Shmina contract must be expedited continually so the present plan to get a good share of the major concrete sub-structure work complete prior to the onset of cold weather can be successfully carried out.

It is presently the intent to complete walls and sub-structure work at the north building and tank farm by December 9, 1981 (working day 240). At that time it is anticipated that erection of structural steel and deck at the incinerator building can begin, along with construction, if desired, of the thickener building (TB) superstructure.

The durations assigned to the various activities appear reasonable and to maintain continuity of work it is going to be important that proper interfacing of the owner's activities along with those of the construction manager be made with Shmina's work on the building foundation.

Concurrently with work at the north building construction of the truck loading and slit area (TLS) structure and close in will proceed. Here too it is desired to complete much of the concrete cast in place work prior to winter 1981. Ash silo work (AS) on foundations structure and close in is shown on sheet #3 and it is anticipated that although the time frame is very tight the ash silo structure can be partially complete through grade beams by mid-January, 1981. It may be necessary to cut off construction earlier than this date depending upon weather. However, present plans are to get the structure up through the grade slab before stopping work for the winter.

On sheet #4 is shown the present plan for exterior wall demolition and erection of precast resin panels at the existing disposal building. Present intent is to start at the south elevation with demolition work moving as shown in the network model around the building followed by installation of new masonry and resin precast panels elevation by elevation. Work is expected to begin on wall demolition at the existing disposal building by June 11, 1982 (working day 369). This network model will be studied in more depth at subsequent meetings.

The equipment activity tabulation sheets that have been prepared show the number and nature of various pieces of equipment that are to be brought on the job or reused in the project. Column A deals with the line number, B with the number of pieces and equipment name, and C, the action detail and who is to perform the action. The reason this tabulation is so important is that frequently it has been found that the action responsibility is divided among several parties. Thus, it is critical to set these responsibilities early so work can be carried out in a timely fashion. The present and final location of the equipment is also shown, and the impact upon other equipment installation is tabulated in column G. This document is presently in the hands of all working on the job for Shmina and should be studied carefully. At a later date when the network modeling is further along we shall set the times when the actions can start.

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CONSULTING ENGINEER

I shall have the network model prepared to date drafted into final form just as quickly as possible. Meanwhile, prints of the rough network diagram have been distributed to those needing them for their use. I shall also be in touch with Mr. Nevajans shortly to set the next meeting.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina

June 28, 1981

Subject: Monitoring Report #2
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - Contractors

Project: 81:13

Date of Monitoring: June 10, 1981 (working day 113)

Monitored from Issue #4, dated May 13, 1981 (working day 94)

Actions taken:

- Reviewed current status of project
- Rechecked network models of building work
- Prepared network models for mechanical equipment installation (sheets #4 and #5, Issue #5, dated June 10, 1981 (working day 113))

General Summary

Our goal at this session was to complete rough network models for all major work to be done under the Shmina contract. We first made a brief review of the current position of the project in the field from information by Mr. Ron Gonyer.

Presently the dewatering system is substantially installed and dewatering is to begin momentarily. Meanwhile, Shmina has installed temporary electric power and requested payment for its installation from the owner. This matter is currently being resolved.

There still is no word on when the owner intends to deactivate or relocate the extensive existing utility work at the location of the north building foundation. Again, it is imperative that this owner work be given immediate attention since it is the intent to begin mass excavation in the very near future. This mass excavation will be restrained by the work of the owner. These items, shown on sheet #1, consist of the following:

- Deactivation of the existing 4" water line
- Deactivation of the existing 14" DW line

- Relocation of the existing ferric chloride tanks
- Deactivation of the existing 4" EW line
- Deactivation of the existing 6" SL
- Deactivation of the existing 54" line
- Deactivation of the existing 4" and 6" ash lines

Our other work today consisted of diagramming installation of mechanical equipment from information tabulation in the equipment activity sheets prepared at an earlier session. These networks are shown on sheets #5 and #6, Issue #5, dated June 10, 1981 (working day 113).

This work is extremely complex since much of it depends upon activities of others than Shmina and its sub-contractors on the job. Therefore, in these diagrams we have shown all activities upon which Shmina's work is dependent. These are generally assigned a responsibility code #1.

The small numbers in circles to the left of each set of diagrams refers to the line number in our equipment activity tabulation prepared in April and May, 1981. We were not able to assign durations to much of this work since full information on the expected length of each activity was not available at this session. Mr. Kamath of Cavanaugh will further review the diagrams and assign durations.

It was felt important that submittals, their review and approval and fabrication and delivery of all mechanical equipment was also an important element of the work and so mechanical procurement operations are shown on sheet #P-2, Issue #5, dated June 10, 1981 (working day 113). In this diagram, the shop drawing turnaround time has been kept at 26 working days which presumes an over and above effort on the part of all concerned to process shop drawings from the time they are received until they are back in the hands of the supplier or fabricator. Shop drawing turnarounds will be critical and must have special attention paid to them on a continuing basis.

I will now have the network models drafted into final form and dated for issue in the near future. We will first concentrate on getting sheets #1, #2, #3, and #4 issued after which we will complete drafting the remaining sheets and process the entire network model by computer. I shall also plan to monitor the project regularly and will be in touch with Mr. Neverjans and Mr. Conyer to set monitoring dates.

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

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Meanwhile, all concerned have been issued prints of the rough network diagrams sheets P-1, P-2, #1, #2, #3, #4, and #5. Issue #5, dated June 10, 1981 (working day 113).

Ralph J. Stephenson, P.E.

RJS:eps

To: Mr. Robert A. Shmina
(original and one)

July 28, 1981

Subject: Monitoring Report #3
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: July 22, 1981 (working day 142)

Monitored from Issue #5, dated June 10, 1981 (working day 113)

Actions taken:

- Inspected project
- Reviewed current status of job with Don Greenwell Jr.
- Color coded network
- Prepared project status report for period from July 22, 1981 (working day 142) to September 1, 1981 (working day 171)

General Summary

As of July 22, 1981 (working day 142) the network model sheets P-1, P-2, 1, 2, 3, 4, 5, and 6 Issue #5, dated June 10, 1981 (working day 113) are being used to monitor the project. This network model contains current target dates for the work being done under the Shmina contract.

As of July 22, 1981 (working day 142) very little field work has started. The fundamental problem is with the items to be done by the owner as shown on sheet #1 Issue #5, dated June 10, 1981 (working day 113). These are the tasks dealing with deactivation, relocation, and disconnection of existing utility lines at the site of the new north building (NB). Shmina has relocated the existing ferric chloride tanks and removed the existing oil tanks. This is owner's work that was done by Shmina so as to expedite early site operations. Shmina will, of course, charge the owner for this work since it was not a part of the Shmina contract. In addition, Shmina has installed temporary power for dewatering which also was the responsibility of the owner. This work too will be charged to the owner.

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CONSULTING ENGINEER

The dewatering system has been installed and operating since June 3, 1981 (working day 108). The site was dewatered sufficiently to begin excavation by about June 8, 1981 (working day 111).

Mass excavation for the north building is a critical item and was shown in the network model Issue #5 dated June 10, 1981 (working day 113) as starting on June 26, 1981 (working day 125). Thus, this work which initiates the entire field program for the north building is currently 17 working days behind the needed target start. Each day that the start of mass excavation is delayed by lack of action on existing utilities will increase this lag correspondingly. Thus, it is imperative that the owner take immediate action on clearing existing work.

The major problem we face now is that the sub-structure work is being forced into a winter construction period which will be reflected in increased construction costs and slower progress.

A mechanical and electrical contract has been let by the owner for work related to the Shmina contract but not a part of it. However, due to the delays in relocating the utility work none of the mechanical and electrical contract work at the new facility has been started.

As part of our discussion today I suggested to Mr. Greenwell that we meet soon preferably at the Shmina office in Livonia to review recordkeeping methods that would be appropriate for the job. Basically such records consist of:

1. A chronological file of all documents in which each is assigned a document number for each period (month). For instance, this project started in 1981; therefore, period #1 is January, 1981; period #2, February, 1981, etc.
2. A document identification system which identifies first the period in which the document was written and second, the number of the document chronologically in the month. I suggest that two digits be allocated for the period and that three digits be allocated for the document numbers. I shall discuss the reason for the document number when we meet in the Shmina office.
3. A project history sheet should be prepared. I have yet to go over this in detail with the office and field staff of Shmina but feel it is important enough to cover in depth at the session suggested above. I have refined the form I use and revised it so as more accurately to reflect what should be kept as project history record. At the meeting I shall also go over this in detail with those concerned.

4. At some point in the very near future I suggest that the document file be coded as to subject matter. Again, this is not essential to carry out now, although during this relatively slow field period it would be good to develop the subject coding system and become familiar with how it is to be used.

The reason for these precautions is, of course, that there appear to be many problems with maintaining work continuity on the job. There also will undoubtedly be, because of the complexity of the project administration, difficulties in maintaining proper flows of paperwork and information. Thus, in my opinion it is imperative that we make certain early in the job that Shmina's work is allowed to proceed in the best possible manner and in accordance with the way the job was proposed upon and planned. If disruptions to this plan are imposed upon the job by external sources then, of course, we should be ready to identify these, establish the impact the problems have had upon the Shmina job, and be reimbursed accordingly by the proper parties.

In summary, the project has been for sometime at a point, so far as Shmina's work is concerned, that mass excavation and installation of foundations for the north building could begin if the owner's work was completed in demolishing and relocating existing underground installations. In addition, at the truck loading and slit (TLS) work could begin on demolition at this area if deactivation and removal of piping by the owner, which is restraining the start of work, was complete.

I shall be in touch with Mr. Rob Shmina to set the next meeting and monitoring session. Meanwhile, I shall prepare the project status report for the period from July 22, 1981 (working day 142) to September 1, 1981 (working day 171) and issue it to him.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

September 12, 1981

Subject: Monitoring Report #4
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: August 31, 1981 (working day 170)

Monitored from Issue #5, dated June 10, 1981 (working day 113) and
Issue #6, dated August 15, 1981 (working day 160)

Actions taken:

- Inspected project
- Reviewed current status of project with Ron Gonyer and
Don Greenwell Jr.
- Evaluated current status of project
- Prepared project status report for period from August 31,
1980 (working day 170) through October 30, 1981 (working
day 213)

Attention is called to sheet P-1, Issue #6, dated August 15, 1981
(working day 160). Tasks 102-103, 104-105, 104-106 are shown
as being the responsibility of J.F. Cavanaugh Co. (code #12).
These are instead, in contract #10 which is Phoenix Mechanical
Contractor's work, not J.F. Cavanaugh's. Please make this
change to your network model. Thank you.

General Summary

As of August 31, 1981 (working day 170) field progress is still
extremely slow, primarily because of the delays encountered in
late owner removal and relocation of utilities at the north end
of the existing sludge building. Similar removal and relocation
delay problems are hindering start of work at the slit area.

Mass excavation has been partially complete at the north
as of August 31, 1981 (working day 170) but is now restrained
by the need to complete installing sheeting. This sheeting
was shown on the contract documents as already being installed.

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CONSULTING ENGINEER

However, the Shmina field staff found when excavation began that actually the sheeting was not there, and therefore, was forced to drive the sheeting themselves to maintain job progress. A request for payment for this work has been submitted to the construction manager.

Test pile work has begun, with all test piles installed, and the test now being rigged with necessary equipment. Testing is expected to begin tonight August 31, 1981 (working day 170) and to continue around the clock for the next 3 to 5 working days.

Site excavation began July 28, 1981 (working day 146). It was due to have begun on June 26, 1981 (working day 125) a delay of 21 working days imposed primarily because of the delays in removing, deactivating, or relocating existing utility lines at the site. A brief summary of how each of the lines at the north of the sludge building were taken care of is given below:

- 4" water line - excavated by Shmina, plugged by the mechanical contractor. Work complete August 19, 1981 (working day 162).
- Existing 14" effluent water - Owner deactivated July 29, 1981 (working day 147).
- Ferric chloride tanks - Shmina relocated and repiped tanks in period from June 22, 1981 (working day 121) to June 26, 1981 (working day 125).
- 4" effluent water - line accidentally broken August 10, 1981 (working day 155) due to fact it was shown on drawings ten feet from where it actually was located.
- 54" line - drained by Shmina July 29, 1981 (working day 147) - Mechanical contractor completed installing float control in existing effluent water storage well and pipe was then removed by Shmina.
- 4" and 6" ash lines - It was found these were not active and were removed as excavation proceeded.
- Fuel oil tanks - Disconnected and moved May 12, 1981 (working day 91) by Shmina.

The above work that was done by Shmina but was not a part of their contract was and is being done under protest and steps are being taken to establish a method of payment for this extra work. I strongly recommend that these items of work

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CONSULTING ENGINEER

be well documented, and that the paperwork involved in notifying the construction manager and owner of the causes, the loss of time, and the extra cost involved be submitted promptly and in great detail.

No other work is in progress at present at the north addition, and most future operations there will have to wait upon completion of the pile tests for further progress to be made. It should be noted that within a very short time we are scheduled to begin work on the base mat. However, this work in forming, reinforcing, pouring, and stripping the mat cannot begin in production until underground plumbing and underground electrical work has been installed and is far enough out in front so as to not interfere with work continuity.

Present plans are that once the pile test results have been approved that within three weeks of piling work, installing this plumbing and electrical work must begin. Naturally, with the time lost so far, it is even more imperative that prompt installation of mechanical and electrical work be adhered to.

The plan of work being used to monitor the project at present, Issue #6, dated July 15, 1981 (working day 137), shows auger piling starting on August 3, 1981 (working day 150). Again, delays in starting the auger piling were a direct result of the delay in starting mass excavation which in turn was delayed by the late utility relocation and removal.

At the truck loading and slit facility, plans were to begin work on Shmina's demolition of truck loading and slit existing work July 2, 1981 (working day 129). No work has been done as yet on removal, relocation or deactivation of the existing mechanical piping. Therefore, Shmina demolition cannot begin. Electrical removal and relocation is well along at the area and should be complete within the next five working days. However, operations then will come to a halt until mechanical relocation and removal is complete. This matter has been well identified and documented by Shmina and negotiations are presently in work regarding the field actions needed.

With the serious restraints imposed by the delays by others, work at the new sludge building and at the slit, which was planned to have been done in good weather is now being forced into poor outside weather conditions and will be far more expensive to install than as originally planned. The plan of action thus should be reviewed carefully and continually and steps taken to document all delays to proceeding with the work.

At our session today I reviewed with Mr. Gonyer and Mr. Greenwell Jr. the procedures for maintaining a job history and tieing in the necessary data to make it complete. We will plan to review

this material and procedures in detail probably in late September or early October 1981 with the entire project staff at the Shmina home office.

Procurement

Procurement work for items needed in the near future is moving relatively well and at the present time no delays are being experienced to delivery of materials for the early work on the job. Shop drawing turnarounds have been very slow and in many cases considerably longer than 20 working days that was committed to by the construction manager for return of shop drawings from the point where the construction manager received them in their office. I suggest that shop drawings submittals and returns be carefully logged so a full record is kept of the approval time encountered on the project.

We made a brief review of mechanical equipment procurement, and this matter will be further evaluated at future monitoring sessions. I suggest that submittals and approvals be obtained just as quickly as possible to get fabrication of equipment into work.

General

The basic impact of the late start on building work is to push much outside project work into extremely poor weather and to cause many of the operations that were planned to have been done prior to cold weather to now require a more expensive and more time consuming set of operations. For instance, it was planned that concrete walls at the new north building were to be complete by December 8, 1981 (working day 239) which is a reasonable time to complete work of this type without requiring excessive weather protection or special handling. However, as can be seen with the present delay of approximately 21 working days plus whatever delays were encountered by having to install the sheet piling, chances are that much of this work will be running into severe weather problems. These delays, in turn, may make it very difficult to erect structural steel and deck since the weather for that particular operation will also be considerably worse at the new projected date than during the period originally anticipated.

At the truck loading and slit area, the same problem has been encountered except that the delay to starting is now currently the difference between August 31, 1981 (working day 170) and July 2, 1981 (working day 129) a total of 41 working days which imposes severe penalties upon the reinforced concrete structure erection. Plans at the slit were to complete pouring out the

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CONSULTING ENGINEER

2nd floor supported deck no later than October 13, 1981 (working day 200). With the present delay it can be seen that this is going to be done considerably later.

I shall be in touch with Mr. Shmina shortly to set the next monitoring session. Meanwhile, I have prepared a project status report for the period from August 31, 1981 (working day 170) to October 31, 1981 (working day 213). This will be issued concurrently with the monitoring report.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

October 18, 1981

Subject: Monitoring Report #5
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: October 13, 1981 (working day 200)

Monitored from Issue #5, dated June 10, 1981 (working day 113) and
Issue #6, dated August 15, 1981 (working day 160)

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. Ron Gonger
- Evaluated current status of project
- Prepared project status report for period from October 13, 1981 (working day 200) to November 30, 1981 (working day 233)

General Summary

As of October 13, 1981 (working day 200) 637 of the nearly 900 total piles to be installed in the north building addition are in place. The rig is beginning to back out of the access aisle, and it is now becoming critical that any additions or revisions to pile clusters be identified so additions can be made before the rig is out of reach of any area in which additional work must be done.

It is anticipated that underground plumbing and electrical work, which must go in prior to installation of base mat lower resteel at the north addition, will start within the next week. This underground work was due to have begun no later than August 24, 1981 (working day 165). It now will probably start about October 20, 1981 (working day 205) a lag of about 40 working days. This lag, of course, can be attributed to the delay in starting mass excavation and subsequently in starting the auger piling.

Auger piling was started in production on September 10, 1981 (working day 177). It was due to have begun no later than August 3, 1981 (working day 150) a lag of 27 days over the intended starting date. This lag was caused by delays to the beginning of the mass excavation caused by preparation work of others that had to be accomplished before full mass excavation could begin.

It was the intent at the north addition to have base mat work overlap installation of underground plumbing and electrical work. Since the underground work by others has not yet begun it now is posing a direct delay of about 40 working days on start of resteel in the main base mat area.

Some resteel has been set at the tank farm (TF) although this activity was originally intended to be a fill in to supplement installation of the main base mat.

At the slit demolition of the superstructure has been completed with the exception of the lime slurry line across the slit at the upper level. Apparently the construction manager is not going to remove the lime slurry line, nor is the owner, and therefore it presently poses a delay to moving in the piling rig. Plans are presently to begin installation of auger piling on October 22, 1981 (working day 217) at the slit, and it will be necessary to have this line removed by then for work to proceed without further externally imposed delays. The original target date for starting auger piling at the slit was August 28, 1981 (working day 169). Thus, the projected lag there is presently 38 working days.

The impact of the delays to starting and continuing work at foundations for both the north addition and in the slit is that much of the work will now be pushed into poor weather and, of course, very expensive construction operations. We will plan to more fully evaluate this delay and its impact upon costs at the next review and updating session.

Mr. Gonyer and I reviewed the procurement work networks P-1 and P-2 in detail and a brief review of the current status of procurement follows.

Most material to be obtained by Shmina for foundation work is on hand or available. Structural steel shop drawings have been submitted in part with anchor bolt shop drawings having been submitted on September 21, 1981 (working day 184). These are not back as yet. Of all of the structural shop drawings submitted, apparently only three have been returned as of October 13, 1981 (working day 200). I suggest since this is a lagging item that efforts be made to free up those shop drawings that have been submitted so fabrication of structural steel can begin, particularly on anchor bolts which will be needed as soon as the base mat at the north addition is put into production.

Another critical item that will be needed shortly is T-rails which are to be cast into the base mat. Mr. Gonyer is presently following this matter closely and will attempt to expedite shop drawings and approval along with delivery of the T-rail. It may be wise also to check to see that all dimensions are available for the elevator pit since this pit will be poured out along with the base mat. Another item that will be needed in the near future is fuel tank anchors. Apparently these are to be on the job next week.

So far as mechanical procurement and equipment is concerned, of the eighteen shop drawing items shown on sheet P-2, Issue #5, dated June 10, 1981 (working day 113), thirteen have been submitted, with another 5 yet to be submitted. The only shop drawings received back from the architect/engineer are those for the chemical storage tanks. Again, this sequence should be reviewed carefully since some of this equipment may require early setting at hard-to-reach parts of the building.

General

Overall, the lag on the project ranges from 20 to 44 working days and is, of course, very serious because a great share of the work originally planned to have been completed prior to cold weather (for example, completion of the north building walls by December 8, 1981 (working day 240) are now delayed into a full winter of outside concrete sub-grade construction). This matter is very serious and, of course, disruptive both to the planning operation and the actual field operations stemming from it. In addition, work at the slit on the concrete slab on grade and second floor decks will also be forced into winter operations.

I suggested to Mr. Hodges and Mr. Gonyer that because of the imposed delays we update the network model in the very near future. They will talk to Mr. Robert Shmina, and a decision will be made on this shortly. Probably we will update the model at our meeting on Monday, October 19, 1981 (working day 204). At this time we will also set the monitoring date for our next field inspection.

As part of our monitoring I also prepared a project status report for the period from October 13, 1981 (working day 200) to November 30, 1981 (working day 233). This will be issued concurrently with the monitoring report.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert Shmina
(original and one)

November 23, 1981

Subject: Monitoring Report #6
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - contractors

Project: 81.13

Date of Monitoring: November 18, 1981 (working day 226)

Monitored from Issue #5 dated June 10, 1981 (working day 113)
and Issue #6, dated August 15, 1981 (working day 160)

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. Ron Gonyer
- Met briefly with Mr. William Petri of Turner Construction Company (construction managers) and Mr. Gonyer
- Began coding chronological files
- Prepared project status report for period from November 18, 1981 (working day 226) through January 4, 1982 (working day 256)

General Summary

As of November 18, 1981 (working day 226) work on foundations at the north building (NA) continues to move slowly due to the need for the separate mechanical contractor to install underground mechanical work prior to full production start of pours on the base mat. Work at the tank farm is moving well with walls poured up to grade as of today, November 18, 1981 (working day 226). At the slit, auger piling is in, the area is graded, and now awaiting installation of mechanical underground work.

A more detailed review of each area is given below:

Procurement

A brief review of items considered at this monitoring session is given below:

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CONSULTING ENGINEER

- Anchor bolts for structural steel at the north building incinerator section are to be on the job Monday, November 23, 1981 (working day 229). Structural steel for the incinerator building may start arriving next week. Probably columns will arrive first, followed at intervals by the remaining elements. Erection of steel will not start until adequate material is on the job to maintain full continuity of steel action and of course must wait on completion of foundation walls.
- Elevator shop drawings were submitted November 3, 1981 (working day 215). No approval has been given these shop drawings.
- T-rails were delivered to the job site November 10, 1981 (working day 220).
- Inquiry was made of Phoenix (mechanical contractor) for contract #10 as to the current status of fuel tanks. This delivery is important since these tanks must be set before the upper area for the tank farm can be put into work. Presently shop drawings for the fuel tanks have been submitted but disapproved. There is no current word on when revised and approved shop drawings may be expected nor was word available on tank delivery.
- It appears there has been difficulty in getting architect/engineer approval of contract #4 mechanical equipment. Therefore, a detailed analysis of this problem should be initiated immediately to determine how best to resolve submissions and expediting of approvals for such equipment. We will follow this matter closely in subsequent monitoring sessions.

North building

At the north building the tank farm base mat and walls to grade were completed as of November 19, 1981 (working day 227). At the base mat for the building proper, work is still proceeding on forming for the thickened mat areas, installation of underground mechanical plumbing items, and setting resteel. Currently the major holdup to proceeding more rapidly with mat work is the delay in installation of underground plumbing by the owner's separate contractor.

Efforts are being made to expedite this work so better than present progress can be made on pouring mat concrete prior to the onset of cold weather. Already temperatures are

dropping below freezing at night, and it is expected that within the next 5 to 15 working days that normal winter conditions will be encountered. So it is imperative, since this entire area is exposed down to the bottom of the mat, that placement of concrete foundation work proceed immediately. It is urged that every effort possible be expended to get mechanical underground work complete so casting of the slab can proceed.

Mechanical piping work being installed underneath the base mat must be carefully checked to insure that the stub ups do not interfere with steel column base plates. This is being reviewed presently by the construction manager and the C-10 mechanical contractor.

Auger piling at the north building was completed on October 20, 1981 (working day 205) and the major work ahead of all contractors now is to get the bulk mat concrete poured out and walls started up. The deep sump was poured out and backfilled by November 9, 1981 (working day 219) so this particular item is not restraining present construction.

It should be re-emphasized that work at the tank farm will now be stopped until fuel tanks are on the job and set. Then, the additional work required at the top of the tank farm can be installed. Tank anchors were delivered to the job site by the C-10 mechanical contractor October 21, 1981 (working day 206).

Slit area

Most piping above and below ground has been deactivated and removed. There still remains some lengths of lime slurry piping overhead that must be dismantled, but these are presently not posing a serious problem since piling has been completed. It is essential that the mechanical contractor (contract #10) get into this area and start work immediately. He was supposed to begin today, November 18, 1981 (working day 226); however, there had been no major start of work as of the end of the day. Again, as with the north building it is important that we complete our on grade concrete work prior to the onset of colder weather. Therefore, this area too becomes very critical.

Project documentation

Mr. Gonyer and I started subject and name coding the chronological file at our monitoring session today. This coding list will be kept current so document material can be found easily and quickly when needed. I shall continue working on this at each monitoring with Mr. Gonyer.

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Sludge Disposal Building
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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

General

During our monitoring session today, Mr. Gonyer and I met briefly with Mr. Petri of Turner Construction Company. This meeting allowed Mr. Petri to discuss with us certain aspects of the plan and schedule about which he had questions. Mr. Gonyer and I emphasized to Mr. Petri that if we could be of assistance to him in working with the plan and schedule that he should not hesitate to ask.

As part of our monitoring I prepared a project status report for the period from November 18, 1981 (working day 226) through January 4, 1982 (working day 256) and shall issue this with the monitoring report. It should be noted that we are presently preparing an updated network model Issue #7, dated October 19, 1981 (working day 204). This network will be available shortly and will be used at the next monitoring session. For today's monitoring we used the reports and plans noted earlier. I shall be in touch with Mr. Shmina shortly to set the next monitoring date.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert Shmina
(original and one)

December 26, 1981

Subject: Monitoring Report #7
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: December 17, 1981 (working day 246)

Monitored from Issue #7, dated October 19, 1981 (working day 204)

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. Ron Gonyer
- Continued coding chronological files
- Evaluated current job status
- Prepared project status report for period from December 17, 1981 (working day 246) to February 1, 1982 (working day 276)

General Summary

As of December 17, 1981 (working day 246) the weather has turned cold and some snowfall is being experienced. Field work is still concentrated on the north building where installation of the mat continues and walls are being formed. The slit area is experiencing additional delays in installation of owner's underground plumbing, and there is no current word on when these delay items will be resolved.

Procurement of items other than mechanical equipment is in fair condition with some resubmittals presently being required. At this monitoring, an evaluation of the procurement of mechanical equipment was not made. A review will be made later this month and at the next monitoring session.

A detailed description of each work area is given below:

Procurement

Items evaluated at this monitoring included the following:

- Anchor bolts for structural steel at the north building are arriving on the job site so as to be available as needed for mat and built in construction. Some columns have arrived at the job and steel deliveries probably will continue on through December 1981 and January 1982. Mr. Gonyer expects to begin steel erection on February 1, 1982 (working day 276), considerably ahead of the projected issue #7 network model target starting date.
- Elevator shop drawings were disapproved and are presently being prepared for resubmittal. There is no current word on when these would be available.
- Precast concrete roof plank shop drawings have been approved but probably fabrication will be deferred until just before the time when this deck is actually needed on the job.
- Precast concrete wall panel shop drawings have been approved, and as with roof plank, fabrication will probably be held out of full production until nearer the time the material is needed on the job.
- Resin precast panel shop drawings are in for approval. There is no current word on when they will be returned.
- Fuel tank shop drawings were resubmitted by Phoenix in November, 1981. There is no current word on their approval.
- An evaluation of the mechanical equipment procurement process was deferred from this session until later in the month and at the next monitoring session.

North building

Major efforts at the north building are presently being focused on construction of the base mat and erection of wall forms and sleeves. The base mat for the tank farm was poured out October 23, 1981 (working day 208). Tank farm walls were poured out November 18, 1981 (working day 226). Presently about 60% of the north building base mat has been poured out and erection of forms at the southeast corner has begun.

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Sludge Disposal Building
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RALPH J. STEPHENSON, P. E.
CONSULTING ENGINEER

Electrical sleeving in forms is quite complex, but it is expected that once this corner area has been formed that remaining wall work will proceed rapidly, weather permitting.

A current evaluation of progress on base mat and wall work at the north building and tank farm shows that this work is critical and presently meeting target dates shown in the Issue #7 network model dated October 19, 1981 (working day 204).

It should be kept in mind that this new Issue #7 was updated from the status of work as of October 19, 1981 (working day 204) and reflects the later activity dates caused by delays which have been outlined in previous monitoring reports.

Most underground plumbing has been installed at the north building although there still remains some glass-lined pipe to be set. Pipe material will be on the job next week and completely installed by December 28, 1981 (working day 252) according to present projections.

Major electrical work at the north building sub-structure is contained in the mat between the upper and lower reinforcing steel. Therefore, this work is being installed along with the in-mat installation.

There is, as noted above, no current word on delivery of fuel tanks at the tank farm. Again it should be pointed out that work at the tank farm will, for the most part, be stopped from here on out until those tanks have arrived and been set.

Slit area

Installation of underground utilities at the slit by the contract #10 mechanical contractor have not yet started although some excavation did proceed in November, 1981. However, difficulty has been encountered in procuring glass-lined pipe and therefore, no actual utility installation has started. There is no current word on when this glass-lined pipe is expected on the job by Phoenix.

The difficulty at the slit is now in keeping the sub-base from freezing, particularly where it has been excavated for pipe. Shmina has provided insulated blankets to help in slowing the freezing process, but these, of course, must be removed as pipe installation proceeds.

Work at the slit is very important to bring along as rapidly as possible because as winter weather proceeds it will become

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

harder and harder to complete needed work there to maintain continuity of operations next spring.

Project documentation

I reviewed the method of coding documents and establishing abbreviations with Mr. Nevejans and Mr. Gonyer. A copy of our abbreviation list was left with Mr. Gonyer for his use. I shall continue to code the chronological file month by month and discuss with Mr. Robert Shmina sometime in the near future the method of recording for retrieval the information in the coded documents.

General

At our session Mr. Gonyer talked to Mr. Petri of Turner Construction Company and made him aware of my monitoring visit to the job site. Mr. Petri said there was no need for us to get together at our session today. We will keep Mr. Petri informed of future monitoring sessions as appropriate. I shall be in touch with Mr. Robert Shmina shortly to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert Shmina
(original and one)

MM
RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

January 20, 1982

Subject: Monitoring Report #8
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: January 14, 1982 (working day 264)

Monitored from Issue #7, dated October 19, 1981 (working day 204)

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. Ron Gonyer
- Evaluated current job status
- Prepared project status report for period from January 14, 1982 (working day 264) to February 25, 1982 (working day 294)

General Summary

As of January 14, 1982 (working day 264) the weather continues cold with considerable snow and wind. Over the past month bad weather has materially affected current concreting operations, and in some instances forced temporary protection and heat to be used to maintain field progress.

Major forming and pouring operations are still concentrated at the north building. At the slit area very little progress has been made on installation of underground utility work. Therefore, this area has stayed open and is now frozen. Work there will become increasingly difficult as the frost extends into the sub-base. The glass-lined pipe to be installed at the slit is on the job but not yet installed.

Procurement of items other than mechanical equipment is now moving fairly well. However, submittals and approvals of mechanical equipment shop drawings have experienced difficulties over the past several weeks. There have been numerous requirements for re-submittals. This has, in turn, slowed down the procurement process considerably.

In addition, many required approvals do not presently appear to be meeting the originally agreed upon turnaround of 20 working days from the time the construction manager receives a shop drawings until it is back in A.Z. Shmina's hands. I recommend tracking of submittals continue to be done carefully and thoroughly, since mechanical equipment is going to be needed on the job soon to maintain progress in accordance with the desired plan of work.

It should be noted on sheet #5 of the network model, Issue #7, dated October 19, 1981 (working day 204) the various installation elements that are restrained by owner activities are shown in detail. Many of these actions had been planned to begin in the spring and summer of 1982. I recommend a careful study of present target start dates to insure that no major dislocation of the anticipated plan of action is experienced. At our next monitoring we will review sheets #5 and #6 of the network model to determine what is needed from the owner relative to mechanical installation over the next eight months. I shall plan to do this with Mr. Gonyer at the job site.

A description of each major work area and its current status is given below:

Procurement

Following is a brief review of each major procurement item:

- Anchor bolts - On job.
- Structural steel - Steel continues to arrive with approximately 100 tons of material on the job at present.
- Elevators - No word was available on resubmittal of disapproved shop drawings.
- Precast roof plank - Most roof plank has been fabricated. Units remaining to be fabricated are being held for information regarding openings to be cast in the deck. This opening information should be provided to the precaster as soon as possible.
- Precast concrete wall panels - A sample panel was submitted to the construction manager last week for review and approval. Production of panels has not yet started.
- Precast resin panels - Difficulty was encountered in designing anchorages for the panels to the existing building. This problem has been resolved and the precast resin wall panel contractor will be on the job shortly to take field measurements.

- Fuel tanks - These are to be furnished by Phoenix and are important to Shmina's work in that the tank farm cannot be completed until tanks are set and backfilled. The second submittal of the fuel tank shop drawings came back not approved. There is no current word on expected tank shop drawing resubmittal nor tank delivery.
- Variable speed drives (spec section 22C) - Shop drawings have not yet been submitted.
- New vacuum pump assembly (spec section 18L) - Shop drawings were resubmitted on January 6, 1982 (working day 258). No word on current status of review and approval.
- Vacuum filters and pumps (spec section 18L) - Arrived on job site January 6/7, 1982 (working days 258 and 259)
- Sludge agitator and accessories (spec section 18J) - Drive is on the job; however, shop drawings are not yet submitted for remainder of equipment.
- Sludge conditioner tanks (spec section 18L) - Tanks for the new filters are on the job. Tank shop drawings for existing filters were resubmitted on January 6, 1982 (working day 258).
- New pebble lime ejector (spec section 20D) - Shop drawings have been submitted; however, there is some discussion presently about combining this lime system with one to be installed later by another contractor under another contract. There is no definitive word on this revision as of January 14, 1982 (working day 264).
- New lime slakers and slurry feeders (spec section 20E) - Shop drawings were resubmitted November 23, 1981 (working day 229). No word on review and approval.
- New slurry trough (spec section 20E) - Will be fabricated by the mechanical contractor after related shop drawings are approved.
- Pebble lime day tanks (spec section 20D) - Shop drawings have been submitted; however, this item is being reconsidered along with the entire lime system (see pebble lime ejector above).
- Conveyor systems including #5, #6, #1, #1a, #2, #2a, #3, #4, #7-#11. - Conveyor shop drawings have been submitted; however, there is a change order issued, and this

revision is now being priced by Shmina and the mechanical contractor. It would be well to get this revision cleared just as quickly as possible since the conveyor fabricator would prefer to have all shop drawings available before starting fabrication.

- New sludge thickening equipment (spec section 18F) - Shop drawings were resubmitted on December 23, 1981 (working day 250). No current word is available on status.
- Scrubber water and drainage pumps (spec section 21B) - Shop drawings were resubmitted on November 16, 1981 (working day 224). There is still required some additional motor data sheets to clear all submittals. There is no current word on the status of additional submittals nor approvals.
- Chemical storage tanks (spec section 20C) - Were delivered to the job site about November 6, 1981 (working day 218).
- Polymer day and mix tanks (spec section 20B) - Shop drawings have been submitted; there is no current word on review and approval.
- Chemical pump (spec section 21B) - Chemical pump shop drawings were received back January 13, 1982 (working day 263).
- Waste activated sludge pumps - (spec section 21B) - Shop drawings were submitted December 1, 1981 (working day 224). Review and approval is in process.

Note: Dates above are given for receipt and transmittal of shop drawings from Cavanaugh's office.

North building

Work continues on construction of the base mat. All underground plumbing was completed January 6, 1982 (working day 258) and six of the eight base mat pours at the north building have been complete. Mat work is scheduled presently to be completed by about January 22, 1982 (working day 270). The target completion date for this base mat in the Issue #7 network model dated October 19, 1981 (working day 204) was January 15, 1982 (working day 266). Thus, there is projected a lag of 4 working days in construction of the base mat

over dates set in the reissued network model. Basement walls at the north building are continuing with about 20% of the north building concrete wall work poured out. Tank farm walls were poured out last year by November 11, 1981 (working day 226).

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

There was no projection made at this session as to completion of wall construction since wall work is heavily affected by weather. Present weather conditions are, as noted previously, not conducive to good economical, continuous work. In fact, for some of the wall work along the existing building it has been necessary to provide temporary shelter and heat.

Structural steel is arriving on the job in larger loads than previously, and Shmina will continually evaluate the possibility of starting erection as scheduled by March 2, 1982 (working day 297). No estimate was made today as to whether or not this date could still be met. It should be noted that the start of structural steel erection shown in Issue #5, dated June 10, 1982 (working day 113) was December 9, 1981, (working day 240). Delays to construction of the base mat, of course, have resulted in a much later start than had been originally projected.

Slit area

The delays at the slit area in installing underground mechanical work have now allowed the sub-base to be frozen for some depth. Mechanical work has started but there still remain considerable additional work to be done. Glass-lined pipe to be installed at the slit is stored at the job site.

Project documentation

I am continuing work on numbering and coding the chronological file and suggest that sometime within the next month we meet to review how best to utilize the document file for maintaining a good job history.

At our session Mr. Gonyer talked to Mr. Petri of Turner Construction Company and made him aware of my monitoring visit to the job site. Mr. Petri said that there was no need for us to meet today.

I shall be in touch with Mr. Bob Shmina shortly to confirm the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert Shmina
(original and one)

February 23, 1982

Subject: Monitoring Report #9
Sludge Disposal Building
Battle Creek, Michigan
A.Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: February 17, 1982 (working day 288)

Monitored from Issue #7, dated October 19, 1981 (working day 204)

Date of notice to proceed: April 27, 1981 (working day 82)

Actions taken:

- Inspected project
- Reviewed current status of project with Mr. Ron Gonyer, Mr. Lee Farrell and Mr. Dick Hodges
- Evaluated current job status
- Reviewed mechanical procurement with John Alexander of Cavanaugh Company
- Prepared project status report for period from February 17, 1982 (working day 288) to March 31, 1982 (working day 318)

General Summary

As of February 17, 1982 (working day 288) the job has slowed due to very heavy snowfalls and excessively cold temperature. Weather conditions have made it very difficult to work on the foundation of the north building and has forced excessive cleaning and heating operations to be maintained.

In addition, low temperatures have caused serious cold weather problems at the slit where work on underground utilities was delayed into cold weather as noted in previous monitoring reports. Thus, work progress which has been maintained at greater than expected costs because of the difficult working condition has been slower than desired.

Procurement of items other than mechanical and the elevator is continuing to move fairly well, although some delays are

being encountered in getting remaining structural steel on the job. There is at present about 130 tons available at the job site with another 70 tons apparently available at the shop.

Again, it should be noted that on sheets #5 and #6 of the network model Issue #7, dated October 19, 1981 (working day 204), installation of many of the mechanical equipment items are shown as restrained by various owner activities. A good owner plan for these owner activities is critical to maintaining job continuity and plant operations, and I suggest a thorough review be made by the owner and his construction manager to determine the impact of each owner required activity upon work to be done over the next few months.

Some of the equipment installation is due to begin in March and April, 1982. The date of this monitoring February 17, 1982 (working day 288) is only 31 working days from April 1, 1982 (working day 319). Thus, I urge planning and attention be given owner work sequences now.

At this session Mr. Gonyer informed Mr. Petri of Turner Construction of the monitoring session and inspection. However, Mr. Petri was not available and Mr. Gonyer will convey the results of our monitoring evaluation to him.

A description of each major work area and its current status is given below:

Procurement

- Structural steel - There is now approximately 130 tons of steel on the job with another 70 tons of steel available at the fabricator's plant.
- Elevators - A decision is presently being made by the owner as to whether the elevator will be a passenger elevator or a freight elevator. No word is available on this decision. The hydraulic plunger shaft being sunk is oversized to accommodate either type. However, a decision is needed immediately in order to get the elevator procurement in progress.
- Precast roof plank - The nature of roof openings has been determined and sizing and location is presently being set. There is no word on when this information will be fully available and able to be incorporated into shop drawings.

- Precast concrete wall panels - Panels are in production.
- Precast resin panels - The information received at this monitoring indicated that resinous wall panel samples have been approved. However, shop drawings have not yet been submitted. They will be available February 22, 1982 (working day 291).
- Fuel tanks - These tanks are part of contract #10 and according to that contractor the approved shop drawings have not yet been received back. It is still important that these tanks be installed as soon as possible since remaining work at the tank farm by Shmina depends upon tanks being installed and backfilled.
- Variable speed drives (spec section 22C) - Shop drawings have been submitted and approved for the drives on the waste activated sludge pumps. The remainder of the variable speed drive shop drawings will be submitted by March 1, 1982 (working day 296).
- New vacuum pump assembly (spec section 18L) - Shop drawings are not yet approved.
- Vacuum filters and pumps (spec section 18L) - On job.
- Sludge agitator and accessories (spec section 18J) - The drive is on the job and shop drawings were resubmitted on January 19, 1982 (working day 267) for the remainder of the equipment. These have not yet been approved. The manufacturer feels he could ship the remainder of the equipment 20 working days after receipt of approved shop drawings.
- Sludge conditioner tanks (spec section 18L) - Shop drawings for the old filter tanks have not yet been returned. Probably equipment could be on the job 30 to 40 working days after approval of these shop drawings. Tanks for the new filters are on the job.
- New pebble lime ejector (spec section 20D) - As of January 19, 1982 (working day 267) the construction manager proposed this item by included in the control system by Cavanaugh. No action has yet been taken by the construction manager to implement this decision that the Shmina field force is aware of. In this action, the item would be taken out of contract #19 and put in contract #4.

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Sludge Disposal Building
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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

- New lime slakers and slurry feeders (spec section 20E) - Shop drawings have been approved and the equipment should be on the job on or before June 1, 1982 (working day 361).
- New slurry trough (spec section 20E) - Fabrication is expected to begin very shortly. It is restrained by sludge conditioning tank shop drawings which have not yet been fully approved.
- Pebble lime day tanks (spec section 20D) - This item is being reconsidered along with the entire lime system (see pebble lime ejector note above)
- Conveyor systems including #5, #6, #1, #1a, #2, #2a, #3, #4, and #7-#11 - Change order #19 directed a redesign and resubmittal of all conveyors. These will be submitted March 1, 1982 (working day 296). It was noted at our meeting that the scale on conveyor #6 cannot be installed as requested by the construction manager and architect because of the configuration of the conveyor plan. This should be checked now.
- New sludge thickening equipment (spec section 18F) - All equipment except for plunger pumps are on the job site. Plunger pump shop drawings were resubmitted November 23, 1981 (working day 229) and returned February 15, 1982 (working day 286).
- Scrubber water and drainage pumps (spec section 21B) - The motor data sheets were submitted February 8, 1982 (working day 281). No word as yet on approvals.
- Chemical storage tanks (spec section 20C) - On job.
- Polymer day and mix tanks (spec section 20B) - Shop drawings were approved February 9, 1982 (working day 282). Tanks are expected on the job by June 1, 1982 (working day 361).
- Chemical pump (spec section 21B) - Shop drawings have been approved and the ferric chloride pump is in the mechanical contractor's shop. Metering pumps will be available in mid-March, 1982.
- Waste activated sludge pumps (spec section 21B) - Shop drawings have been approved and these pumps are being fabricated. There is no current word on their delivery.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

North building

Work is continuing on the base mat and on basement walls. The cold weather and heavy snows have caused serious difficulties in maintaining work progress. At present there remains one more pour to make on the base mat at the northwest corner. Mr. Gonyer expects to make this pour, if weather permits, Friday, February 19, 1982 (working day 290).

About 40 to 45% of the building walls are poured out, and a heavy attempt is going to be made to follow closely after the completion of the base mat with the remainder of the walls. However, this is a complicated forming job and with the inclement weather and difficult working conditions there is no authentic word on when we might expect to complete these walls.

The current lag of base mat and walls over the Issue #7, network model, dated October 19, 1981 (working day 198) is 15 to 20 working days. Again, it should be kept in mind that this is the lag over dates set in the reissued network model. The lag over the original desired targets is considerably more. These original desired targets showed we desired to complete walls by December 8, 1981 (working day 240). This would have been in adequate time to avoid the additional construction costs that have been incurred caused by delays as described in previous monitoring reports and job documents.

Slit area

Underground utilities were complete about February 9, 1982 (working day 282). The area has been made ready for slab on grade and pile caps and reinforcing steel for this slab and pile caps is starting today February 17, 1982 (working day 288). The area has been temporarily covered and protected from cold weather and heat was provided by Shmina to permit work there to proceed. This was not a part of the Shmina contract and an evaluation of the cost is to be made relative to the amount due for this work.

The current lag at the slit area is projected at 71 working days. The slab on grade was due to be poured out no later than the evening of November 13, 1981 (working day 224). It probably will be poured out by February 26, 1982 (working day 295); thus, accounting directly for the projected lag over Issue #7, dated October 19, 1981 (working day 204).

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Project documentation

I reviewed the chronological file numbering and coding with Mr. Lee Farrell also describing the need for a job history. I shall be in touch with Mr. Robert Shmina shortly to set a meeting at the Shmina office to discuss this matter in detail. Meanwhile, Mr. Farrell is familiar with the procedures being followed on coding job documents.

I set the next monitoring session with Mr. Gonyer and Mr. Farrell for March 24, 1982 and shall confirm this with Mr. Shmina. Prior to our next monitoring I suggest we have our office meeting to review the current job status and procedures and consider again updating the network model.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

March 29, 1982

Subject: Monitoring Report #10

Sludge Disposal Building

Battle Creek, Michigan

A. L. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: March 24, 1982 (working day 313)

Monitored from Issue #7, dated October 19, 1981 (working day 204)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5 dated June 10, 1981
(working day 113): September 8, 1982 (working day 431)

Shmina projected completion date from Issue #7, dated October 19, 1981 (working day 204) - November 29, 1982 (working day 488)
(Note: The loss of time reflected in the desired and projected completion targets between Issue #5 dated June 10, 1981 (working day 113) and Issue #7, dated October 19, 1981 (working day 204) was caused by on site and procurement problems as outlined in monitoring reports and documentation in the Shmina file.

This monitoring report measures current job progress against Issue #7, dated October 19, 1981 (working day 204)

Actions taken:

- Monitored current status of project in review with Mr. Ron Gonyer and Mr. Lee Farrell
- Began updating network model to Issue #8, dated March 24, 1982 (working day 313)
- Reviewed current outstanding proposed change orders (PCO)

General Summary

Our major efforts at this session consisted of reviewing where the project stands currently relative to the issue #7 network dated October 19, 1981 (working day 204), starting to update the project network, particularly in respect to mechanical equipment procurement and installation, and to evaluate the current needs of the project so as to maintain

job continuity. It should be pointed out that any float time available in the network model is to be used by the A. Z. Shmina Company and their subcontractors (by permission of A. Z. Shmina) in the scheduling of their field operations. Any use of float time by others than the A. Z. Shmina Company is only permissible upon written approval of A. Z. Shmina.

The intent of the A. Z. Shmina work has been to complete the entire program shown in the network model by the target dates as indicated above for Issue #5 dated June 10, 1981 (working day 113).

As of March 24, 1982 (working day 313) work is being completed at the foundation walls for the thickener tanks in the thickener building (15). Also, work on change C-1 at the incinerator building (13) is in progress although as yet a change order has not yet been issued for the revision in location and scope of work at the exterior wall. It is expected a change order will be issued in the very near future, and we have considered it will be available within the next two working days.

Work is also proceeding at the slit area with the 2nd floor supported deck having been poured out March 23, 1982 (working day 312).

The project is now being readied for erection of structural steel presently due to begin April 12, 1982 (working day 326). Difficulties have been encountered with the original steel fabricator and although there is a considerable tonnage of steel on the job at present it has been considered wise to bring additional tonnage to the site before beginning the full erection sequence.

A description of each major work area and its current status is given below:

Procurement

- Structural steel - There are now 162 tons of structural steel on the job, and enough additional steel is to be available by April 12, 1982 (working day 362) to begin a full scale erection program at the north building.
- Elevators - The owner has elected to install a passenger elevator. In the field, installation of the elevator plunger has been stopped since boulders were encountered at an intermediate elevation. These boulders have made it difficult and perhaps impossible to complete installing the casing for the plunger. Several alternative courses of action have been suggested, but no decision has yet been made by the owner in respect to the course of action to actually be followed. Thus, this work is being held pending resolution.

- Precast roof plank - Current status is substantially the same as in the previous monitoring report.
- Precast concrete wall panels - Panels are in production.
- Precast resin panels - Shop drawings have been approved. Fabrication has not yet started.
- Fuel tanks - No information available. Again, it is very important that these tanks be installed as early as possible so Shmina's work at the grade level over the tank farm can be completed and the area backfilled.
- Variable speed drives (spec section 22C) - Shop drawing submittals are expected to be complete in about ten working days after which remaining approvals can be given and the drives shipped to the job site.
- New vacuum pump assembly (spec section 18L) - Shop drawings have been approved and the assemblies are on the job site.
- Vacuum filters and pumps (spec section 18L) - On job.
- Sludge agitator and accessories (spec section 18J) - Full shop drawings have not yet been totally approved and there is no current word on their status. Apparently agitator and accessory equipment could be shipped and on the job site 20 to 25 working days after receipt of approved shop drawings.
- Sludge conditioner tanks (spec section 18L) - Shop drawings have been approved and equipment is on the job. There is to be modifications made to some of the tanks. These will probably be done within the next 20 working days.
- New pebble lime ejector (spec section 20D) - The lime system is being re-evaluated and a proposed change order (PCO #20) has been issued containing the revised scope of work. Shmina received this PCO #20 on March 19, 1982 (working day 310) and are presently estimating its cost. Once PCO #20 is converted to a change order the procurement process on the new lime equipment can be initiated.
- New lime slakers and slurry feeders (spec section 20E) - There is no current word on delivery of the slakers and slurry feeders.
- New slurry trough (spec section 20E) - Shop drawings are nearly complete for this equipment.

- Conveyor systems, including #5, #6, #1, #1a, #2, #2a, #3, #4, and #7 through #11 (spec section 21K) - A redesign and cost estimate has been submitted (March 4, 1982 (working day 299)). No word has been received as yet from the owner in respect to this revised design and re-estimated cost.

At conveyor #6 the architect/engineer has issued a PCO #32 indicating that revisions are to be made. These revisions are not totally clear, and I have recommended that a request be made of the architect/engineer to revise the actual contract document on which this installation is to be shown, and provide it to those who must estimate the cost for the revision. This request should be made immediately.

- New sludge thickening equipment (spec section 18F) - Plunger pumps are ready to be shipped. All shop drawings have been submitted.
- Scrubber water and drainage pumps (spec section 21B) - Shop drawings have been reviewed and approved, and this equipment should be on the job sometime in late June or early July, 1982.
- Chemical storage tanks (spec section 20) - on job.
- Polymer day and mix tanks (spec section 20B) - Shop drawings have been approved, and it appears that the tanks could be on the job by June 1, 1982 (working day 361).
- Chemical pump (spec section 21B) - The ferric chloride transfer pumps are in the mechanical contractor's shop as are the polymer metering pumps. Polymer transfer pump shop drawings were returned on March 18, 1982 (working day 309) not approved. These are to be resubmitted.
- Waste activated sludge pumps (spec section 21B) - Shop drawings had been misplaced but have been found. The pumps are to be delivered in approximately 90 working days. The drives will probably be delivered in about 130 working days.

North building

Work is continuing on making foundation walls ready for erection of structural steel to begin on April 12, 1982 (working day 326). Work has proceeded on items covered in proposed change order #1; however, I suggest the owner be requested to issue a change order covering this work immediately. It will probably have to be provided within the next two working days to maintain job continuity.

Work is also continuing on the sludge thickener tanks. It is expected this work will require approximately 22 working days to complete.

Slit area

The 2nd floor deck at the slit area was poured out March 23, 1982 (working day 312). The intent in the Issue #7 network model dated October 19, 1981 (working day 204) was to complete this activity by December 1, 1981 (working day 235). Therefore, the lag at the slit can presently be considered about 78 working days over the Issue #7 network plan. The reasons for the lag have been identified in previous monitoring reports. It is to be emphasized that the forcing of above grade work into cold winter weather caused considerable difficulty and additional cost in constructing concrete work at and above grade in the slit area.

Mechanical equipment installation

As noted in the previous monitoring, work on mechanical installation, to a very great extent, depends upon timely action of the owner in removing, relocating, and installing work in relationship to this equipment. This information is shown on sheets #5 and #6 of the Issue #7 network model dated October 19, 1981 (working day 204).

At this monitoring session we began a detailed review of the mechanical installation work to be done. We will continue this review process at our next monitoring session on April 12, 1982 (working day 326).

It is very important that any work to be done by the owner that restrains installation of this mechanical equipment be identified by the owner and accomplished in a fashion so that as mechanical equipment arrives on the job site it can be put in place with a minimum of multiple handling. I recommend that the owner continually be made specifically aware of the needs of the mechanical equipment installation contractor.

At our session we did identify the needs for installing pebble lime day tanks #1, #2, #3, and #4. It is possible that the owner may have to provide structural framing for lime day tanks #3 and #4 before they can be set. There is no current word on how or when this is to be done. Also, there are items of demolition to be done prior to installation of day tanks #1 and #2.

Installation of pebble lime ejector equipment will be restrained by conversion of PCO #20 to a full contract change and the subsequent procurement of the equipment.

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CONSULTING ENGINEER

So far as conveyor equipment is concerned no work on this installation can be accomplished until a change order for the conveyor redesign submittals is issued. These submittals were made on March 4, 1982 (working day 299). There is no current word on when approvals will be given.

Project documentation

We are continuing work on the project documentation including reviewing the format for preparing the job history. At our next session we shall continue detailed work on this entire documentation system.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

May 3, 1982

Subject: Monitoring Report #11

Sludge Disposal Building

Battle Creek, Michigan

A. Z. Shmina & Sons - contractors

Project: 81.13

Date of Monitoring: April 22, 1982 (working day 334)

Monitored from Issue #7, dated October 19, 1981 (working day 204)

(Some field comparisons were made with the updated network Issue #9, dated April 12, 1982 (working day 326) not yet issued.)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5, dated June 10, 1981 (working day 113) - September 8, 1982 (working day 432)

Shmina projected completion date from Issue #7, dated October 10, 1981 (working day 204) - November 29, 1982 (working day 488) (Note: The loss of time reflected in the desired and projected completion targets between Issue #5 dated June 10, 1981 (working day 113) and Issue #7, dated October 19, 1981 (working day 204) was caused by on site and procurement problems as outlined in monitoring reports and documentation in the Shmina file.

This monitoring report measures current job progress against Issue #7, dated October 19, 1981 (working day 204) and in some cases where noted from the as yet unissued network model Issue #9, dated April 12, 1982 (working day 326)

Actions taken:

- Inspected project
- Reviewed current job status with Mr. Ron Gonyer and Mr. Lee Farrell
- Reviewed updated network issue #9, dated April 12, 1982 (working day 326) and #10 dated April 22, 1982 (working day 332)

- Reviewed preparation of chronological file with Mr. Farrell

General Summary

Currently concrete work at the north building is from 10 to 15 working days from completion on the thickener tank walls and the area is ready for start of erection of structural steel. At the slit area, the 2nd floor slab has been completely stripped and equipment bases are nearly complete. It is expected that shaking out and setting of sludge drying equipment will begin Monday, April 26, 1982 (working day 336).

Because of access difficulty at the slit the roof deck erection may be held to allow ease of setting conveyor equipment. Conveyor equipment was released for fabrication April 2, 1982 (working day 320) by the owner, and is presently expected to begin arriving on the job site in early June, 1982.

An updating of the network model is currently in progress and portions of the plan have been reworked reflecting delays and problems that have occurred on the job to date. This new issue will not include revisions to sheet #5 of the network model which concerns the mechanical equipment installation basically restrained by owner operations. There has been no word on when the owner will be able to accomplish the work shown on this sheet, and therefore it is at this time being held for issue until additional information is provided from the construction manager and the owner. I recommend that a thorough review of this sheet be made by the owner and the construction manager and that their attention be called to the importance of the work so there is no question about what must be done to free up the start of the mechanical equipment installation shown on the sheet.

Other mechanical equipment installation that can proceed at this time is to begin next week, and it is anticipated that a reasonably heavy mechanical work operation will be initiated then.

A description of each major work area and its current status is given below:

Procurement

- Structural steel - Additional structural steel will be arriving on the job site April 23, 1982 (working day 335) and April 26, 1982 (working day 336). By April 30, 1982 all structural steel

up to the 2nd floor is expected on the job site and erection should be under way. Present plans are to begin erection of columns Monday, April 26, 1982 (working day 336).

- Elevators - Currently the construction manager is discussing two types of elevators with the owner - a rack and pinion type and a cable type. There has been no decision yet as to which will be used. Drilling work on the plunger casing was stopped about February 18, 1982 (working day 290) due to the problems encountered with unexpected obstructions in the sub-base. No word is currently available on what is to be done to resolve the elevator problem. It should be given immediate attention by the owner and the construction manager.
- Precast roof plank - Material is arriving on the job site and being stockpiled in available areas.
- Precast concrete wall panels - These are in production with about 80 panels having been fabricated.
- Precast resin panels - Fabrication has not yet started.
- Fuel tanks - The construction manager has told Shmina the tanks are expected any day now. It would be helpful to have them in place and backfilled so additional work that Shmina has to do at the tank farm can be completed. This would allow access on all three sides of the north building.
- Variable speed drives (spec section 22C) - Shop drawings have not yet been approved. However, drives are expected to be available shortly after approval is obtained.
- New vacuum pump assembly (spec section 18L) - On the job.
- Vacuum filters and pumps (spec section 18L) - On the job.
- Sludge agitator and accessories - (spec section 18J) - Will be shipped in early May, 1982.
- Sludge conditioner tanks (spec section 18L) - Reworked mixers are expected on the job April 26, 1982 (working day 336).
- New pebble lime ejector (spec section 20D) - Currently Shmina is waiting for the construction manager to provide information regarding the lime system so it can be priced under PCO #20.

- New lime slakers and slurry feeders (spec section 20E) - Equipment should be shipped in mid-May, 1982.
- New slurry trough (spec section 20E) - Shop drawings are in for approval.
- Conveyor systems, including #5, #6, #1, #1a, #2, #2a, #3 #4 and #7 through #11 (spec section 21K) - The construction manager and owner have released all conveyors for fabrication as of April 2, 1982 (working day 320). Delivery is expected starting in early June, 1982.
- New sludge thickener equipment (spec section 18F) - Will be on the job Monday, April 26, 1982 (working day 336).
- Scrubber water and drainage pumps (spec section 21B) - To be on the job in early June, 1982.
- Chemical storage tanks (spec section 20C) - On job.
- Polymer day and mix tanks (spec section 20B) - Expected on the job in mid or late May, 1982.
- Chemical pumps (spec section 21B) - On job by April 26, 1982 (working day 336).
- Waste activated sludge pumps (spec section 21B) - Expected on the job in mid-July, 1982. Dryer controls, however, will probably not be on the site until late August or early September, 1982.

North building

Work on the sludge thickener tank walls is proceeding well and should be complete within the next 10 to 15 working days. The north building foundation is ready for erection of structural steel, and this work is expected to begin Monday, April 26, 1982 (working day 336).

Current plans are to erect, plumb, and bolt structural steel at the ground and 2nd floor after which the ground floor deck will be constructed. Then, the 2nd floor deck will be formed after which steel at the 3rd and 4th floors will be erected. This sequence is presently being studied and will be part, if approved, of the new issue network model.

Ash silo

An ash silo grade beam sketch is being prepared and will be submitted for approval April 23, 1982 (working day 335). It is expected that silo pile caps will be constructed after which piers will be erected on these pile caps to support the structural steel frame and the ground floor supported deck at the silo.

In order to construct the pile caps it will be necessary to place a small amount of backfill at the north wall of the north building. Presently Shmina has requested permission to do this so that work can proceed on these pile caps at the ash silo as soon as possible.

Slit area

Equipment bases are being constructed at the 2nd floor of the slit area, and it is expected to set sludge drying equipment next week. Probably roof construction at the slit will be held until conveyor equipment arrives on the job and is put into place. Demolition work on the perimeter walls has also been completed, and the area is ready for work by the mechanical contractor on contract #4.

Shmina has requested a resolution of the method of proceeding at the truck loading area since the Shmina plan has been to bring this work up concurrently with the slit work. It will be necessary for a plan to be devised to maintain plant operations while still allowing construction to proceed on demolition and remodeling along with new work at that entire area. This plan of work is important to maintaining job progress and must be reviewed and discussed and implemented at the earliest possible time.

Mechanical equipment installation

The work shown in our network model Issue #7 dated October 19, 1981 (working day 204) sheet #5 is important work to consider at the present time. On sheet #5 are shown the various activities that the owner must initiate and complete for many of the mechanical equipment operations. There has been no word from the owner relative to their plan of operation and since many of these owner tasks were due to be completed in late March and April, 1982 it is imperative that an owner plan of operation be provided.

The equipment installation shown on sheet #6 depends, for the most part, upon delivery of equipment and further completion of facilities now under construction. Most of this work will proceed essentially as has been indicated with the adjustments necessary due to delays in construction of the support facilities.

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CONSULTING ENGINEER

Project documentation

Mr. Gonyer, Mr. Farrell, and I reviewed the coding of documents in detail at our session, and it was decided that Mr. Farrell would continue with this documentation and project history preparation. We shall discuss the matter in more detail as Mr. Farrell prepared his office files.

I shall be in touch with Mr. Farrell, Mr. Gonyer, and Mr. Shmina shortly to set the next monitoring session. Meanwhile, I shall also prepare the updated network exclusive of sheet #5 and issue it to those concerned.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

June 21, 1982

Subject: Monitoring Report #12
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - Contractors

Project: 81:13

Date of Monitoring: June 11, 1982 (working day 369)

Monitored from Issue #10, dated April 22, 1982 (working day 334)

Date of notice to proceed: April 27, 1982¹ (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5, dated June 10, 1981 (working day 113) - September 8, 1982 (working day 432)

Shmina projected completion date from Issue #7, dated October 10, 1981 (working day 204) - November 29, 1982 (working day 388) (Note: The loss of time reflected in the desired end projected completion targets between Issue #5 dated June 10, 1981 (working day 113) and Issue #10, dated April 22, 1982 (working day 334) was caused by on site and procurement problems as outlined in previous monitoring reports and documentation in the Shmina file.

This monitoring report measures current job progress against Issue #10, dated April 22, 1982 (working day 334).

Actions taken:

- Inspected project
- Reviewed current job status with Mr. Ron Gonyer and Mr. Lee Farrell
- Met briefly with Mr. Ray Daly of Turner Construction Company, construction manager.

General Summary

Overall, progress at the north building has been good over the past month and a half with structural steel now substan-

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ially erected and well on its way to being trimmed out and with supported floor pours actively in work. At the slit, structural steel is erected, floor pours are completed and some equipment has been set. Work on the ash silo is proceeding, and that area will be ready for structural steel shortly. The network model has been updated to Issue #10, dated April 22, 1982 (working day 334) and issued. Computer runs will be issued shortly.

A recent organizational change has been made in the construction manager's operation at the job site, and we were able to review briefly with Mr. Daly, Turner Construction Company's superintendent, some of his feelings regarding how work will proceed in the future. There is now an effort being exerted by the construction manager to tie together the various elements of this project presently under separate contract and a schedule is being prepared for the total project by the Turner office.

Care must be taken by each contractor to insure that the agreed upon method of work is consistent with that proposed by them in the contract agreement. In light of this, we gave Mr. Daly a copy of the Equipment Activity Tabulation dated May 13, 1981 and requested that he review it so as to be able to advise Shmina as to how they might best proceed with their work on installation of the various pieces of mechanical equipment.

We also briefly discussed sheet #5 Mechanical Equipment Installation of the network model which Shmina has prepared. Items that are to be done by the owner prior to start of work under Shmina's contract should be continually evaluated and clarified so that the conditions under which installation can start are clearly identified. It was helpful to talk to Mr. Daly and our discussions should aid job progress.

A description of each major work area and its current status is given below:

Procurement

- Structural steel - practically all structural is now on the job and the entire north building has been erected and is being trimmed out.
- Elevators - there has been no resolution of the elevator problem and at present little, if any, progress is being made toward a selection by the owner of an alternate method of providing elevator equipment inside the building at its present location. This

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matter must be resolved promptly.

- Precast roof plank - Practically all precast roof plank is on the job.
- Precast concrete wall panels - 74 of the total of 140 precast wall panels are on the job site.
- Precast resin panels - Precast resin panel shop drawings will be submitted June 18, 1982 (working day 374). Production has not yet begun.
- Fuel tanks - Fuel tanks arrived and have been put in place at the tank farm.
- Variable speed drives (spec section 22G) - Shop drawings apparently have not been approved yet. The drives are available as soon as approval has been obtained.
- Sludge agitator and accessories (spec section 18J) - On job June 2, 1982 (working day 362).
- Sludge conditioner tanks (spec section 18L) - On job.
- New pebble lime ejector (spec section 20D) - The proposed change C-20 has been priced and the cost submitted. There is no current word on when a change order will be issued. (Note: There have been no change orders executed by the owner for any work on this project to date.)
- New lime slakers and slurry feeders (spec section 20E) - Some equipment is on the job.
- New slurry trough (spec section 20E) - Shop drawing apparently have not yet been approved.
- Conveyor systems, including #5, #6, #1, #1a, #2, #2a, #3, #4, and #7 through #11 (spec section 21K) - All conveyors are to be on the job August 2, 1982 (working day 404). Delays to this equipment have been described in previous monitoring reports and are fundamentally due to proposed owner revisions.
- New sludge thickener equipment (spec section 18F) - On the job.
- Polymer day and mix tanks (spec section 20E) - On job May 5, 1982 (Working day 353).
- Chemical pumps (spec section 21B) - On job.

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- Waste activated sludge pumps (spec section 21B) - Not yet on the job, and there is no current word on delivery.

North Building

Structural steel erection at the north building began April 26, 1982 (working day 336). The ground floor deck forming was started on May 13, 1982 (working day 349) and the deck will be poured out by the evening of June 11, 1982 (working day 370).

Erection of third and fourth floor structural steel has proceeded and presently is all erected and being trimmed out. Forming of the second floor slab in the incinerator building is under way and was started June 9, 1982 (working day 367).

At the new thickener building the ground floor slab was started in forming on May 10, 1982 (working day 346) and was poured out June 3, 1982 (working day 363). Columns and beams are now in work to the roof. They were started June 8, 1982 (working day 366). Backfilling all around the building is nearly complete and will be continued as areas are cleared and floor pours completed at ground level.

Ash Silo

Construction of the ash silo lower pile caps was started on May 25, 1982 (working day 357) and the columns to grade were poured out by May 28, 1982 (working day 360). Work on grade beams and upper pile caps at the ash silo started June 8, 1982 (working day 366) and are continuing in work. Once they are complete, erection of ash silo structural steel can proceed. It should be noted that there are items of work required in construction of the ash silo that are not in the Shmina contract. These will affect ongoing work to be done subsequent to these non-contract items by the owner.

Slit Area

Structural steel at the slit area was set at the slit area on May 6, 1982 (working day 344) and the second floor deck has been poured out. Early vacuum filter components were put in place April 28, 1982 (working day 338), and pumps at the existing garage were set May 10, 1982 (working day 346). Work will proceed on close in of the slit area.

No work has yet begun at the truck loading area since the owner's sludge loading operations are still restraining Shmina's work at the truck loading area. This matter is discussed daily at the job site and must be part of on-

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going consideration since it is a very critical operational element.

Mechanical Equipment Installation

Work sequence plans shown on sheet #5 Mechanical Equipment Installation of the network model Issue #10, dated April 22, 1982 (working day 334) have not been updated due to lack of information regarding the owner operations in the various areas where a close interface must be maintained. In certain areas some of this work has been done. The owner has removed the sludge agitators at the existing sludge agitator tanks. However, the tanks are yet to be cleaned. The owner has removed the ozone chamber at tanks #1 and #2 and the roof openings, and the lime day tanks supports have been installed. However, most of the other work shown on this sheet still is to be reviewed and discussed and a course of owner action decided upon.

Care must be taken in establishing sequences of operations to insure that they are agreed upon within the context of the Shmina contract. This will be a difficult set of activities to decide upon and, as noted earlier, we provided Mr. Daly with the equipment activity tabulation which used originally back in May, 1981 to identify the various pieces of equipment, where they are located presently, who was to take what actions, and where the final location of that equipment was. It is strongly suggested that all parties become familiar with this document since it was used as a basis from which the network model for mechanical equipment installation was prepared.

The activities shown on sheet #6, Issue #10, date April 22, 1982 (working day 334) were also reviewed at our session, and it should be noted that the chemical storage tanks, the polymer day and mix tanks, and the chemical pumps at the ground floor of the slit were set early in May, 1982. Removal of the existing lime day tanks, Shmina has been told, will not be possible until after the new tanks are in operation. This is apparently a recent requirement that Shmina was not made aware of in their original planning of the work. These types of revision should be watched carefully since they tend to extend activities planned at one period into other time frames of the project and quite frequently disrupt job continuity and require additional charges to be made.

Project Documentation

Mr. Farrell and I were not able to work on project documentation at this session; however, progress has been made on

RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

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coding the documents and keeping the chronological file up to date. I shall be in touch with Mr. Gonyer and Mr. Shmina shortly to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:emy

To: Mr. Robert A. Shmina
(original and one)

July 21, 1982

Subject: Monitoring Report #13
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: July 15, 1982 (working day 392)

Monitored from Issue #10, dated April 22, 1982 (working day 334)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5, dated June 10, 1981
(working day 113) - September 8, 1982 (working day 432)

Shmina projected completion date from Issue #7, dated October 10, 1981 (working day 204) - November 29, 1982 (working day 388)
(Note: The loss of time reflected in the desired and projected completion targets between Issue #5, dated June 10, 1981 (working day 113) and Issue #10, dated April 22, 1982 (working day 334) was caused by on site and procurement problems as outlined in previous monitoring reports and documentation in the Shmina file.

This monitoring report measures current job progress against Issue #10, dated April 22, 1982 (working day 334).

Actions taken:

- Inspected project
- Reviewed current job status with Mr. Ron Gonyer and Mr. Don Greenwell, Jr.

General Summary

Overall progress at the new north building continues good on construction of the structural frame and setting mechanical equipment. The ground floor has been poured out and stripped, and the second floor of the building is nearly ready to pour. Ash silo structural steel is erected, and progress there has also been good over the past month.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

At the slit area very little additional work except in installation of equipment has been completed there over the past month. Work on the truck loading area is not able to begin at all due to owner restraints on plant operations.

The inability to begin work at the truck loading area is becoming increasingly serious, and of major concern is that the delay by the owner in allowing work to start there may force truck loading construction into colder weather and more expensive field operations.

Deliveries to the job site are in fair condition with difficulty still being encountered on approvals and delivery of mechanical equipment. The owner's work shown on sheet #5, to the best of Shmina's knowledge, has not been planned by the owner so far as sequencing and durations are concerned. It is very important that some agreement be reached on this set of actions so that Shmina can complete their planning of the remainder of their work for the next few months.

There has been discussion about Shmina having to hold closing in certain areas of the new buildings to permit setting of equipment by the owner's other contractors. This apparently was not clearly defined in the contract documents and must be resolved immediately because erection of the exterior skin of the new building will be started in the near future.

It should be noted to date there have been no executed change orders issued. Change order #1 was returned by Shmina about June 1, 1982 but has not yet been executed by the owner. The delays to issuing, reviewing, and executing bulletins and change orders is beginning to impact upon the job seriously, and I suggest that methods be found by which this process can be expedited.

At the elevator in the new building no decision has been as yet made on how to complete installing the plunger casing, and continuing work on following work in the shaft. Thus, the elevator pit is still being delayed as it has been for the past several weeks. As more and more equipment is set and it becomes more difficult to get clear access to the area, it will be harder to complete this work. There are serious problems that face any crew installing the rest of the shaft work, and it is essential that the owner make a decision as to how he wishes this work to be done and how it is to be paid for.

A brief discussion of each major work area and its current status is given below:

Procurement

- Structural steel - All structural steel is on the job and the north building, the ash silo, and the slit area steel has been erected. No work has yet begun on the truck loading area.
- Elevator - As noted above, there still is no resolution of the elevator problem, and apparently little, if any, progress is being made toward a solution by the owner. The matter is apparently under study by the architect/engineer and the city's legal staff. Resolution of this matter is becoming increasingly critical. At present, the dewatering system is still being used to keep this shaft area dry although if the matter was resolved the dewatering could possibly have been deactivated. This operation, of course, incurs a cost that is not desirable.
- Precast roof plank - All on job.
- Precast concrete wall panels - A few more have arrived since the previous monitoring.
- Precast resin panels - Precast resin panel shop drawings have not yet been submitted.
- Variable speed drives (spec section 22C) - Shop drawings have not been approved and the drive is still available as soon as the approval has been obtained.
- New pebble lime ejector (spec section 20D) - No word on converting C-20 to a change order. This is in the owner's hands.
- Lime slaker and slurry feeders (spec section 20E) - All equipment except the dry feeder is on the job.
- New slurry trough (spec section 20E) - Shop drawings have not yet been approved. Fabrication will start shortly.
- Conveyor systems, including #5, #6, #1, #1a, #2, #2a, #3, #4, and #7 through #11 (spec section 21K) - All conveyors are still to be on the job August 2, 1982 (working day 404). Delays to this equipment have been sizable and are fundamentally due to owner revisions.
- Waste activated sludge pumps (spec section 21B) - Are on route to the project.

North building

Structural steel is erected and trimmed out, and the ground floor supported deck has been poured out, cured, stripped and is available. The second floor deck is ready to pour, and probably concrete will be placed tomorrow, Friday, July 16, 1982 (working day 393). At present construction of the structure and floor system of the incinerator building is about 14 working days ahead of the Issue #10 network model dated April 22, 1982 (working day 334). (Note: On sheet #2 of Issue #10, dated April 22, 1982 (working day 334) the dates on task 399-400 had been inadvertently transposed in reading them from the computer printout. The late start at node 399 should read November 15, 1982 and the early finish at node 400 should read 7-29-82. Please make a note of this on your Issue #10 network model).

Setting of new equipment at the incinerator building is moving very well, and most mechanical items that are on the job have been put in place.

At the thickener building the ground floor supported deck has been poured out, cured, and stripped and the roof columns and beams have been poured and are being stripped at present. Installation of thickener tank equipment is moving well and is being installed concurrently in all three tanks.

As noted above, attention must be given by the owner to the matter of how equipment ~~to be~~ set at the various levels is to be brought into the new building. Apparently there is some feeling that openings may be required to allow access for setting this equipment. No provision has presently been made by Shmina for this equipment to be set through openings to be left out temporarily and the matter should be reviewed now.

Ash silo

Structural steel is up, plumbed, and bolted and forming for the second floor deck is in work. Installation of underground utilities at the ground floor is also in progress, and major work is presently meeting targets between early and late starts and finishes as shown in the Issue #10 network model. At present Shmina needs locations and sizes of openings to be provided in the supported deck and roof slabs for mechanical equipment by the owner's contractors. It would be helpful if this information could be provided just as quickly as possible.

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Sludge Disposal Building
Page five

RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Truck loading and slit (TLS)

Equipment installation continues at the slit; however, work on the truck loading area has not been able to proceed at all since the owner's operation prevents it from being initiated. All involved should remember that the winter season is approaching once again and although it is mid-July there only remain about 97 more working days to the end of November. This means that some method of getting the foundations in and the structure erected along with concrete decks before cold weather must be found if the extra costs required for winter construction are not to be incurred. I urge that everyone exert every possible method to arrive at a decision as to how this work is to proceed and clear it up as rapidly as possible.

Mechanical equipment installation

The work sequence plan shown on sheet #5, Mechanical Equipment Installation, of the network model Issue #10, dated April 22, 1982 (working day 334) as noted in the previous monitoring has not been updated due to lack of information regarding owner operations in the various areas where interfaces must be established. This work is very important, and Mr. Gonyer is calling attention to the need for clarifications in his daily correspondence with the owner and the construction manager.

Project documentation

Mr. Greenwell is presently working on the documentation file and system and will maintain it as the job proceeds. I have suggested to Mr. Greenwell that he and I meet in the Shmina office sometime soon to review the progress made to date and to evaluate how best to use the information obtained. I shall be in touch with him shortly about the matter.

Meanwhile, I shall be in touch with Mr. Shmina and Mr. Greenwell regarding the next monitoring session.

Ralph J. Stephenson, P.E.

AJS:sps

For: Mr. Robert A. Shmina
(original and one)

August 23, 1982

- Inspected project
- Reviewed current job status with Mr. Ron Gonyer and Mr. Don Greenwell, Jr.
- Reviewed mechanical installation for J.F. Cavanaugh with Mr. John Alexander, and owner equipment with with representative of Turner Construction Company

General Summary

North building structural work and close in is moving well and interior equipment setting and installation had been proceeding well until early August 1982. On the weekend of July 31, 1982 and August 1, 1982 (working day 404) the basement of the new north building flooded with approximately 3 feet of water. This flood was apparently caused by a separation in a site mechanical line and the water ran from this separation to the building perimeter and then into the basement through sleeves in the exterior walls. As a result of this problem pumps and motors in the basement that were flooded out must be reworked and reinstalled. Authorization to do this has been given to Shmina by the owner, and Shmina is proceeding on the reworking with the understanding that they will be reimbursed for the work by the owner.

At the slit, installation of equipment continues and close in of the building is under way. It is still not possible to begin work at the truck loading area, and it appears now the owner will not release that area until vacuum filters #3 and #4 are in operation and conveyors can transport sludge to the indoor loadout from #3 and #4. Major work remaining to allow start of work at the truck loading (TL) area is by others than Shmina and therefore its delay is serious since we must get foundations and as much of the superstructure for the truck loading area installed before the start of winter weather. Again, it should be kept in mind that the original plan anticipated that the truck loading area and the slit area would be built concurrently.

The ash silo structure is going up well, and there appears to be few if any current problems there. It should be pointed out that the structure will soon be ready for owner's work to proceed and that it would be well for plans to be made for installation of owner's work at the silo.

We made a detailed evaluation of procurement status and most delivery problems are gradually being resolved, although there still are some that will need ongoing attention.

When the third floor of the incinerator building was poured out, openings were left for installation, at a later date, of scrubber equipment by Weiss Pollution. This work is covered in request for proposal C-52. Following the procedure outlined in request for proposal C-52 will require that the roofing be left off the building until the equipment has been set and the precast roof deck can be completed.

This poses serious potential for the building being kept open to weather into the winter depending upon equipment delivery. Naturally it is desirable to close the building in for winter operations so work on all trades can continue throughout cold weather. The cost of such late setting of equipment may be difficult to determine at this time since there is no known firm delivery date established for the scrubber equipment.

The elevator problem in the building has been resolved and the owner will pay for any additional work required to complete the shaft casing. Casing installation will resume as soon as the elevator rails have been installed. The firm retained will work from the rails to complete the cylinder casing.

A brief discussion of each major work area and its current status is given below:

Procurement

- Elevator - Rails are available now, and brackets are to be shipped September 3, 1982 (working day 428). Once shaft masonry is complete brackets and rails can be installed and work can resume on installation of the hydraulic cylinder casing. Shop drawings for the elevator were approved as noted. They still must be resubmitted for final approval. However, elevator fabrication can be started.
- Precast concrete wall panels - There are now a total of 100 pieces on the job.
- Precast resin panels - Panel shop drawings have been submitted and are in for review and approval.
- Variable speed drives (spec section 22C) - Shop drawings have been approved and the drives will be shipped August 20, 1982 (working day 418).
- New pebble lime ejector (spec section 20E) - The request for proposal C-20 has still not been processed. Apparently there is some movement of this in the owner's and construction manager's offices. However, Shmina as yet has no word on the matter.
- Lime slaker and slurry feeders (spec section 20E) - All equipment is on the job. In Monitoring Report #13 dated July 21, 1982 it was stated that the dry feeder was not on site. However, it had arrived and was unloaded by another contractor. Therefore its arrival had gone unnoticed at that time.

- New slurry trough (spec section 20E) - Shop drawings have been approved and the trough is in fabrication.
- Conveyors - All major conveyor components are on the job. Equipment began arriving about mid-July, 1982 and has been continuous since then.
- Waste activated sludge pumps (spec section 21B) - These have been delayed in delivery and are now due to arrive in September, 1982.

North building

The second floor deck was poured out July 16, 1982 (working day 393) and the third floor was poured out August 18, 1982 (working day 416). Both pours were made somewhat earlier than their early finish date and thus, progress at the north building has been good measured against network model Issue #10, dated April 22, 1982 (working day 334).

Roof precast is about 25% complete, and we will not wait for continued erection until better access to the perimeter of the building can be obtained.

At the east end of the building delays in completing the backfill at the tank farm have caused difficulties in scaffolding as well as access to the building. Again, it should be pointed out that sections of the precast roof plank will be left to allow for setting the filter equipment by Weiss Pollution. This may cause delays to completing roofing and closing the building fully to weather.

In addition, it should be noted that the seating detail for precast wall panels on the west elevation must be re-examined at the 3rd floor since there is presently with this opening being left no proper seat for the wall panels. A study is being made presently by the architect/engineer to determine what kind of bracket should be used. A check should be made continuously to insure that this detail is being reviewed by the architect/engineer.

Setting of mechanical equipment within Shmina's contract at the new building is well along except for the rework required by flooding of the basement.

Exterior masonry is being erected at the 1st floor and is overall about 50% complete at the north building.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Ash silo

The grade slab has been completed, the second floor deck poured out, and the roof deck will probably be poured August 20, 1982 (working day 418). This work is moving well in line with early and late starts and finishes in Issue #10.

Truck loading and slit (TLS)

Equipment installation at both levels of the slit continues and is critical since some of this equipment must be put in operation before the owner will release the truck loading area for work. We are approaching winter, and it is imperative that the truck loading structure be well along by the onset of cold weather. It should be understood that completing most remaining installation of equipment at the slit is dependent upon contractors, other than Shmina, and who are working directly for Turner. Thus, their work becomes very important to bringing equipment on line as required.

Mechanical equipment installation

At our monitoring today we were able to make a relatively detailed review of work on sheet #5 with a Turner representative. It is intended that this work which covers the owner's interfacing with work to be done by Shmina is being studied and revised and will result in a new master schedule being issued sometime within the next few weeks.

It is very important that we obtain additional information on these items since the point in time is being reached where it will be necessary to concentrate our field effort on equipment installation work.

Of major importance is resolution of the lime system. This, to Shmina's knowledge, has still not been decided upon. It is very important to many of the installation items in the work sequence.

Installation of mechanical equipment shown on sheet #6 is moving well where delays are not being imposed by pending changes. Conveyors #7 and #8 are about 70% complete; however, in other conveyor work installation cannot proceed without delay until additional owner work is accomplished.

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RALPH J. STEPHENSON, P.E.
CONSULTING ENGINEER

Overall, mechanical installation by Shmina is dependent in many cases upon work to be done by the owner. It is imperative that we follow and encourage the release of as much of this owner work as possible in the very near future. Otherwise, mechanical work under the Shmina contract will be further slowed.

General

It has been noted that the method of processing changes on this project consists of issuing a request for proposal, identified by a prefix C and a number consecutive within the total project (not for individual contractors). To date, there has been no fully executed official change order issued to Shmina, and I urge that at this time when a revision to the system can be made that Shmina consider requesting the change orders be given a different prefix than C and that they be issued consecutively to Shmina so they are not confused with other contractor change orders. In addition, it would be good if request for proposal numbers be incorporated as accepted, into the write up for the change order. In my opinion, it is important to break loose the official executed change order as soon as possible since any work done without such an official change to the contract documents may be considered work that is authorized verbally or informally only not officially. The confirmation documents for all such oral or informal authorizations should be issued promptly by Shmina so that as few misunderstandings as possible occur.

I shall plan to meet with Mr. Greenwell sometime in the near future to continue discussions on project documentation. Meanwhile, I shall be in touch with Mr. Shmina and Mr. Greenwell to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

For Mr. Robert A. Shmina
(original and one)

October 13, 1982

Subject: Monitoring Report #15
Sludge Disposal Building
Battle Creek, Michigan

A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: September 30, 1982 (working day 446)

Monitored from Issue #10, dated April 22, 1982 (working day 334)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5, dated June 10, 1981
(working day 113) - September 8, 1982 (working day 432)

Shmina projected completion date from Issue #7, dated October 10, 1981 (working day 204) - November 29, 1982 (working day 388)
(Note: The loss of time reflected in the desired and projected completion targets between Issue #5, dated June 10, 1981 (working day 113) and Issue #10, dated April 22, 1982 (working day 334) was caused by on site and procurement problems as outlined in previous monitoring reports and documentation in the Shmina file).

This monitoring report measures current job progress against Issue #10, dated April 22, 1982 (working day 334)

Actions taken:

- Inspected project
- Reviewed current job status with Mr. Ron Gonyer and Mr. Don Greenwell, Jr.
- Reviewed mechanical work for J.F. Cavanaugh with Mr. John Alexander
- Color coded network models

General Summary

At the new north building close in of the structure is continuing with current work being concentrated upon erection of roof precast plank, exterior masonry, and exterior precast panels. Interior masonry is also in work. The building is presently being readied for start of roofing, an important activity needed to close in the building. Building close in is necessary for a variety of reasons, but a prime concern now is to start spray on fireproofing at the various levels. Close in is essential for this work to begin.

At the tank farm grade work has been completed and the A. Z. Shmina Company, upon instructions from the construction manager, provided a thickened slab on grade for apron access to the east elevation of the new building. No change order has been issued for this work as yet.

At the slit roof and wall panels are substantially complete, and work continues by contractors under this contract and under others on interior work and equipment. It is still not possible to begin work on the truck loading facility and, as noted previously, it appears that vacuum filters #3 and #4 will have to be put in operation prior to start of work on this facility. It still is critical we begin work soon on the truck loading facility since we must get a good share of the work done prior to the onset of cold weather. Present plans are to have the vacuum filters #3 and #4 in operation by the end of October, 1982. Although this is a very late starting date for trucking loading work it might be possible to do some construction prior to the heavy cold weather beginning.

At the ash silo the roof deck has been poured out and is now ready for erection of the owner's ash silo masonry bin. Precast wall panel erection is expected to begin there sometime in the near future.

An evaluation of procurement status indicates that major problems continue to be resolved although sometimes more slowly than desirably. Heavy attention, however, is being focused continually on procurement needs by Shmina. It again should be noted that the roof of the incinerator building cannot be completed until the scrubber equipment by Weiss Pollution has been set. According to the revised master schedule issued by the construction manager as revised September 3, 1982 (working day 428) this equipment is to be on the job during the first two weeks

of October, 1982. It would be desirable to get this equipment set just as quickly as possible so that a full roofing operation can proceed. Proposal C-2 should be processed into a change order quickly to insure that proper procedures have been followed in changes to the contract.

Apparently the construction manager will now be issuing change orders with a prefix CS and incorporate into the body of these change orders the change proposal(C items included in the change order).

During our inspection of the project Mr. Gonyer, Mr. Greenwell, and I spoke briefly to Mr. Ray Daly and Mr. Dave Glusko. However, no detailed review was made of the project with them at this session.

A brief review of each major work area is given below:

Procurement

- Elevator - Rails are installed and the additional drilling required for completing hydraulic cylinder work is under way. The hydraulic system is also on the job. Shop drawings had been approved as noted; however, Shmina is still waiting for cab interior colors.
- Precast concrete wall panels - The majority of wall panels are on the job site. It is important to get all remaining units to the job just as quickly as possible for close in of the building. Mr. Gonyer and Mr. Greenwell are working on this at present with the supplier.
- Precast resin panels - No official approval of shop drawings has yet been given. These shop drawings were submitted about August 2, 1982 (working day 404).
- Variable speed drive (spec section 22C) - On job.
- New pebble lime ejector (spec section 20E) - The price estimate for the equipment will be submitted on Monday, October 3, 1982 (working day 448). Following evaluation of the estimated cost it should be possible to issue a change order.
- New slurry trough (spec section 20E) - Trough is presently in fabrication and will be shipped to the job soon.

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RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

- Conveyors - All conveyor components have arrived on the job site.
- Waste activated sludge pumps (spec section 21B) - Will be shipped in late October, 1982.

North building

(Note: In Monitoring Report #14 dated August 23, 1982, page four, North Building section, second paragraph the word not in the first sentence should be now. Please make this correction to your copy of this report.)

All major structural work at the building has now been completed, and interior work is proceeding on masonry and installation of equipment, duct work, piping, and conduit. Much of this following work is by other contractors who are prime to the owner.

Roof precast erection is nearly complete and erection of precast exterior wall panels is to begin in production very soon. This is a critical operation since it is desired to lay the roofing on the north building as quickly as possible. Roofing is restrained by substantial completion of exterior precast at the roof level.

At the west elevation third floor it will still be necessary to obtain a detail from the architect/engineer to provide proper seating of precast panels at the floor opening being left for scrubber equipment setting. I suggest this matter be followed continuously by Shmina, the construction manager, and the architect/engineer.

Reworking of equipment damaged in the flood is proceeding well, and some of this equipment is now being reset. Interior masonry is proceeding concurrently with exterior masonry and is in relatively good shape. To be noted is that the spray on fireproofing for the structural steel frame of the building will probably be applied once the building has been closed substantially to wet weather. The building has proven exceptionally damp during heavy precipitation, and therefore, it is not feasible nor wise to apply the fireproofing before close in in light of the damage that could be expected.

At the elevator shaft work is proceeding reasonably well in clearing away the difficult sub-strata where rock was encountered. Heavy drilling equipment is being used

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mounted off of the elevator rails, and work is in progress clearing this problem area. Most mechanical equipment under this contract has now been installed at the sludge thickener building.

Ash silo

The roof deck has been poured out and stripped, and the building is ready for erection of exterior precast panels and the owner's ash silo.

Truck loading and slit (PLS)

Work on the structure and close in is continuing with roofing to be done concurrently with roofing of the north building. Interior work at the slit is now concentrated upon mechanical installation.

No work has yet begun at the truck loading facility. As noted above, this work is not going to be released by the owner until vacuum filters #3 and #4 are in operation. Again, it should be pointed out that the truck loading area and the slit area were originally to be built sequentially, with the truck loading to overlap construction of the slit to avoid cold weather construction last winter. It is very important that Shmina be allowed to complete weather difficult work at the truck loading prior to the onset of this winter due to the expense of constructing such exposed construction during winter.

Mechanical equipment installation

We made a further analysis of the work shown on sheets #5 and #6 in relation to the new master schedule received from Turner Construction Company, construction managers, dated September 3, 1982 (working day 428). A brief review follows:

- Vacuum filter feed pumps - Two of the three relocated pumps are set and have the motors and drives installed. The third relocated pump will be set as soon as the other two can be put in service. Apparently the date of service will be when power is available to the job and the motors have been checked out. Presently power is expected to be provided by October 15, 1982 (working day 457).
- Variable speed drives - The drives are set for pumps #4 and #3. The other two drives will be set when the owner has removed the existing installation.

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- Vacuum pump assemblies - Removal of the existing vacuum pump assemblies can begin when vacuum filters #3 and #4 are activated. Present plans are to activate these in late October, 1982. This, of course, is dependent upon work on piping and provision of power to the equipment.

There is some question as to whether removal of the existing vacuum pump assemblies can be started once the new vacuum filters are in work or if it has to be delayed until early 1983. This matter will be checked into by Mr. Gonyer and Mr. Greenwell.

- Sludge agitators and accessories - These are substantially complete and ready to operate once power is available.
- Sludge conditioner tanks - Tanks will be removed when the new vacuum filters are on line and operating.
- Lime pebble ejector - Work here consists primarily of installation of a valve assembly between the silo and the vacuum delivery system for the lime pebbles. This equipment has been ordered according to J.P. Cavanaugh.
- Slaking equipment and slurry feeders - Some work is proceeding on this equipment now. It is not totally clear how the entire system is to be put into operation, and we should give the matter some early attention in considering an updating of the current network model.
- Conveyor work - All conveyor work is complete on #1a, #2a, #3, #4, #7, and #8. Conveyors #10 and #11 are in the truck loading facility and will be installed once that facility is erected. Conveyor #9 cannot be installed until modifications are able to proceed on #5 and #6.
- Vacuum filter components - The vacuum filters in the slit have been installed and are now awaiting completion of miscellaneous work and provision of power. It is expected that these can be made operative sometime in late October, 1982. Careful attention should be paid now to procurement of the filter cloth.

I strongly recommend that we update or redo the network model for mechanical equipment installation as presently shown on sheets #5 and #6. The conditions under which much of this equipment is to be installed should be clarified and the sequence reissued to indicate the intent and the approvals needed to complete the work.

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I shall be in touch with Mr. Greenwell and Mr. Shmina shortly about this matter.

General

As of September 30, 1982 (working day 446) no change orders have been fully executed. This is a very serious matter and should be given careful and continuous attention since there are considerable numbers of change requests that are outstanding, most of which have been priced and submitted for review.

The construction manager is now calling the change order a change supplement and prefixing to the number, a CS to indicate a difference from the change request. This is a good procedural revision, and I would like to again encourage that the CS or change order numbering be maintained serially within each contract to avoid confusion.

I shall also be in touch with Mr. Greenwell and Mr. Shmina soon to confirm the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

November 1, 1982

Subject: Monitoring Report #16
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: October 28, 1982 (working day 466)

Monitored from Issue #10, dated April 22, 1982 (working day 334)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 811)

Shmina desired completion date from Issue #5 dated June 10, 1981
(working day 113) - September 8, 1982 (working day 432)

Shmina projected completion date from Issue #7, dated October 10, 1981 (working day 204) - November 29, 1982 (working day 388)
(Note: The loss of time reflected in the desired and projected completion targets between Issue #5, dated June 10, 1981 (working day 113) and Issue #10, dated April 22, 1982 (working day 334) was caused by on site and procurement problems as outlined in previous monitoring reports and documentation in the Shmina file).

This monitoring report measures current job progress against Issue #10, dated April 22, 1982 (working day 334)

Actions taken:

- Inspected project
- Reviewed current job status with Mr. Ron Conyer and Mr. Don Greenwell, Jr.
- Evaluated current job status

General Summary

Close in continues at the new north building, with work now aimed at completing roofing as quickly as possible to get the building in the dry. The major thrust is to close in the building substantially before cold weather so finish trades, particularly spray on, can proceed.

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RALPH J. STEPHENSON, P. E., P. C.
CONSULTING ENGINEER

The field staff will investigate how best to proceed with spray on and will check the conditions under which it must be applied, where it is to be located, and what the availability of material and equipment is.

At the tank farm, there is no change order yet issued for the work. However, the construction manager has instructed Shmina to bill on a unit basis for material and labor.

At the truck loading facility, the requirement that vacuum filters #3 and #4 must be in operation prior to the start of work has been waived by the owner. At a meeting about October 15, 1982 Shmina was told to begin work there even though two vacuum filters were not yet available. The lack of a release has seriously delayed work on the truck loading facility, and it may be very difficult to carry out this work fully as the weather gets colder without expending additional amounts of money and requiring time not originally anticipated.

At the ash silo the owner's bin has not yet been started. Apparently there are difficulties with materials and approvals.

So far as procurement is concerned, the Weiss Pollution Control equipment arrived in early October, 1982 and has been set. Most other procurement is in fair to good shape.

Over the past month since the previous monitoring the construction manager has issued four change orders (CS's) - CS-1, CS-2, CS-3, and CS-4. It would be well to correlate these with the change requests (C's) to insure that all the change requests are cleared away by either voiding them or issuing a CS change to the contract document which incorporates the changes. This matter will become increasingly important as we approach the end of the job.

During our monitoring we told the construction manager we were inspecting the job, and Mr. Daly came to the Shmina field office for a brief discussion. He explained the reason that the truck loading facility had been released was due to an anticipated reduction in the amount of sewage flow over the next few months. This will allow work to proceed by taking down some of the capacity of the plant. No other major items were discussed with Mr. Daly.

A brief review of each of the major work areas is given below:

Procurement

- Elevator - The drilling at the plunger and shaft is now complete and the drilling contractor is moving off the job. Cab colors have been provided, and it is anticipated that the elevator and related equipment will be on the job within the next 60 working days.
- Precast concrete wall panels - All panels except for some miscellaneous closures are on the job and being erected.
- Precast resin panels - Fabrication has been generally held to obtain additional dimensional information. However, this information is now being obtained and the problem has been resolved sufficiently to allow fabrication to start.
- New pebble lime ejector (spec section 20E) - Request-for-proposal C-20 has still not been approved. However, the supplier apparently started fabricating based upon conversations with the owner, and there is some indication the equipment in part has been shipped, since there is indication of a desire to bill or be paid evidenced by the supplier to Shmina's sub-contractor. Thus, it becomes imperative to identify what the approval status of this equipment is so that the matter can be properly resolved from a financial standpoint.
- New slurry trough (spec section 20E) - On job and being installed.
- Waste activated sludge pumps (spec section 21B) - To be shipped within the next few days.

North building

Interior work continues primarily on masonry and other rough and finish interior work. There has been a change to the scope of the masonry due to a substitute of masonry for sheet covering materials on the interior of exterior walls. This change is being made as the work proceeds.

Close in of the building is also continuing, with the major need right now to start roofing and to close in the horizontal elements at all sections of the building so spray on fireproofing can begin. As additional equipment is set in the building, and as additional piping and other systems lines are put up, the spray on fireproofing will become more and more difficult to install at all levels. Therefore, I have strongly recommended that every way possible be examined to start spray on quickly. Also,

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there should be a complete understanding as to the requirements of the contract documents in terms of those elements of the project that are to be fireproofed.

Exterior wall panels are complete on the east elevator, about 95% complete on the north elevation, and about 40% complete on the west elevation. Panels on the south elevation adjoining the existing building are yet to be erected. Nearly all equipment damaged in the floor earlier this year has been reworked and reinstalled.

Scrubber equipment provided by Weiss Pollution has arrived and was set in the building. Areas left unframed to receive this equipment have now been closed in.

There has been some discussion about whether or not the electrical gear can be brought into the electrical room through the present wall opening. If there is a possibility that this will pose problems, then a full analysis of equipment size should be made now to insure that not only will it be possible to put the components into the room, but that they can be brought to the electrical room at the control room level. This analysis should be made by the construction manager.

Ash silo

Masonry work is substantially complete and precast is yet to be erected. Erection of the owner's ash silo has not yet begun. Apparently there is some difficulty with approval of the materials or structure. This silo proper will restrain completion of roofing at the ash silo.

Truck loading and slit (TLS)

The foundations for the truck loading area are formed and were being poured the day of the monitoring. Work there has been proceeding as rapidly as possible since it was released by the owner for immediate work. There is no current word on when we might expect to complete this construction. However, it is the intent to make a complete review of the network model in the near future and during this session we will re-evaluate the plan of work at the truck loading area.

It is imperative that this work be completed before the onset of cold weather to avoid additional construction costs and delays. There already have been some additional delays even after authorization of start of work caused by the need to relocate or identify underground utilities that interfered with foundations. Delays must be eliminated if this work is to proceed without interruptions.

At the slit exterior close in is still in work. Installation of equipment continues, and power will soon be needed to check and test various motors and pumps. In addition, operation of the vacuum filters themselves will require a power source. The matter of power must be addressed now since the operation of the new facilities will depend upon having permanent power. No word is available as yet as to when power will be provided.

Mechanical equipment installation

The evaluation of this work at our session was done on a summary basis only. A more detailed analysis will be carried out in our network review session. A brief discussion of the major items follows:

- Vacuum filter feed pumps - The power turn on was deferred by the owner on about October 14, 1982 (working day 456). There is no current word on when power will be available to operate the two recently installed systems.
- Variable speed drives - No change from previous monitoring.
- Vacuum pump assemblies - No change from previous monitoring. It is not known yet whether the vacuum pump assemblies can be activated as mentioned in the previous monitoring report in late October, 1982. Chances are now, however, this will not happen.
- Sludge agitators and accessories - Same as previous report.
- Sludge conditioner tanks - The tank on #5 can be installed as soon as demolition work by others is complete. The conditioner tanks on #1 and #2 must wait until those are shut down.
- Lime pebble ejector - Same as previous monitoring.
- Slaking equipment and slurry feeders - To be restudied at the planning session for remaining work.
- Conveyor work - Same as previous monitoring.
- Vacuum filter components - Filter cloth samples have been submitted to the construction manager for approval by the architect/engineer. No word on this approval as yet. Apparently the cloth is available as needed after approval has been received.

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RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

We plan to re-evaluate the remaining work and prepare a network model for operation through check and test all equipment and owner accept. I have discussed this matter in great detail with Mr. Greenwell Jr. and Mr. Conyer and it would be helpful if they would prepare a random list of all elements needed to bring the project up to final payment for our planning meeting. At that time we shall discuss the sequence of operations to be carried out over the next several months in as much detail as the available information will allow.

General

As of October 28, 1982 (working day 466) four change orders have been executed, and apparently there is an effort to release as many others as possible in the near future. This is commendable, and I strongly recommend that the pending request for proposals be totally cleared, particularly since the job is now moving into the later stages.

I shall be in touch with Mr. Greenwell and Mr. Shmina to confirm the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

December 12, 1982

Subject: Monitoring Report #17
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: December 6, 1982 (working day 492)

Monitored from: Issues #11 and 12, dated November 4, 1982
(working day 471) and November 12, 1982
(working day 477) respectively

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 811)

Shmina desired completion date from Issue #5 dated June 10, 1981
(working day 113) - September 8, 1982 (working day 432)

Shmina projected completion date - Completion dates have now been reprojected as shown on updated sheets #11, #12, and #13 dated November 4, 1982 (working day 471), November 12, 1982 (working day 477), and December 6, 1982 (working day 492). The loss of time reflected between the desired and projected completion targets set in Issue #5, dated June 10, 1981 (working day 113) and the latest issues noted above have been caused by problems outlined in previous monitoring reports and as documented in the Shmina chronological file.

This monitoring measures current job progress against Issues #11 and #12, dated November 4, 1982 (working day 471) and November 12, 1982 (working day 477).

Actions taken:

- Inspected project
- Completed updating network model rough sheets #11 and #12 dated December 6, 1982 (working day 492)
(To be noted is that previous updating meetings have been held on November 4, 1982 (working day 471) and November 12, 1982 (working day 477))

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CONSULTING ENGINEER

- Reviewed current job status with Mr. Ron Gonyer and Mr. Don Greenwell, Jr.
- Reviewed mechanical work status with Mr. Kamath of Joseph F. Cavanaugh
- Evaluated current job status

General Summary

As of December 6, 1982 (working day 492) the new north building is substantially closed in, and work is proceeding on interior finish trades including painting, spray on fireproofing, and general finish work. Interior rough work installation continues.

At the truck loading facility, structural steel has been erected, the 2nd floor deck is poured out, and exterior masonry is well along. There is no current word on when we might be able to begin work on the east exterior concrete apron. No information has been given yet as to whether the owner must install underground utilities prior to slab installation. This matter should be checked immediately since it would be desirable to get the slab on grade constructed before the onset of cold weather and subsequent freezing of the ground.

A major problem here is that the owner must release the east area before the apron slab on grade can be built. This apparently poses difficulties in maintaining sludge hauling operation. However, it is very important for Shmina to be able to get into the area and complete their work before full winter weather starts.

At the ash silo a decision has been made to complete Shmina work including roofing and close in along with all other trades independent of the owner's ash silo proper. Apparently there has been some delay in erection of this silo, and therefore the Shmina portion of the contract is now being moved rapidly toward completion.

Since the previous monitoring there have been no additional executed change orders. Again, I urge that requests for proposals be converted to change orders just as rapidly as is possible. A major critical item presently is conversion of C-20 into a contract supplement. Mr. Greenwell, Jr. is following this carefully.

A brief review of each major work area is given below:

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Procurement

- Elevator - Elevator delivery is now set for March 2, 1983 (working day 552). It would be well to inquire if door frames could be shipped early to allow setting and consequent early completion of masonry at the incinerator building. To be checked is whether the cab can be installed through door openings if door frames are in place. The reason for the late delivery of March 3, 1983 (working day 553) was a need to clarify an earlier color selection for the cab walls.
- Precast resin panels - Fabrication is being released and panels are expected on the job January 6, 1983 (working day 513).
- New pebble lime ejector (spec section 20 E) - The change proposal has still not been approved. Its approval has been requested several times, and present plans are to have a meeting in about 8 working days to resolve the problem. This matter must be followed aggressively.
- Waste activated sludge pump - On job.

North building

Presently, work is being concentrated on interior finish trades and completing interior masonry. In our diagramming today, we set a desired late finish of the evening of April 7, 1983 (working day 579) for our target to complete clean up and move out. Remaining work is shown on rough network model sheets #11 and #12, Issue #13, dated December 6, 1982 (working day 492).

It should be noted here, that as with any other section of the building, for starting check, test, and turnover of equipment it will be essential for the owner to provide power. This matter is becoming increasingly serious, and I urge that every effort be made to encourage the owner to give this a high priority of attention.

Also, it is generally essential for check, test, and turnover to begin, that the owner complete his work on installed equipment. For instance, in the incinerator building conveyors #3 and #4 must have the owner work complete before check, test, and turnover starts. This pattern occurs at practically all areas where equipment installation has or is being done.

Another ~~action~~ that must be given attention is the integration of ceiling installation at the control room with the owner's mechanical and electrical contractor. At this area, there must be close cooperation between all of the trades if the work is to proceed smoothly.

At the sludge thickener area, close is in substantially complete, mechanical equipment installation is substantially complete, and the owner can now complete his work on the thickening equipment prior to check, test, and turnover of the equipment. Again, power will be needed for the check, test, and turnover.

Ash silo (AS)

Exterior precast is being brought to completion and will be followed by installation of the roof scuttle, insulation, and roofing. Telescoping doors are being installed and interior stair work is under way. Second floor masonry remains to be complete.

The target completion for complete clean up and move out at the ash silo is presently set at the evening of January 21, 1983 (working day 525).

Truck loading (TL)

The current completion target from Issue #12, dated November 12, 1982 (working day 477) is the evening of January 21, 1983 (working day 525). The owner is particularly anxious to put this facility into operation. However, it should be kept in mind that some arrangement will have to be made for providing a driving apron at the east side of the facility. This matter should be worked out by the owner over the next few weeks since delays now will make it difficult if not impossible to build the east slab on grade this winter.

Presently structural steel is complete, the slab on grade at the 1st floor interior is done, the second floor slab is poured and roof precast is being set. Exterior masonry is about 30% complete.

Existing disposal building and slit (EDS)

Note that the slit has now been grouped with the existing disposal building since the two of these are functionally related.

Present completion targets for various parts of the facility are different, and late finishes have been assigned as appear to be appropriate for Shmina's desired field

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procedures. The latest finish date shown for work at the existing disposal building and the slit is the evening of February 28, 1983 (working day 551). Note, however, this is for equipment acceptance by the owner. The building proper is being targeted for completion and acceptance by the evening of February 9, 1983 (working day 538).

It should be noted that many of the check, test, and turnover activities require owner power. Mr. Greenwell, Jr. has outlined a list of equipment activities that need power and has forwarded these to the construction manager and the owner. This list should be kept up to date and used as a reminder of the need for power at all areas of the project.

In addition, there are many owner activities that must be closely meshed with those of Shmina's. It is now imperative due to the small amount of time remaining to the desired completion that these areas be given attention, and resolved. It should be remembered that there are only 59 working days between the target late finish at the disposal building to the evening of February 28, 1983 (working day 551) and today's monitoring date December 6, 1982 (working day 492). The tightness of this schedule will require careful attention by all concerned.

Mechanical equipment installation

This work was not monitored in detail at the session since most of it is now incorporated in activities in the updated network models. We shall monitor this work on an ongoing basis as we monitor the total project.

General

The updated network model has now been completed, and I shall proceed to complete drafting and show late starts and late finishes in addition to the early starts and early finishes on already completed sheets. The owner has been furnished copies of the network model Issues #11 and #12.

It should be noted on sheet #7 for Issue #11 that the issue date should read November 4, 1982 instead of November 3, 1982. Please revise this on your preliminary sets.

I shall be in touch shortly with Mr. Greenwell and Mr. Shmina to confirm the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

TO: Mr. Robert A. Shmina
(original and one)

January 20, 1983

Subject: Monitoring Report #18
Sludge Disposal Building
Battle Creek, Michigan

A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: January 13, 1983 (working day 518)

Monitored from: Issue #13 dated December 6, 1982 (working day 492)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5 dated June 10, 1981
(working day 113) - September 8, 1982 (working day 431)

Shmina projected completion date: Completion dates have now been reprojected as shown on updated sheets #7, #8, #9, #10, and #11 Issue #13 dated December 6, 1982 (working day 492). The loss of time reflected from the desired and projected targets set in Issue #5 dated June 10, 1981 (working day 113) and the latest issue noted above has been caused by problems as outlined in previous monitoring reports and as documented in the Shmina chronological file.

This monitoring measures current job progress against Issue #13, dated December 6, 1982 (working day 492)

Actions taken:

- Inspected project
- Reviewed project status with Mr. Ron Gonyer and Mr. Don Greenwell Jr.
- Discussed project with Mr. Morris Nevejans and Mr. Richard Hodges
- Evaluated current work status

General Summary

As of January 13, 1983 (working day 518) the new north building is closed to weather, interior finish work there is well along, and most major activities are meeting targets between early and late starts and finishes. It should be noted that there was some disruption to interior finish work at all areas due to an internal dispute relative to painting contractors on the project. This dispute caused picketing of the job to start on December 6, 1982 (working day 492). The pickets were removed on December 10, 1982 (working day 496).

At the truck loading area all major activities are currently meeting targets between early and late starts and finishes. There are some miscellaneous lags in minor interior finish work primarily painting, doors, and hardware. Also, the plaster soffit at the telescoping doors is ironed out but still must be plastered. The major restraint to acceptance of the facility by the owner is shaping up as the check, test, and turnover of conveyors #6, #10, and #11. There still is about two days work to be done on the conveyors before they could be checked, tested, and turned over. However, in order to do this work the owner must provide power to the conveyors. This matter is still not resolved and will probably be a hold up to completing work in this area.

I have suggested to the field forces of Shmina that they complete all work necessary to check, test, and turn over so that the instant power is available that operations could start. The east area at the truck loading has still not been released for slab on grade by the owner.

At the ash silo most work except for some minor interior finishes is complete, and the only thing remaining to be resolved is the scope of painting. It is not totally clear what this painting extent is at the ash silo, as well as at other areas. The problem is to be addressed in a meeting on January 21, 1983 (working day 524) between the owner, the architect, the engineer, and the contractor.

It should be noted here that the management of the project has now been turned over by the owner to PRC/Consoer Townsend Inc., and they have replaced Turner as the group in charge of the total program. This change was effective the morning of January 1, 1983 (working day 510).

At the existing disposal building, the slit, and thickener building most work is proceeding well and is generally

in line with target late starts and finishes. However, much of the work is now at a point where completion will depend upon activities of the owner in completing installation of items of work following installation by Shmina under the contract #4 agreement.

Since the previous monitoring there have been no additional executed contract supplements. To date, there have been about five of these issued while there has been approximately 35 to 40 requests for proposals issued. These delays are in many cases disruptive, delay the work, and interrupt continuity of installation. Changes should be cleared away immediately. If possible, the items to be discussed in the meeting now scheduled for January 21, 1983 (working day 524) should be reviewed at an even earlier date since many of these such as available power, scope of painting, and release of change supplements have been longstanding problems and must be addressed just as quickly as possible. Again, it is recognized that with the change in job management by the owner that some problems of responsibility and authority transfer can be expected. However, the consequent delays are being considered as delays beyond the control of the contractors and the results of this disruption must be evaluated on an individual basis. Every effort is being made to assist the people involved in the change.

At our session today the Consoer/Townsend field office staff was made aware that we were meeting and that they were welcome to attend the session.

A brief review of each major work area is given below:

Procurement

- Elevator - Elevator delivery is still being held for March 2, 1983 (working day 552) although there may be a slight possibility of getting an earlier shipping date which might bring it to the job a few days sooner. This is not firm, however, and with the past record of deliveries of elevator equipment it would be wise to maintain the target of March 2, 1983 (working day 552).
- Precast resin panels - Two truckloads of panels arrived on the job January 10, 1983 (working day 515). Erection is expected to start shortly.
- New pebble lime ejector (spec section 20E) - The change proposal has not yet been approved, and the meeting that was held in December 1982 with the owner and the construction manager addressed the

problem but did not resolve it. Therefore, the difficulty is still outstanding and presumably will be a subject of the meeting on January 21, 1983 (working day 524). Again, this is a matter that has been pending for several months and must now be taken care of immediately.

North building

Interior finish work is continuing in the north building and most major activities, as noted above, are meeting targets between early and late starts and finishes. The target completion for clean up and move out of that building in the Issue #13 network dated December 6, 1982 (working day 492) is the evening of April 7, 1983 (working day 579).

There are some key tasks in the remaining work that must be given careful attention. For instance, elevator work once it starts must proceed on through without delay to make the current target end date. Another item that must be decided is whether the epoxy floor finishes are to be left in contract #4 work. There is some feeling that these should be installed later and if so might possibly be transferred from contract #4 to a later contract.

At the control room, there is some concern about access for the incinerator control panel, and this matter may possibly be disruptive to finishing the interior work. Presently the borrowed light sash is installed but it may be necessary to remove it to bring in the control panel. In addition, the ceiling at the control room is still in question since there is a possibility of it being revised from the present metal snap in to a lay in type system.

There are several other miscellaneous items of this type that collectively tend to delay work. For instance, in the incinerator building and at all other areas of the project equipment is set that requires additional work by the owner such as piping and wiring. Also, this equipment will require a source of power by which it can be checked, tested, and turned over. These matters must be addressed by the owner and its field managers along with the architect/engineer to avoid further delays to the work.

Another point that must be clarified at all areas including the north building is the method by which the equipment and systems are to be accepted by the owner. Presently the concept is that the equipment will be checked, tested,

and turned over to the owner to accept, turn on, and operate. This process must be clarified so there is no doubt in any of the party's minds as to the proper method and procedure for accomplishing a smooth transition of the plant from the contractor to the owner.

There is a related problem concerning nearly every trade susceptible to damage that is installed in contract #4. In the network model currently being used we have shown various finish points. For instance, in the incinerator building, the target completion is the evening of April 3, 1983 (working day 579). It is entirely feasible within the present context of the contract #4 work to make this date. However, it will involve installing finishes that could possibly be harmed by the owner's contractors due to the sizable amount of subsequent work that must be installed. Because contractors must consider that the dates that they have set in their plans for their finish target are acceptable, since there has been no rebutting of these dates, then they must seriously consider proceeding with finish work and assuming that once it is installed, that any damage to it will be damage caused by the owner, and therefore not the contract #4 contractor's responsibility.

This matter should first be discussed internally by the Shmina office and field staff, and then a full scale meeting to address the matter should be had with the owner, the architect/engineer, and all others concerned to mutually arrive at a satisfactory procedural answer.

Ash silo (AS)

Most major activities at the ash silo are meeting targets between early and late starts and finishes. The target clean up and move out date at the ash silo was the evening of January 21, 1983 (working day 524). Presently remaining to be done is completion of the plaster soffit at the telescoping doors, installation of hollow metal doors and hardware, installation of stair railings and installation of gratings and handrails. Painting previously shown in the network model may not be required. This is to be defined in a scope discussion on January 21, 1983 (working day 524).

Truck loading (TL)

The target completion date for clean up and move out of the truck loading is January 21, 1983 (working day 524). Most work there is being brought to completion with one major concern being completing painting. However, of most concern

is the availability of power by which conveyors #6, #10, and #11 can be checked, tested, and turned over for acceptance by the owner. This matter must be addressed immediately.

Existing disposal building and slit (EDS)

The existing disposal building and slit were combined in our diagram since they are now contiguous internal areas within the main building. Previously, we had considered the slit and the truck loading together since they were both to be built of structural steel and were connected through elements such as floor slab, walls, exterior close in, and machinery. The shift from planning the slit along with the truck loading, to considering the slit with the existing disposal building, and planning the truck loading separate occurred when the owner was not able to release the area in which the truck loading facility was to be built.

At the existing disposal building and slit, most contract #4 activities are meeting targets between early and late starts and finishes. There is some delay on completion of interior finishes such as painting, but again this is a matter that requires scope clarification and will be addressed shortly.

In other areas, most of the items remaining, concern and are centered, on equipment which the owner must complete and for which power must be available in order to check, test, and turn over the equipment for owner start up and operation. This includes vacuum filters #3 and #4, the feed pump drive, sludge feed pumps, lime system, vacuum filters #1 and #2, vacuum filter #5, remaining conveyor work, and other related equipment. At this time there is a very urgent need for the owner to be immediately involved in helping get each of the major system elements on line so as to finish the work in a timely fashion. This matter, again, is to be addressed shortly in a joint session.

General

In our monitoring session we slightly revised the logic at the thickener building replacing activity 188-191, check, test and turn over thickener equipment, with three sequential activities coming off from node 186, owner complete work on the thickener building, and node 114, owner provide power. These three activities are check and grout thickener equipment, after which we can complete painting the equipment, and then turn it over to owner. This is a minor change and should not materially affect major target end dates, provided the owner will complete his work on the thickener equipment as rapidly as possible.

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RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

Another point that came up during our discussion is that the owner, the architect/engineer, and all others involved with Shmina on contract #4 work should be oriented to the Issue #13 network dated December 6, 1982 (working day 492). The network addresses several difficult problems we have discussed above, and although it may not be all inclusive it certainly contains the general sequences that contract #4 participants have felt are needed to complete their work in an effective manner. I suggest the network be reviewed again very carefully by the Shmina field and office staff and then, that it be discussed in depth, and its contents be thoroughly explained, to the owner and his representatives. This matter is one that should be done along with clarifying acceptance procedures, just as quickly as possible. I urge this be done even earlier than the presently scheduled meeting on January 21, 1983 (working day 524) if at all possible.

Meanwhile, I shall be in touch with Mr. Greenwell Jr. and Mr. Bob Shmina to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

February 21, 1983

Subject: Monitoring Report #19
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: February 16, 1983 (working day 542)

Monitored from Issue #13 dated December 6, 1982 (working
day 492)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5 dated June 10,
1981 (working day 113) - September 8, 1982 (working day 431)

Shmina projected completion date: Completion dates have now
been reprojected as shown on updated sheets #7, #8, #9,
#10, and #11 Issue #13 dated December 6, 1982 (working
day 492). The loss of time reflected from the desired and
projected targets set in Issue #5 dated June 10, 1981
(working day 113) and the latest issue noted above has
been caused by problems as outlined in previous monitoring
reports and as documented in the Shmina chronological
file.

This monitoring measures current job progress against Issue #13,
dated December 6, 1982 (working day 492)

Actions taken:

- Evaluated progress against network plan with Mr. Ron Gonyer and Mr. Don Greenwell Jr.
- Discussed project with Mr. Ron Gonyer, Mr. Don Greenwell Jr., and Mr. Richard Hodges

- Inspected project
- Evaluated current project status

General Summary

As of February 16, 1983 (working day 542) various portions of the project are being brought to points where equipment can be checked, tested, and turned over. Progress is being made toward providing power to various systems and the owner is now beginning to complete installation work following that of A. Z. Shmina and his contractors.

At the truck loading area, the facility is now generally ready for final work on test and turnover conveyors #6, #10, and #11. I recommend that as any system is checked, tested, and turned over that it be done as a complete system so that there is no need for Shmina to be involved with that system once the owner has accepted it.

I have further recommended to Ron Gonyer and to Don Greenwell that they outline the boundaries both physical and operational that are encompassed by each of the systems that the owner is to accept. There may be some difficulties in terms of the number of visits required where multiple systems may be coming on line at different times and yet require single suppliers' inspections and testing help. It would be far better to work these problems out now rather than later so that a clear understanding is had as to the sequence in which the plant is to be given to the owner for his operation.

At the ash silo, most work is complete except for minor interior finishes. The scope of painting work is still not totally defined and is to be further addressed in meetings to be held in the near future between the engineer, the construction manager, and Shmina.

At the existing disposal building, the slit, and the new north building work is now extending on past late finishes primarily due to delays in completing interior work because of interferences, work by others, and the distinct possibility of damage to installed finish trades. This latter matter, it is to be emphasized, must be addressed immediately so that work under contract #4 can at some point be clearly considered complete and Shmina can close out the project. If this is not done the involvement of contract #4 personnel is apt to be

extended out over a considerable period of time, much more than would be considered reasonable, fair, or appropriate under current contract arrangements.

At our session today the Consoer/Townsend office staff was made aware that we were meeting and that they were welcome to attend if they desired to discuss the network model and work progress.

A brief review of each major work area is given below:

Procurement

- Elevator - The incinerator building elevator components exclusive of the cab were delivered to the job February 4, 1983 (working day 534). Cab delivery should be sometime in the near future. A firm date should be set as soon as possible.
- Precast resin panels - All panels are now on the job and erection is under way.
- New pebble lime ejector - The change proposal was issued February 10, 1983 (working day 538) and is presently being processed. It should be noted that the outside weatherproof control panel for the lime system will require about 30 working days to bring to the job following issuance of the contract supplement. The conversion of C-33 to a contract supplement has not yet been accomplished. This work was quoted and the contract supplement is presently being prepared. Attention should be drawn to the fact that once the owner begins operating slakers #1 and #2 that the work under C-33 can begin. Therefore, it is important that this work in C-33 be converted to a contract supplement just as quickly as possible.

Another problem that is being caused by the delays to the issuance of the contract supplement is that erection of the resinous exterior wall panels will be held in the area of the structural work to be done for the new supports. If this contract supplement is not available and the work is not ready to install delays will be encountered in installation of these panels.

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North building

Third floor finish painting is now planned to begin March 1, 1983 (working day 551). It would have been desirable to begin at an earlier date; however, the amount of construction traffic presently running through this facility is so large that damage from other operations than Shmina's is already occurring to much of the primed surface. I recommend that an immediate clarification of responsibility for damage to installed finish work be established so that, as noted previously, the contract for Shmina's work can be completed and Shmina can close out the project and move off the site.

At the control room, a decision has been made to go to a 2 x 4 lay in acoustic ceiling. This work will begin March 15, 1983 (working day 561). Quarry tile base is almost complete and the remaining installation is being grouted for final clean up.

Framing for incinerator #4 has been installed, grating is not yet on the job but is expected soon. It is supposedly in transit. At the elevator, the platform has been installed and is operative. Work is under way now on installing door frames. Once frames are in place, masonry at the elevator fronts can be completed.

Exterior hollow metal doors have been installed, and interior doors and hardware are in work. Stair treads are filled; however, permanent handrails will be held to a later date to avoid construction damage since they are somewhat fragile. There is presently some consideration that epoxy floor finishes will be deleted from the contract. A decision should be made on this soon since we are rapidly nearing the point where the floor finishes could be applied in those areas where Shmina work is being completed.

On February 8, 1983 (working day 536) there was a sludge spill in the incinerator building. This shut effective work down on the job in the basement for one full working day and stopped elevator work for two working days.

The network model Issue #13 dated December 6, 1982 (working day 492) shows a completion date for clean up and move out of April 7, 1983 (working day 579). Presently it is the intent to hold this date as the target completion for the north building. However, we are now rapidly approaching the point where decisions must be made on those elements discussed above that would tend to delay completion. Therefore, it is increasingly urgent that pending matters be resolved.

At the control room, it has been decided by the owner that they would take over the borrowed light sash and remove it for access for the incinerator control panel. The owner will then replace the sash once the panel has been set in the room. The owner has also agreed to take over all materials including glass and panels for the borrowed light area. They will store these and then install them when the borrowed light hollow metal is reinstalled.

Ash silo (AS)

Most work at the ash silo is now complete with the exception of stair railings and the grating and handrails at the bridge. The scope of work for painting is still not fully defined and efforts are being made presently to resolve this matter. However, for all intents and purposes we can assume that most of the work at the ash silo has been completed except as noted.

Truck loading (TL)

The truck loading facility is substantially complete and ready for the owner to accept once equipment is checked and tested. There still is no decision on the east slab on grade at the apron area and probably this slab will not be installed under after vacuum filters #1 and #2 are shut down and truck traffic is diverted to its new route.

Existing disposal building and slit (EDS)

Vacuum filters #3 and #4 are checked out ready for testing and turning over. Plans are now being made for this stage of the work, and it should be put in progress sometime within the next week. I suggest that a careful check be made to insure that every element connected with operation of vacuum filters #3 and #4 is available so it will not be necessary for Shmina to go back in and do any additional work once turnover is ready to be effected.

Most of the major work in the existing disposal and slit is as far along as it can go presently until acceptance by the owner of vacuum filters #3 and #4. There is still a matter of scope of work definition for painting, and this matter is being addressed here as at other areas of the project.

In the existing disposal building there has been a serious matter of damage to existing finish surfaces by lime solution splashing and, at other areas dry lime

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RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

storage leakage. This matter is extremely serious since the lime tends to permanently scar finish painted surfaces such as on conveyors. Since this contamination of the area is primarily due to owner operations it becomes almost impossible for the contractors to control protection of finishes. I suggest the matter be addressed and the owner accept the finishes on equipment as soon as possible preferably even before turnover. Otherwise the problem of continually refinishing will be expensive and cause ongoing conflicts difficult to resolve.

The sludge feed pumps #3 and #4 are not turned over as yet. They will be tested and turned over in conjunction with vacuum filters #3 and #4. Again, it is to be emphasized that the physical and operational boundaries of each system should be defined prior to the start of the turnover process. This is important so that a clear cut understanding is had by all of the scope of the systems work.

General

Project work on contract #4 is rapidly approaching completion, and it would be well for those involved to make continuous and comprehensive reviews of work to be done to complete work up to the acceptance by the owner of each system under contract #4. We have discussed this matter in detail, and I suggest these discussions continue within the Shmina organization along with its sub-contractors, the architect/engineer, the construction manager, and the owner. It is only with close cooperation of all parties, reasonably continuous communication between them, and rapid solving of problems that a clean turnover can be made.

There remain only 37 working days from today, February 16, 1983 (working day 542) to projected completion of the contract #4 project work under Issue #13 of the evening of April 7, 1983 (working day 579).

I shall be in touch shortly with Mr. Don Greenwell to confirm the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:spg

For: Mr. Robert A. Shmina
(original and one)

March 29, 1983

Subject: Monitoring Report # 20
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81.13

Date of Monitoring: March 23, 1983 (working day 567)

Monitored from Issue #13 dated December 6, 1982 (working day 592)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #5 dated June 10, 1981 (working day 113) - September 8, 1982 (working day 431)

Shmina projected completion date: Completion dates have now been reprojected as shown on updated sheets #7, #8, #9, #10, and #11 Issue #13 dated December 6, 1982 (working day 492). The loss of time reflected from the desired and projected targets set in Issue #5 dated June 10, 1981 (working day 113) and the latest issue noted above has been caused by problems as outlined in previous monitoring reports and as documented in the Shmina chronological file.

This monitoring measures current job progress against Issue #13, dated December 6, 1982 (working day 492)

Actions taken:

- Reviewed project with Mr. Don Greenwell, Jr., Mr. Gonyer, and Mr. Dick Hodges
- Discussed mechanical systems briefly with Mr. Kamath of J.F. Cavanaugh
- Inspected project
- Evaluated current project status

General Summary

As of March 23, 1983 (working day 567) the truck loading area is in operation having been accepted by the owner at 4:00 p.m. March 16, 1983 (working day 562). Vacuum filters #3 and #4 are being operated and have been accepted conditionally by the owner. Sludge is being loaded to trucks in the facility.

Work is continuing on interior finish trades at the north building and work on check and turnover of thickener equipment is planned to begin sometime within the next one to two weeks.

Present operations are concerned with check, test, and turnover of lime slakers #1 and #2 at the existing disposal building, and this operation is in work with lime being made available by manually loading the lime day tanks. Shmina has provided the test media and put it in place with a crane and concrete bucket. This is not considered by Shmina to be part of their work but was done to expedite testing.

No substantial work has been done at the ash silo area since the previous monitoring, although there is little to do except complete minor interior finish operations. Apparently there still is no power provided to the overhead door operators nor to other equipment needing power. Therefore, work there has been deferred temporarily to concentrate on other sectors of the project.

Mr. Greenwell said that for check, test, and turnover activities Shmina is now outlining boundaries, both physical and operational, encompassed by each of the systems that the owner is being requested to accept. This is a procedure that should be followed carefully so there is no question as to what it is the owner has accepted and what equipment has been turned over.

During our session today the office of PRS/Consoer Townsend was informed that we were meeting and they were welcome to attend and discuss the model and work progress.

A brief review of each major work area is given below:

Procurement

- Elevator - The elevator cab was delivered to the job site February 24, 1983 (working day 548).

- New lime system components - The change proposal for this work has still not been officially converted to an executed contract supplement. However, the architect/engineer has authorized Shmina to proceed with all work outlined and priced in change supplement #6 and #7. Delivery of equipment was not monitored at this session, and I suggest that a piece by piece tracking be instituted for the equipment to establish what remains yet to be brought to the job site.

The sequence for installing the lime system has become very complex, and careful attention must be given to procurement and installation of this equipment, since it currently shows signs of extending considerably past present desired target completion dates.

North building

Third floor finish painting began March 2, 1983 (working day 552) and is nearly complete. Second floor finish painting started March 18, 1983 (working day 564). Painting was delayed by Shmina as long as possible to avoid damage by installation of trades not under Shmina's contract. Care must be taken to insure that careful records are kept of any damage to painted surfaces to avoid having to come back at a later date to do touchup on areas damaged by others than Shmina.

Epoxy floor finishes at the basement have been deleted, and it presently appears to be the intent to delete the epoxy floor finish from the Shmina contract at all other areas. No formal resolution of this matter has yet been made.

Framing and grating at incinerator #4 opening has been complete. At the elevators, work is now being concentrated in the machine room and on installing elevator doors. As noted previously, the cab was delivered to the job on February 24, 1983 (working day 548). Interior masonry is now substantially complete, and most hollow metal doors and hardware are installed. Installation of stair handrails is still being held to avoid damage by rough and finish trades using the stairs for service traffic.

At the control room acoustic ceiling hangers are installed, and it is expected that ceiling work proper will proceed in the near future.

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CONSULTING ENGINEER

Shmina is still working toward a completion date for clean up and move out of April 7, 1983 (working day 579). However, to do this it is absolutely imperative that any unresolved matters be addressed immediately by all concerned and direction given as to the procedures to be followed.

Ash silo (AS)

Very little work has been done at the ash silo over the past month. Interior handrails have not yet been installed to avoid construction damage. Power has not yet been furnished to the building and thus overhead doors are not yet operable electrically.

Truck loading (TL)

The truck loading facility was accepted by the owner at 4:00 p.m. March 16, 1983 (working day 562) and is presently in operation. The east slab on grade has not yet been poured; however, it is expected that once the owner completes demolition work at the existing building on vacuum filter equipment for filters #1 and #2, and the apron area is cleared that work will begin there immediately.

Existing disposal building and slit (EDS)

Vacuum filters #3 and #4 are operating and have been accepted conditionally as of March 16, 1983 (working day 562) at 4:00 p.m. The condition is that the sludge tests are acceptable to the owner.

Interior masonry is substantially complete at the building except where the new vacuum pumps for vacuum filters #1 and #2 are to be brought in and put in place. The owner is presently working on demolition of required vacuum filters #1 and #2 components and should complete this work within the next ten working days.

Work at the new no number feed pump drive and sludge feed pump #5 is not yet complete. It must be finished prior to check, test, and turnover.

Installation of the new lime system at the existing disposal building is very complex, and efforts are being made now between all parties concerned to resolve what procedures will be followed to complete the work. The architect/engineer and construction manager have

authorized activities under contract supplements #6 and #7 to proceed at the costs outlined in the supplements. However, no official contract supplement has been executed as yet by the owner. The lime equipment is presently either on the job or being fabricated and check, test, and turnover of slakers #1 and #2 is under way.

There has been some change in the logic shown on sheet #9, Issue #13, dated December 6, 1982 (working day 492). The owner has decided to use the old lime silo for feeding the new system due to anticipated delays in installing new piping from the new silo to the new day tanks. Therefore, Shmina loaded the new day tanks #1 and #2 using their crane and a concrete bucket to carry out the testing. This was extra work which is not considered to be a part of Shmina's contract. The owner apparently is intending to install temporary piping from the old lime storage tanks to the new day tanks for operational purposes. To install this piping it will be necessary to shut the plant down presumably on a weekend. Meanwhile, attention must be given immediately to how the system will be operated without direct connections from the old lime storage bin to the day tanks. The sequence for this entire process should be studied carefully and agreed to jointly by Shmina, their sub-contractors and the owner. I suggest this matter be addressed now so as not to delay check, test, and turnover, nor installation of following items.

If the old silo is to be used with temporary piping to feed the new day tanks this delays installation of the new valve at the bottom of the old silo until the new piping from the new silo is installed. It would be advisable to consider having the owner take over this work if there is a possibility of it extending very far into the future and delaying a timely move off from the project by Shmina. At our next session I suggest we address, study, and replan this section of the project in detail since it is a difficult sequence and directly affects the ability of Shmina to close out their work.

Another element of disruption is that, in all likelihood, it will be necessary to defer putting the remaining resinous panels on the face of the existing disposal building until demolition work at the old day tanks has been completed. This matter should be addressed concurrently with planning for installation of the new lime system.

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CONSULTING ENGINEER

The matter of lime damage to paint surfaces has not yet been addressed and decided upon. Again, I suggest, along with the other matters of this type, that it be kept on the agenda until a decision has been made as to how to accommodate finish surfaces and materials that are damaged subsequent to installation and completion by Shmina.

General

Presently there remain 12 working days from today, March 23, 1983 (567), to the projected completion of contract #4 project work under Issue #13 dated December 6, 1982. This, of course, makes it imperative that we give careful attention as to how the job is to be closed out and Shmina work completed. I shall be in touch with Mr. Don Greenwell shortly to set our course of action from here on to completion of the project.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

May 9, 1983

Subject: Monitoring Report #21
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81.13

Date of Monitoring: May 5, 1983 (working day 598)

Monitored from Issue #13 dated December 6, 1982 (working day 592)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #4 dated June 10, 1981 (working day 113) - September 8, 1982 (working day 431)

Shmina projected completion date: Completion dates have now been reprojected as shown on updated sheets #7, #8, #9, #10, and #11 Issue #13 dated December 6, 1982 (working day 492). The loss of time reflected from the desired and projected targets set in Issue #5 dated June 10, 1981 (working day 113) and the latest issue noted above has been caused by problems as outlined in previous monitoring reports and as documented in the Shmina chronological file.

This monitoring measures current job progress against Issue #13 dated December 6, 1982 (working day 492)

Actions taken:

- Inspected project
- Reviewed project with Mr. Don Greenwell Jr., Mr. Gonyer, and Mr. Nevejans
- Discussed mechanical systems briefly with Mr. Kamath of J.F. Cavanaugh
- Evaluated current project status

General Summary

As of May 5, 1983 (working day 598) lime slakers #1 and #2 are in operation and owner's work is continuing in several areas of the building. Work also is continuing on interior finish trades at the north building with the concentration now being on check, test, and turnover of thickener equipment. At the ash silo the owner has erected the silo, and it is currently being gunited. Most interior finish work with the exception of railings and checking of the overhead doors has been completed. Check, test, and turnover boundaries are still being defined and conveyed to the owner, the architect/engineer, and the construction manager by the Shmina staff.

During the session today the office of PRC Consoer/Townsend was informed that we were meeting and that they were welcome to attend to discuss the model and work progress.

A brief summary of each major work area is given below:

Procurement

- New lime system components - The outside control panel for the new silo should be delivered sometime next week. It will then be turned over to the owner for their installation.
- The zero speed limit switches on the sludge thickener equipment are being redetailed for approval.
- The bottom cross collector on sludge thickener #3 is being refabricated. No current word on delivery is available.

North building

Third floor and second floor painting is complete. First floor painting is about 75% complete. It has been decided to move ahead with this painting and to attempt to control construction activity damage by posting areas that have been finished. Care should be taken to keep records of any damage to painted surfaces to avoid having to come back at a later date and touch up areas marred by others than Shmina.

There is no current word on deletion of floor finishes from the Shmina contract although, there is some thought of the owner taking over, not only the epoxy floor finishes, but the remainder of other types of floor finishes to

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CONSULTING ENGINEER

be applied. This matter should be followed closely and resolved just as quickly as possible.

Elevator work is moving well, and it is expected that installation will be complete sometime next week including check, test, and turnover. Installation of stair handrails has begun and a portion of stair #2 is complete. Stairwell #2 painting is complete and partially done in stairwell #1. At the control room, acoustic ceiling grid is due to begin the week of May 9, 1983 and this work should move relatively fast once it is started.

Conveyors #3 and #4 do not as yet have power available to them nor are they painted. Painting will be done in the very near future. There is no word yet on when power will be available for check, test, and turnover.

Ash silo (AS)

The bridge between the north building and the ash silo building has been erected and grating and handrails is installed. The owner is currently completing work on the ash silo proper. The handrail on the interior stair is yet to be installed and will be put in place when the potential for damage is lower.

There still is no power available in this building to test the overhead doors and the scope of painting has not been fully settled upon. Shmina is still waiting for word from the owner re the desired painting scope of work.

Truck loading (TL)

The truck loading facility is complete and in operation. At the east apron the slab has been formed and setting resteel is nearly complete. Concrete will be poured Friday, May 6, 1983 (working day 599). Punch list work for the truck loading area (TL) has been completed.

Existing disposal building and slit (EDS)

The test results for vacuum filters #3 and #4 sludge have been submitted for review by the owner. Interior masonry is substantially complete at the building, and the new vacuum pump assemblies for vacuum filters #1 and #2 have been set. They still must be bolted; however, this is a very short job and should not interfere with the owner completing his work on the vacuum pump assemblies.

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The new no number feed pump drive and sludge feed pump #5 are very close to begin ready, or are ready, for turning over to the owner. I suggest that if they are ready that the owner be notified immediately.

Installation of the new lime system at the existing disposal building remains somewhat difficult; although the problems are gradually being resolved. Work there still restrains completion of the exterior epoxy panels, but the panel interferences should be cleared away this weekend with rerouting of the supply pipe from the old lime silo.

We reviewed the logic of the lime installation today and prepared a small supplemental network model on an 8-1/2" x 11" calculations sheet dated 5/5/83 (working day 598), page #1, entitled Lime System Supplemental Diagram to sheet #9 logic; Issue #13 - December 6, 1982. In this logic diagram are shown the activities of delivering the outside lime system control panel, the owner installing this control panel at the new lime silo, the owner installing the pebble lime conveying piping, and finally the owner making the new lime silo operative. When the new lime silo has been made operative the network logic again is picked up on sheet #9 Issue #13, dated December 6, 1982 (working day 492) at the i node of owner remove old lime tank ejector system and dust collector. This was previously task #165 - #168; it is now #141 - #168. This new logic replaced activities:

- #4 - #116
- #115 - #127
- #127 - #134
- #140 - #154
- #159 - #160
- #160 - #165

It should be noted that the owner's work on the new lime silo and making it operative affects the entire sequence from the new node #141 on out to the point where the owner can accept the new ejector system and dust collector at the north silo. Therefore, there is a potential additional delay to the Shmina work if the owner's installation does not proceed in a timely fashion. I suggest that all parties to the project give careful attention in the near future to the lime system.

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CONSULTING ENGINEER

The matter of lime damage to newly painted surfaces has still not been addressed and decided upon. I suggest as has been done that this matter be kept continually on the agenda so that a resolution of it can be made.

At vacuum filter #1 and #2, there has been some trouble with the fit of the discharge assembly. This matter is now being addressed by the equipment supplier, and all involved are working toward a rapid solution to the problem.

At vacuum filter #5 the owner is continuing their piping and electrical work. Existing conveyor #5 has been demolished. Framing and cutting of the opening for conveyor #9 was done by Shmina under protest since it was felt by Shmina that the cutting and framing should have been owner's work. However, Shmina proceeded so as not to delay installation.

Conveyor #9 is currently being installed although there is some difficulty with the clearance of the conveyor with one of the framing beams that is in place. This matter is to be resolved by the architect/engineer.

General

We are now 19 working days beyond the Shmina desired completion target shown in Issue #13 dated December 6, 1982 (working day 492). It is not possible with the present information to project what the actual completion date will be since work is dependent upon several factors that are as yet unresolved or undetermined. I suggest that continuous reprojecting of the completion dates be made as information becomes available. Meanwhile, I shall be in touch with Mr. Don Greenwell Jr. shortly to set the next monitoring session.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

June 20, 1983

Subject: Monitoring Report #22
Sludge Disposal Building
Battle Creek, Michigan
A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: June 14, 1983 (working day 625)

Monitored from Issue #13 dated December 6, 1982 (working day 492)

(Note: Under this section in Monitoring Report #21 the date noted of December 6, 1982 for Issue #13 was incorrectly labeled working day 592).

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #4 dated June 10, 1981 (working day 113) - September 8, 1982 (working day 431)

Shmina projected completion date: Completion dates have now been reprojected as shown on updated sheets #7, #8, #9, #10, and #11 Issue #13 dated December 6, 1982 (working day 492). The loss of time reflected from the desired and projected targets set in Issue #5 dated June 10, 1981 (working day 113) and the latest issue noted above has been caused by problems as outlined in previous monitoring reports and as documented in the Shmina chronological file.

This monitoring measures current job progress against Issue #13 dated December 6, 1982 (working day 492)

Actions taken:

- Inspected project
- Reviewed project progress with Mr. Don Greenwell, Jr., Mr. Gonyer, and Mr. Nevejans

- Evaluted current project progress

General Summary

As of June 14, 1983 (working day 625) work continues on interior finish trades at the north building and at the ash silo. Work is also in progress on both the owner's installation and check, test, and turn over of equipment in all areas of the project. At the ash silo the roofing is being flashed into the silo. Most boundaries for check, test, and turn over have been defined and conveyed to the owner, the construction manager, and the architect/engineer by Shmina.

During our session today the office of PRC Consoer/Townsend was informed that we were meeting and monitoring. They were invited to attend to discuss the current work progress if they so desired.

A brief summary of each major work area is given below:

Procurement

- The outside control panel at the new lime silo has been delivered and installed. (The owner has installed temporary pebble lime conveyance piping from the existing lime silo to the new north lime day tanks. There is no current word on when the permanent conveyance piping will be installed and made operative. This work is important to Shmina since there are a series of activities that must follow making the new lime silo operative that lead to final check, test, and turnover of the new day tanks and slakers #3 and #4 along with the owner accepting the new ejector system and dust collector at the north silo).
- The limit switches on the sludge thickener equipment are being installed.
- The bottom cross collector of sludge thickener #3 is expected to be on the site shortly.

North building

Interior painting continues with some difficult areas to reach still remaining to be done. However, approximately 90% of the painting to be done is complete. Although areas that have been painted have been posted by Shmina,

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CONSULTING ENGINEER

it was noticed in our monitoring inspection today that several painted surfaces had been damaged by other contractors, and that, in some cases, the masonry had been demolished and patched, with no repainting whatsoever. Continuing care must be taken to record damage to painted surfaces to avoid later difficulties.

There still is no current word on deletion of floor finishes, and it would be wise to resolve this matter as quickly as possible by official revisions to the work since Shmina is now nearing the end of their operations on the project.

The elevator has been checked and tested. Minor corrective work is under way at present, and this installation should be complete shortly. Work at the stair wells is nearly complete with some miscellaneous painting yet to be done. Acoustic ceiling grid is in work at the control room and should be completed shortly.

Conveyors #3 and #4 have been painted, but no power is available to them from the owner as yet.

Ash silo

Most work at the ash silo is complete with the exception of miscellaneous painting and completion of flashing at the silo. In addition, the overhead door must still be checked, tested, and turned over. This has not been possible since no power is available as yet to the door.

Truck loading (TL)

Work here is complete. The east truck apron was poured out on May 6, 1983 (working day 599).

Existing disposal building and slit (EDS)

The owner has requested additional data on vacuum filters #3 and #4 sludge. This information is presently being gathered and will be submitted shortly. Vacuum pump assemblies for vacuum filters #1 and #2 are presently being worked upon by the owner. There is no word on when this work will be complete so that the check, test, and turnover can be performed.

At the new no number feed pump and sludge feed pump #5, Shmina work is complete and Shmina is waiting for notification as to when the check, test, and turnover can be made.

Installation of the new lime system at the existing disposal building continues to be difficult with the owner having installed temporary lime conveyance piping and making a portion of the system operative. However, there still remains, as noted above, considerable work to be done that must be monitored carefully to insure it is accomplished just as quickly as possible by the owner.

It was noted today that the owner making the new lime silo operative also restrains check, test, and turnover of the new day tanks and slakers #3 and #4. This information was added to the small page #1 lime system supplement added to the sheet #9 logic Issue #13 dated December 6, 1982. This supplement was attached to the network sheets at our previous monitoring session.

The discussion of lime damage to painted surfaces is ongoing, and steps are being taken as quickly as possible to resolve the various damage problems.

At vacuum filters #1 and #2 the end plate supports for the discharge assembly were refabricated and the assembly is now installed. At vacuum filter #5 the owner is continuing to install his work. At conveyors #5 and #9 conveyor work has been installed and the owner is currently completing his work at these areas. No conveyor power is yet available for check, test, and turnover.

Thickener building

Installation of the limit switches is in work today, June 14, 1983 (working day 625). As noted above, the new cross collector is expected on the job shortly and will be installed as soon as it arrives.

The work on the waste activated sludge pump panel will be accomplished later this month as work on other portions of the equipment is being completed. Once the panel is in, hooked up, and checked out, sludge thickener equipment will be checked out and turned over.

General

I shall be in touch with Mr. Greenwell Jr. shortly to set the next monitoring session as required. Meanwhile, I would like to recommend that a master list of all activities remaining in the Shmina contract be prepared with each item identified for easy reference. This list

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CONSULTING ENGINEER

should then be used as an ongoing basis of discussions to resolve remaining issues and work to be done on the project. At the present time, there remains very little work to do in relation to the Shmina total contract, and it would be helpful for all parties if the Shmina contract were closed out just as quickly as possible.

Ralph J. Stephenson, P.E.

RJS:sps

cc: Mr. Robert Shmina
(original and one)

August 6, 1983

Subject: Monitoring Report #23

Sludge Disposal Building

Battle Creek, Michigan

A. Z. Shmina & Sons - contractors

Project: 81.13

Date of Monitoring: August 3, 1983 (working day 660)

Monitored from Issue #13 dated December 6, 1982 (working day 492)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Number of working days to approximate contract completion
date: 51

Shmina desired completion date from Issue #4 dated June 10,
1981 (working day 113) - September 8, 1982 (working day 431)

Shmina projected completion date: Completion dates have now
been reprojected as shown on updated sheets #7, #8, #9,
#10, and #11 Issue #13 dated December 6, 1982 (working
day 492). The loss of time reflected from the desired
and projected targets set in Issue #5 dated June 10, 1981
(working day 113) and the latest issue noted above has
been caused by problems as outlined in the previous
monitoring reports and as documented in the Shmina
chronological file.

This monitoring measures current job progress against
Issue #13 dated December 6, 1982 (working day 492)

Actions taken:

- Inspected project
- Reviewed project progress with Mr. Don Greenwell Jr.
and Mr. Ron Gonyer
- Reviewed mechanical equipment installation work with
Mr. Kamath

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- Made detailed evaluation of all remaining work
- Evaluated current job status

General Summary

As of August 3, 1983 (working day 660) interior finish work at the north building is being completed and is almost complete at the ash silo. Equipment installation continues at the existing disposal building and slit. Some miscellaneous equipment work remains to be completed at the sludge thickener building.

The office of PRC Consoer Townsend was informed during our session that we were meeting and monitoring the job, and they were invited to attend and discuss current work progress if they so desired.

A brief summary of each major work area is given below:

Procurement

- The emergency stop cable assemblies remain to be completed at the conveyors. The switches were damaged and must be replaced. Delivery is expected within the next 20 working days. Installation will proceed immediately upon receipt of the switches.
- Conveyor instrumentation and controls are being furnished under protest by Shmina and will be installed once the equipment arrives. It is expected in about 30 working days. However, there are some pieces of this equipment for which shop drawings have not as yet been approved. The instrumentation is critical and remaining approvals must be given immediately.

North building

Acoustic ceiling panels at the control room are being installed and should be completed this week. The resolution of epoxy floor finishes is still pending, and there has been no word from the owner on whether or not these floor finishes are to be installed or not. This item has been in question since early this year, and a decision is badly needed in the very near future.

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RALPH J. STEPHENSON, P.E., P.C.
CONSULTING ENGINEER

Conveyor work at the incinerator building has been installed and has been operated. At stairwells, most work has been completed, and a major effort is being made to protect the work from damage by rough trades. The elevator is complete, checked, and tested; however, the owner has yet to install his telephone equipment in the elevator cab.

Ash silo

At the ash silo, power was made available for the overhead doors about July 6, 1983. The painting done there is now complete within the scope of work as understood by Shmina. The only work remaining at this time in the area is to complete final check on the doors and to clean up, and move out.

Existing disposal building and slit (EDS)

Painting work is still under discussion for the existing disposal building and slit. There has been no clear cut agreement on the scope of painting to be done, and this matter is important to resolve as quickly as possible.

At our meeting today, we focused intently upon procedures remaining to get equipment installed, have the owner work on the equipment completed, and complete check, test, and turnover equipment procedures so that at the building work can be completely finished in a proper and appropriate manner and time. The list of items to be done is considerable, and is to be used as a check for the work to be done on check, test, and turnover of each of the items.

The matter of lime dust damage is still an unresolved problem and is one that has to be reviewed and considered by the owner in respect to acceptance of contract work finishes. This matter is currently under discussion among the contractor, owner, and construction manager staff. At the lime system the owner is presently installing the pebble lime conveying piping. It is estimated that the job is about 60% complete and probably will be complete by mid August, 1983. Following the owner making the lime silo operative the old lime tank ejector system can be removed and the new injector system and the dust collector installed on the old silo. This work can then be finished off by the owner and checked, tested, and turned over by the contractor.

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RALPH J. STEPHENSON, P. E., P. O.
CONSULTING ENGINEER

The sludge from vacuum filters #3 and #4 is being retested and a new report will be issued shortly.

Thickener building

The decision is still to be made on who is to install the epoxy flooring. This is needed from the owner just as quickly as possible.

The owner has asked for some additional data on characteristics of the thickener equipment switches. This matter is being worked upon at present.

It should be noted that in the operating tanks there is considerable splashing of sludge when each light empties into the sludge collector at the west end. This sludge is being splashed upon finished surface of the walls and the ceiling above. Cleaning of these surfaces was done once by Shmina but the responsibility of cleaning from the continuous sludge operation must be the owner's. A memo will be provided to the owner in regard to this matter.

General

I shall be in touch with Mr. Greenwell Jr. and other members of the Shmina staff to discuss following monitoring and review sessions that may be required. Meanwhile, a list of items that evolved from our meeting today will be put into final form by the Shmina project staff and made available as a working checklist for the staff. It is imperative that this list be given careful attention over the next few weeks since, as noted previously, the time remaining for work on the job is very short.

Ralph J. Stephenson, P.E.

RJS:sps

To: Mr. Robert A. Shmina
(original and one)

November 5, 1983

Subject: Monitoring Report #24

Sludge Disposal Building

Battle Creek, Michigan

A. Z. Shmina & Sons - contractors

Project: 81:13

Date of Monitoring: October 28, 1983 (working day 721)

Monitored from Issue #13 dated December 6, 1982 (working day 492)

Date of notice to proceed: April 27, 1981 (working day 82)

Approximate contract completion date: October 13, 1983
(working day 711)

Shmina desired completion date from Issue #4 dated June 10, 1981 (working day 113) - September 8, 1982 (working day 431)

Shmina projected completion date: Completion dates have now been reprojected as shown on updated sheets #7, #8, #9, #10, and #11 Issue #13 dated December 6, 1982 (working day 492). The loss of time reflected from the desired and projected targets set in Issue #5 dated June 10, 1981 (working day 113) and the latest issue noted above has been caused by problems as outlined in the previous monitoring reports and as documented in the Shmina chronological file.

This monitoring measures current job progress against Issue #1 dated December 6, 1982 (working day 492)

Actions taken:

- Reviewed project with Mr. Ron Gonyer, Mr. Don Greenwell, Jr. and Mr. Morris Nevejans

General Summary

As of October 28, 1983 (working day 721) the project is moving into the final check out, punch list correction, and acceptance phase. The owner punch list was issued to Shmina on October 11, 1983 (working day 708) and corrections are being made relative to this punch list on an ongoing basis.

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Most items on the checklist, prepared from our previous monitoring (on August 3, 1983 (working day 650) and discussed in Monitoring Report #23) has been resolved with the exception of the items listed below:

- A-17 - Test polymer transfer pumps and turn over - These pumps were tested and turned over. Now, however, the engineer is apparently questioning the test results from one of the pumps. This matter will be checked into by the Shmina field staff.
- B-3 - Replace bearing on tank #3 drive - Shmina is assuming that this activity is warranty work. Corrective action is being taken currently.
- D-5 and D-6 - The strip chart recorder, the totalizers, and the graphic display panel have been installed in the owner's console. This console is in the fabricator's shop, Morgan Electric, and will be taken to the job and set by others under separate contracts than Shmina's. The confirming documentation from other contractors to Shmina and the owner is still to come. I suggest this matter be followed carefully and that supporting documentation be obtained immediately. Thus, Shmina work on the strip chart recorders, totalizers, and the graphic display panel is complete.
- A-19 - Obtain owner acceptance of tested pumps - Pumps have been generally tested. However, it would be wise to obtain a formal acceptance from the owner either by a letter to him or from him. I recommended to Mr. Greenwell Jr. and Mr. Gonyer that such a letter be prepared to insure that the dates by which the owner has accepted equipment by specification are clearly identified for record purposes.

We next reviewed drawings #7, #8, #9, #10, and #11 Issue #13 dated December 6, 1982 (working day 492). A brief summary of each major work area is given below:

North building

All work at the north building is completed and clean up and move out is in progress. Epoxy flooring has been installed at the 3rd floor; however, flooring at other floors will be

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CONSULTING ENGINEER

deferred to a later date to allow the owner to complete his work without damaging the finish.

Ash silo

Ash silo work is completed and Shmina has moved out. This work was completed about October 10, 1983.

Existing disposal building and slit (EDS)

The majority of the work at the disposal building and slit is complete with those items remaining being basically punch list item correction, and cleaning up.

The lime system at the north silo is completed except for a vent line to be installed by the owner, and for installation of a new pressure release valve by Shmina. However, the pressure release valve is not holding up operation of the system since Shmina has provided a temporary valve for interim operations.

We carefully reviewed those elements that are preventing the lime system from being accepted by the owner. This matter will be investigated by Mr. Greenwell Jr. and Mr. Gonyer with the project staff.

Thickener building

All work is complete at the thickener building, except as noted above, replacement of bearings on the tank #3 which is being done as warranty work.

General

I have suggested to Mr. Greenwell Jr. and Mr. Gonyer that they prepare a full list of record dates for equipment acceptance and area acceptance for reference purposes, particularly in relation to warranty work. This document will be assembled shortly.

The project is now basically complete, and I will monitor additional work only upon request. I wish to thank the Shmina staff for their cooperation in the inspection and review of the job. It was of great help in accurately identifying work progress and status.

Ralph J. Stephenson, P.E.

To: Mr. Robert A. Shmina
(original and one)