Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
October 23, 1999

Monitoring Report #01: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor - copies to others will be sent by Mr. Carlyon as appropriate

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Dates of meetings: Wednesday September 29, 1999 (wd 445)
Monday October 11, 1999 (wd 453)

Locations of meetings: Site and conference rooms at City of Flint Water Plant.

Current contract dates: pm 12/22/2000 (wd 760) Completion of all Phase 1, Segment #1 work

Monitored from:

- E & L schedule dated 10/10/99 (wd 453).
- Network model issue #1 dated October 11, 1999 (wd 453) derived from E & L schedule, and in conference with E & L and with water plant staff.

Those attending:

Wednesday September 29, 1999 (wd 445) - Preconstruction Meeting

- Dirk Anderson - Snell Environmental Group
- Jeff Bryson - Water Plant Facilities Engineer
- Robert Carlyon - Flint Water Plant Supervisor
- Steve Cook - Weinstein Electric
- Bill Daniels - Flint Water Treatment Plant
- Bob Freeman - Weinstein Electric
- David Jansen - Assistant Flint Water Plant Supervisor
- Bob Kox - WPM, Inc.
- Mark Krueger - E & L Construction Group
- Bob Lannoy - Flint Water Treatment Plant
- John Lewis - Construction Testing Services, Inc.
- John O'Malia - Project Manager - Snell Environmental Group
- Samir Matta - Snell Environmental Group
- Lee Mosher - WPM, Inc.
- Alan Popp - MAP Mechanical Contractor, Inc.

- Kathy Prein - Prein & Newhof
- Don Root - Construction Manager - E & L Construction Group
- Ralph J. Stephenson - Consulting Engineer
- Ron Weiderfeller - WPM, Inc.

Note: See list in minutes of preconstruction meeting for those not named above.

Monday October 11, 1999 (wd 453) - Initial Planning Meeting with E & L Group and Water Plant staff

- Robert Carlyon - Flint Water Plant Supervisor
- Dave Jansen - Assistant Water Plant Supervisor
- Jeff Bryson - Water Plant Facilities Engineer
- Bob Root - President - E & L Construction Group
- Don Root - Construction Manager - E & L Construction Group

Actions taken:

Wednesday September 29, 1999 (wd 445)

- Attended ground breaking for project
- Attended preconstruction meeting subsequent to ground breaking

Monday October 11, 1999 (wd 453)

- Reviewed project characteristics and tentative sequence of construction work with those attending.
- Prepared network model, Sheet #1, issue #1 dated October 11, 1999 (453) with those attending.
- Printed out and provided Mr. Carlyon copy of Sheet #1, issue #1 dated October 11, 1999 (453) and left at water plant to be picked up by Bob Root of the E & L Group.

Summary:

Wednesday September 29, 1999 (wd 445)

Ground breaking for rehabilitation of Water Plant #2 - Phase 1, Segment #1 was attended by several dignitaries led by Flint Mayor Woodrow Stanley. Mayor Stanley broke ground for the project and then participated in a press conference in the

existing water plant. Some of the technical staff participated in this information session including Bob Carlyon who provided considerable statistical background on the project.

After the press conference we convened for a preconstruction meeting chaired by John O'Malia - Project Manager from the Snell Environmental Group. This session, attended by the principal management members of the design, construction and owner team was focused on reviewing the details of the project, its design, and the sequence to be used in constructing the facility. The E & L Construction Group outlined the broad plan of work that they intend to follow. The process was discussed in detail and will be developed fully as contractors begin their procurement, site mobilization and layout. There was, as yet, no official notice-to-proceed date since the start of field work is dependent on the bond closing and final administrative work by the project team needed to start a flow of funds to the project.

Monday October 11, 1999 (wd 453)

This meeting was to initiate formal planning for managing and monitoring the project. The E & L Group had prepared a time scaled summary schedule of work dated October 10, 1999 (wd 453) that showed the project work divided into seven major sequences. These are listed below showing the codes adopted for each category.

- General requirements (GR)
- Boiler Building (BB)
- Electrical Maintenance Facility (EM)
- Operation Center (OC)
- Rapid Mix & Flocculation (RMF)
- Primary Connection (PC)
- SCADA system (SCADA)

It is the intent to use these code designations for the various elements of the facility throughout its construction.

Our work at this session consisted of reviewing the bar chart prepared by E & L Group, and then validating the logic by preparing a summary network model for the entire project incorporating input from the owner group. This allowed the logic of the construction sequence to be reviewed by the owner and the contractor team. The E & L Group will review the preliminary summary network model prepared

during the meeting and we will then meet again when the project release date is set to put the logic plan into final working form.

It was pointed out in the meeting that the Phase 1, Segment #1 model is to be used by the Flint Water Plant staff to plan the integration of work on other phases and segments of the work that are to be started and worked on as the Phase 1, Segment #1 work proceeds. Thus the current plan of work will be critical to proper planning and meshing of the various following element of the total plant plan.

I shall be in touch with Mr. Carlyon and Mr. Root to set subsequent planning and monitoring meetings to be held as is convenient for all concerned. It should be noted that this monitoring report is being sent to Mr. Carlyon only. Additional distribution of the report will be determined and made by Mr. Carlyon.

Meanwhile I should like to congratulate the City of Flint, and the Water Plant Management staff for bringing this program through many years of planning and evolutionary construction. It has been a pleasure working on the various projects within the program and will be exciting to bring this Phase 1, Segment #1 on line.

Ralph J. Stephenson, P.E.
Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
December 16, 1999

Monitoring Report #02: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor - copies will be sent to others by Mr. Carlyon as appropriate

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Dates of meeting: Friday December 10, 1999 (wd 496)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: pm 12/22/2000 (wd 761) - completion of all Phase 1, Segment #1 work

Monitored from:

Network model, issue #1 dated October 11, 1999 (wd 453) as derived from E & L schedule, and prepared in conference with E & L and with water plant staff.

Those attending:

Jeff Bryson - Water Plant Facilities Engineer
Robert Carlyon - Flint Water Plant Supervisor
Jeff Chappel - President - Weinstein Electric
Jim Franz - MAP Mechanical
David Jansen - Assistant Flint Water Plant Supervisor
David Murray - Weinstein Electric
Bob Root - President - E & L Construction Group
Don Root - Construction Manager - E & L Construction Group
Ralph J. Stephenson - Consultant

Actions taken:

- Inspected project
- Evaluated current status of project
- Updated network model to Issue #2 sheet 2 dated 12/10/99 (wd 496)
- Printed out copies of sheet #1, issue #2 dated December 10, 1999 (wd 496) and provided copies to Mr. Carlyon and Mr. Don Root.
- Reviewed features of the SCADA work contained in Phase 1, Segment #1.

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
December 16, 1999

Summary of current status of Phase 1, Segment #1 project by major components as of December 10, 1999 (wd 496)

Boiler Building (BB)

A notice to proceed on Phase 1, Segment #1 was issued on October 18, 1999 (wd 459) and work began at the boiler house on procuring early permits and materials to initiate work on removal of the existing gasoline tank. The contractor encountered some contamination of the gas tank soil at the west end of the new boiler building and is currently pricing the cost of remediation.

Meanwhile much of the tank removal work has been completed and although the activity is currently past its early finish, no major delay is expected in the start of boiler building foundation work since there is float time available in the tank removal work. The contractor however is attempting to make good use of the mild, dry weather encountered to date on the project to move the project as rapidly as possible good weather.

Electrical Maintenance Building (EM)

The EM building site has been cleared for succeeding work on foundations. This work is planned to begin in April, 2000.

Alternative methods of installing underground utility work at Dort Highway to manhole #1 at the site are being considered. A decision is expected soon on the method to be used. This decision will be followed by a bulletin issue. Delivery of underground conduit systems will require about four weeks after approval of shop drawings. Submittals are presently being checked.

Operation Center (OC)

Selective demolition work and structural work was started at the Operations Center about November 1, 1999. Currently the OC supported deck is being formed and work is moving well on the structural slab. Shop drawings for miscellaneous iron and embeds are being prepared and will be submitted shortly.

Work at the Operations Center is presently meeting early start targets.

Rapid Mix & Flocculation (RMF)

Demolition work at the RMF is about 70% complete as of December 10, 1999 (wd 496). Shop drawings for the raw water distribution piping are being reviewed and fabrication of the piping should be able to start in mid December 1999. Preparation of switch gear equipment shop drawings is in work with submittals expected

sometime in mid to late December, 1999. Work at the RMF is currently meeting targets between early and late starts and finishes.

Primary Connection (PC)
The existing clarifier roof has been demolished, the substructure is being removed, and clean up of miscellaneous structures and debris is currently in work. Activities at the PC are currently meeting targets between early and late starts and finishes.

SCADA system (SCADA)
Early procurement of SCADA system components is currently in work. E & L Construction is tracking the procurement in conjunction with the design team.

General:
At this meeting we were able to review major mechanical and electrical work directly with managers from the mechanical and the electrical contractors. This direct review was useful in updating the issue #1 network model to Sheet #1 issue #2 dated December 10, 1999 (wd 496).

All major component networks were updated, printed, assembled and distributed to E & L Construction for the their use, and for distribution to their subcontractors.

We were able to hold the current contract date targets in the updated network and will monitor the project against this issue #2 plan of work at subsequent planning and monitoring sessions until further updating is felt necessary. At present all field work is being accomplished in accordance with targets between early and late starts and finishes.

Our next monitoring and planning meeting is to be held on Friday January 21, 2000 at 09:00 A.M. at the water plant offices. The water plant staff and E & L Construction will identify those who should attend the meeting.

This set of notes is being sent directly to Mr. Robert Carlyon. Further distribution of the notes will be by him.

Ralph J. Stephenson, P.E.
Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
January 26, 2000

Monitoring Report #03: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor - copies will be sent to others by Mr. Carlyon as appropriate

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Friday January 21, 2000 (wd 524)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) - completion of all Phase 1, Segment #1 work.
Time remaining to completion - 237 working days

Monitored from:
Network model, issue #2 dated December 10, 1999 (wd 496).

Those attending:
Robert Carlyon - Flint Water Plant Supervisor
Jeff Chappel - President - Weinstein Electric
Jim Franz - MAP Mechanical
Bob Root - President - E & L Construction Group
Don Root - Project Manager - E & L Construction Group
Ralph J. Stephenson - Consultant

Actions taken:
- Inspected project
- Evaluated current project status
- Updated network model to Issue #3 sheet #2 dated January 21, 2000 (wd 524)
- Printed out copies of sheet #2, issue #3 dated January 21, 2000 (wd 524) and provided copies to Mr. Carlyon and Mr. Don Root.
- Began detailed review of critical procurement requirements in Phase 1, Segment #1.

City of Flint, Michigan
Water Plant Rehabilitation
Phase 1, Segment #1
Monitoring Report #03

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
January 26, 2000

Summary of current status of Phase 1, Segment #1 project by major components as of January 21, 2000 (wd 524)

Boiler Building (BB) - target completion date for completion of boiler systems - pm December 19, 2000 (wd 757)

A remediation bulletin was priced on December 15, 1999 (wd 504) and field remediation work proceeded. Remediation was completed on December 19, 1999 (wd 502).

In our discussions during the network model updating it was noted that in order to start active field work on construction of the boiler building that some existing utility lines at the site must remain in service until the shut down of the existing heating plant. The shut down was tentatively scheduled for May 1, 2000 (wd 595) and the project team decided that this date should be maintained. Therefore the starting date for boiler house site clearance has been revised to May 1, 2000 (wd 595). To maintain the target completion date some revisions to durations were needed and made in the updating of the plan of work with the approval of the project team.

The date for delivery of the boiler to the site was set at the am of August 14, 2000 (wd 669). This delivery date will allow the boiler to be set through the roof of the boiler house after which structural steel, deck and roofing can be completed to close in the building.

Electrical Maintenance Building (EM) - target completion date - pm October 18, 2000 (wd 715)

Bulletin #4 work for installation of exterior utilities has been issued and will be priced by Tuesday January 25, 2000 (wd 527). Electrical materials for underground conduit are currently to be delivered to the site about January 28, 2000. Actual field work on the EM building is due to start on April 24, 2000 (wd 590).

Metal building shop drawings have been submitted and checked, but must be revised. However, Mr. Bob Root is still holding June 15, 2000 (wd 628) for delivery of the metal building components. He is also holding July 17, 2000 (wd 649) for delivery of mezzanine steel.

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
January 26, 2000

Operations Center (OC) - target completion date for building work - pm May 3, 2000 (wd 598)

Floor slabs at the operations center are being formed, reinforced and poured. The target start date for interior masonry is the am of March 3, 2000 (wd 554). Major work at the OC is currently meeting dates between early and late starts and finishes.

Rapid Mix & Flocculation (RMF) - target completion date for building work - pm October 12, 2000 (wd 711)

without p.s.m ?

Water distribution piping shop drawings are presently being reviewed and delivery of the raw water distribution piping is scheduled for February 23, 2000 (wd 548). Switchgear shop drawings are also being reviewed and delivery of switchgear components to the site is set for an early date of April 27, 2000 (wd 594).

Meanwhile work on tank walls is planned to start in late January, 2000. All major work is currently meeting dates between early and late starts and finishes.

Primary Connection (PC) - target completion date for building work - December 15, 2000 (wd 756)

Remaining demolition and backfilling at the PC will continue as weather permits. Currently winter weather is holding back any major construction work at the PC area. The target start date for PC foundations is February 4, 2000 (wd 534).

Presently the network model for the primary connection is in summary format. I recommend the project team prepare a more detailed plan of work at our updating in February.

SCADA system (SCADA) - target completion date - December 22, 2000 (wd 756)

Presently the SCADA system is due to be delivered to the site on August 14, 2000 (wd 669). Shop drawings for the system are to be submitted to the general contractor by April 3, 2000 (wd 576).

As information on the SCADA system becomes available, I recommend we plan the work in more detail. I shall discuss this with the project team at our next planning and monitoring session.

City of Flint, Michigan
Water Plant Rehabilitation
Phase 1, Segment #1
Monitoring Report #03

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
January 26, 2000

General:

At this meeting we continued to review structural, architectural, mechanical and electrical procurement directly with the contractors responsible for procurement. I suggest we track procurement very carefully over the next two months. The project is a relatively short duration job and early attention to procurement of materials and equipment is essential to achieve job success.

At this session the component networks were updated, printed, and distributed to the E & L Group for the their use, and for distribution to their subcontractors.

Our next monitoring and planning meeting is to be held on Friday February 18, 2000 at 09:00 A.M. at the water plant offices. The water plant staff and E & L Construction will identify and invite those who should attend the meeting. I recommend our main thrust be to complete listing, planning and scheduling procurement for all critical pieces of equipment, and for all material needed over the next six months.

This set of notes is being sent directly to Mr. Robert Carlyon. Further distribution will be by him.

Ralph J. Stephenson, P.E.
Consulting Engineer

date printed: January 26, 2000

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
March 13, 2000

Monitoring Report #04: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
Bob Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Friday March 3, 2000 (wd 554)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) - completion of all Phase 1, Segment #1 work.
Time remaining to completion - 207 working days

Monitored from:
Network model, issue #3 dated January 21, 2000 (wd 524).

Those attending:
Robert Carlyon - Flint Water Plant Supervisor
Jeff Chappel - President - Weinstein Electric
Jim Franz - MAP Mechanical
Gared Briggs - WPM - Excavation Contractor
Marty Goettler - WPM - Excavation Contractor
Bob Root - President - E & L Construction Group
Don Root - Project Manager - E & L Construction Group
Ralph J. Stephenson - Consultant

Actions taken:
- Inspected project with Don Root
- Evaluated current project status
- Reviewed project program with project team

Summary of current status of Phase 1, Segment #1 project by major components as of March 3, 2000 (wd 554)

Boiler Building (BB) - target completion date for completion of boiler systems - pm

December 19, 2000 (wd 758)
Currently a starting date of May 1, 2000 A.M. (wd 595) is being held for clearing the boiler building site and removing, replacing and reconnecting utilities. Boiler shop drawings have been returned approved, and a delivery date for boilers is being held at August 14, 2000 A.M. (wd 668). Boilers are to be set through the roof of the building.

Electrical Maintenance Building (EM) - target completion date - pm October 17, 2000 P.M. (wd 714)

All price quotes are submitted for the directional boring of the sanitary sewer at Dort Highway and a bulletin for the work has been quoted to the City of Flint. The City must now have a change order prepared and issued. Once the change order is issued the contractors estimate that it will take 15 working days to mobilize and move on site, and about 9 working days to install piping under Dort Highway.

Installation of the concrete duct bank at the Electrical Maintenance Building has been deferred to allow installation of a portion of the fiber optic site line. Duct bank installation will start after completion of the fiber optic line.

Metal building components are due to be delivered on June 15, 2000 P.M. (wd 628). Structural steel for the mezzanine will be delivered on July 17, 2000 A.M. (wd 648). There is some question about the sequence for installation of the metal building base plate ties. Mr. Bob Root will check on the logic sequence of the slab on grade relative to erection of metal building steel.

Operations Center (OC) - target completion date for building work - May 3, 2000 P.M. (wd 598)

Supported floor slabs at the operations center are poured out and erection of interior and perimeter masonry walls is in work. Revisions to pipe rails are pending. However these revisions are not expected to delay work at the operations center.

Rapid Mix & Flocculation (RMF) - target completion date for building work - October 12, 2000 P.M. (wd 711)

Raw water distribution piping is being delivered to the site, and shop drawings for switchgear equipment have been reviewed and approved. Switchgear is currently

due to be delivered on April 27, 2000 P.M. (wd 594).

Installation of mechanical piping is showing some tendency to drop behind although the current lag is not serious. However piping installation should be give close attention over the next few weeks.

Primary Connection (PC) - target completion date for building work - December 15, 2000 P.M. (wd 756)

Work at the primary connection foundations is beginning to lag slightly and this component of the project should be reviewed carefully at our next monitoring session.

SCADA system (SCADA) - target completion date - December 22, 2000 P.M. (wd 761)

Shop drawings for the SCADA system were due to be submitted and forwarded to the general contractor by April 3, 2000 P.M. (wd 576). Information currently being used to plan installation of the SCADA system should be reviewed at our next monitoring session for deliveries, installation sequence, and duration of major material deliveries and field activities.

General:

As of this monitoring session the project is just getting fully underway in the field and I suggested we hold making a full scale updating and revision to the network model until our next session. Tentatively this meeting is set for April 7, 2000 (wd 579) at the water plant conference room. I shall confirm this date with Mr. Carlyon.

As part of the monitoring at our next session on April 7, 2000 (wd 579) I recommend we make a detailed review of all procurement and installation items including the following:

Boiler Building (BB)

- All piping systems
- Boiler delivery
- Structural steel
- Precast roof panels
- Electrical equipment

- Frames and doors
- Spray on fireproofing sequencing
- Operating and maintenance manuals
- Staff training

Electrical Building (EM)

- Status of all revisions, bulletins and change orders.
- Delivery of electrical materials
- Status of directional boring under Dort Highway
- Relation of fiber optic underground installation relative to underground utility installation
- Delivery of structural steel building frame
- Delivery of mezzanine structural steel
- Sequence of slab on grade installation relative to structural steel base plate ties
- Operating and maintenance manuals

Operations Center (OC)

- Status of pipe railing revisions
- Frames and doors
- Operating and maintenance manuals

Rapid Mix Flocculation (RMF)

- Distribution piping delivery, shake out and installation
- Switchgear delivery and setting
- Procurement of mechanical and electrical items
- Delivery of fiber reinforced ladders
- Delivery of monorail components
- Operating and maintenance manuals

Primary Connection (PC)

- Sequence of foundation installation
- Delivery of monorail components
- Brick selection and approval

Dual Electric Power Service by others than E & L

- Timing, sequencing and procurement

SCADA System (SCADA)

- Submission and approval of SCADA system shop drawings
- Delivery of SCADA system components
- Details of SCADA system installation
- Operating and maintenance manuals
- Training of SCADA staff operators

It would be appreciated if the project team would add items to the list that they feel should receive careful attention. The project is a very short duration job with only 201 working days remaining from March 13, 2000 (wd 560) to the pm of December 22, 2000 (wd 761). Therefore it is important to give early attention to project needs.

This set of notes is being sent directly to Mr. Robert Carlyon and Mr. Bob Root. Further distribution will be by them.

Ralph J. Stephenson, P.E.
Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
April 12, 2000

Monitoring Report #05: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
Bob Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Friday April 7, 2000 (wd 579)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) - completion of all Phase 1, Segment #1 work.
Time remaining to completion from April 7, 2000 (wd 579) - 182 working days

Monitored from:
Network model, issue #3 dated January 21, 2000 (wd 524).

Those attending:
Robert Carlyon - Flint Water Plant Supervisor
Jim Franz - MAP Mechanical
David Murray - Weinstein Electric
Bob Root - President - E & L Construction Group
Don Root - Project Manager - E & L Construction Group
Ralph J. Stephenson - Consultant

Actions taken:
- Inspected project with Don Root.
- Evaluated current project status with project team.
- Updated portion of issue #3 network model dated January 21, 2000 (wd 524).

Updating to be completed at next planning meeting on Tuesday April 18, 2000 (wd 586).

Summary of current status of Phase 1, Segment #1 project by major components as of April 7, 2000 (wd 579)

Boiler Building (BB) - target completion date for completion of boiler systems - pm December 19, 2000 (wd 758)

Currently a date of April 10, 2000 A.M. (wd 580) is being held for starting site clearance and removing, replacing and reconnecting utilities. The delivery date for the boilers has been set earlier than previously, and boilers are now expected on the job site by July 14, 2000 A.M. (wd 648). Boilers are to be set through the roof of the building.

Electrical Maintenance Building (EM) - target completion date - pm October 18, 2000 P.M. (wd 715)

There has been some delay to completing the quote for directional boring of the the sanitary sewer and the change order has not yet been issued. Currently the revised quote and the change order are expected to be in effect by the pm of April 20, 2000 (wd 589).

The delay may not seriously impact the project since completion of this work was set by the project team at a date somewhat earlier than actually needed, and there may be some float time available to the sequence. The present target date for completing installation of the sanitary sewer under Dort Highway is the PM of May 24, 2000 (wd 612).

Installation of the concrete duct bank at the EM Building has been substantially completed as of April 7, 2000 (wd 580). Metal building components are due to be delivered the week of April 12. 2000, and the delivery date for mezzanine structural steel is being held at July 17, 2000 (wd 648). Mr. Bob Root has confirmed the logic sequence of the slab on grade relative to erection of metal building steel, and presently the building frame steel will be erected and trimmed after the slab on grade is poured out..

Operations Center (OC) - early target completion date for building work - May 3, 2000 P.M. (wd 598)

Supported floor slabs at the operations center have been poured out, construction of concrete ramps is starting, masonry wall erection is almost complete, and painting has started. Overhead sheet metal ductwork and electrical conduit is in work. Currently most major work at the operations center is meeting targets between early and late starts and finishes.

We did not complete a full monitoring of the Operations Center at this meeting but will make a further review and updating at our next planning session scheduled for Tuesday April 18, 2000 (wd 586). At that time we hope to have enough additional information about deliveries and remaining work to complete an accurate updating of the full network model.

Rapid Mix & Flocculation (RMF) - target completion date for building work - October 12, 2000 P.M. (wd 711)

Work is proceeding on construction of tank walls at the RMF but appears to be lagging issue #3 late start dates by about 15 working days. This analysis will be reviewed at our meeting on Tuesday April 18, 2000 (wd 586). There is considerable work to be done in constructing the walls and supported decks at the RMF and this work must be monitored carefully to prevent early slippage of the activities.

Other activities at the RMF are currently meeting target dates between early and late starts and finishes. However we should consider preparing a detailed construction network plan of the construction sequencing. In addition we should make a thorough review of procurement for all elements of the work at our next conference.

Primary Connection (PC) - target completion date for building work - December 15, 2000 P.M. (wd 756)

Primary Connection work is beginning to lag the current network model and at present is from 20 to 25 working days behind the foundation plan of work. However the durations of activities for the structures at the connection may be somewhat longer than what might be required. We did not have adequate information at this monitoring meeting to complete updating the current network, and the project team agreed that a full updating of the model should be included in the next meeting agenda.

SCADA system (SCADA) - target completion date - December 22, 2000 P.M. (wd 761)

Shop drawings for the SCADA system are being prepared and submitted as they are completed for various elements of the system. We did not have sufficient information at this meeting to completely update the construction and installation sequencing. However a review and revision is to be done at our next planning session on Tuesday April 18, 2000 (wd 586).

General:

The project is showing some signs of lagging the desired target dates. At this conference we had intended to make a complete review and updating of the network model, but it did not appear that enough authentic information was available to complete a full updating and we were able to prepare only a partial update.

Therefore the project team agreed to meet again on Tuesday April 18, 2000 (wd 586) in Mr. Carlyon's office at 8:30 A.M. to continue the updating. At this meeting I recommend we make a detailed review of all procurement and installation items including the following:

Boiler Building (BB)

- Revisions, bulletins and change orders.
- Piping systems
- Boiler delivery and installation
- Structural steel
- Precast roof panels
- Electrical equipment
- Frames and doors
- Spray on fireproofing sequencing
- Operating and maintenance manuals
- Staff training

Electrical Building (EM)

- Revisions, bulletins and change orders.
- Delivery of electrical materials
- Directional boring under Dort Highway
- Relation of fiber optic underground installation relative to underground utility installation
- Delivery of structural steel building frame
- Delivery of mezzanine structural steel
- Operating and maintenance manuals

Operations Center (OC)

- Revisions, bulletins and change orders.
- Pipe railing
- Frames and doors
- Operating and maintenance manuals
- Interior work and controls

Rapid Mix Flocculation (RMF)

- Revisions, bulletins and change orders.
- Details of concrete walls and supported slabs
- Distribution piping delivery, shake out and installation
- Switchgear delivery and installation
- Procurement of mechanical and electrical items
- Delivery of fiber reinforced ladders
- Delivery of monorail components
- Operating and maintenance manuals

Primary Connection (PC)

- Revisions, bulletins and change orders.
- Sequence of foundation installation
- Relation of primary connection to construction of next phase of work
- Delivery of monorail components
- Brick selection and approval

Dual Electric Power Service by others than E & L

- Revisions, bulletins and change orders.
- Timing, sequencing and procurement
- Responsibility for the work

SCADA System (SCADA)

- Submission and approval of SCADA system shop drawings
- Delivery of SCADA system components
- Details of SCADA system installation
- Operating and maintenance manuals

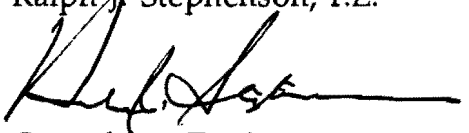
Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
April 12, 2000

- Training of SCADA staff operators

It would be greatly appreciated if the project team would give special attention to the above items and their installation prior to the meeting. Also it would be of help if they would add items to the list that they feel should receive special attention. The total Phase 1, Segment #1 project is a very short duration job with only 182 working days remaining from April 7, 2000 (wd 579) to the pm of December 22, 2000 (wd 761). Therefore it is important to give early and constant attention to project needs.

This set of notes is being sent directly to Mr. Robert Carlyon and Mr. Bob Root. Further distribution will be by them.

Ralph J. Stephenson, P.E.



Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
April 22, 2000

Monitoring Report #06: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
Bob Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Tuesday April 18, 2000 (wd 586)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) - completion of all Phase 1, Segment #1 work.
Time remaining to completion from April 18, 2000 (wd 586) - 175 working days

Monitored and updated from:
Network model, issue #4 dated March 3, 2000 (wd 554).

Those attending

Robert Carlyon - Water Plant Supervisor - in meeting part time
David Jansen- Assistant Water Plant Supervisor
Alan Popp - MAP Mechanical
Jeff Chappelle - President - Weinstein Electric
Don Root - Project Manager - E & L Construction Group
Rick Anderson - Field Inspector - Snell Environmental Group
Ralph J. Stephenson - Consultant

Actions taken:

- Evaluated current project status with project team.
- Updated issue #4 network model dated January 21, 2000 (wd 524) to issue #6 network model dated April 18, 2000 (wd 586).

Summary of current status of Phase 1, Segment #1 project by major components as of April 18, 2000 (wd 586)

Boiler Building (BB) - target early finish date for boiler systems - pm November 22,

2000 (wd 740).

Boiler Building site clearance started on April 19, 2000 (wd 587). Boilers are expected to be delivered to the job site by the A.M. of July 14, 2000 (wd 647). Setting the boilers is still anticipated to be through the roof of the building. There was some discussion of setting boilers on the equipment bases prior to erection of building structural steel. This can be done if delivery of boilers occurs at an earlier date than July 14, 2000 (wd 647). The earlier delivery is being reviewed now.

We will follow up on the slab-on-grade pour date at our next monitoring. This monitoring meeting is currently set for Tuesday May 23, 2000 at 8:00 A.M. at the job site.

The project team also discussed the procedure for preparing the construction record set (formerly as-builts) at the job site. This set is currently being kept up-to-date by the specialty contractors, and the process is being directed by the general contractor. I recommend that the master construction record set be copied at regular intervals and the copies kept in a safe storage area off-site.

Apparently preparation and collection of the Operations and Maintenance manuals is being monitored by the design team field representatives and the contractors for each of the trades involved. We will monitor progress on this activity at each inspection meeting.

Electrical Maintenance Building (EM) - target early finish date - pm August 17, 2000 (wd 672)

Installation of the sanitary sewer under Dort Highway to manhole #1 is complete. The change order for the work has not yet been issued.

EM building foundations are nearly complete, and according to the general contractor, metal building components are on-site. Erection of the metal building is due to begin April 18, 2000 (wd 586). We updated the steel erection sequence in the issue #6 network plan dated April 18, 2000 (wd 586).

Operations Center (OC) - target early finish date - pm June 27, 2000 (wd 636)

Construction work on the ramps and fabrication of miscellaneous iron handrails is

continuing. Interior work at the OC is also in progress. Some painting has been done and installation of mechanical and electrical ceiling work is proceeding.

Rapid Mix & Flocculation (RMF) - target early finish date for building work - pm October 11, 2000 (wd 710)

The project team attending the planning session updated the RMF plan of work at this meeting. The current network model is shown in issue #6 dated April 18, 2000 (wd 586).

Major work being installed presently includes mechanical piping, equipment and systems work at the interior of the RMF, and construction of the tank walls. Construction of the supported floor deck at the east side of the RMF is due to start at an early start of 06/01/2000 (wd 617).

Primary Connection (PC) - target early finish date for building work - pm December 13, 2000 P.M. (wd 754)

Currently, layout and excavation for the Primary Connector foundations is due to begin on April 24, 2000 (wd 590). A resolution of the pricing for backfilling the existing clarifier excavation is being made presently. This work might not be started until change order #2 is formally issued.

SCADA system (SCADA) - target completion date - December 22, 2000 P.M. (wd 761)

Currently SCADA shop drawings are being submitted and checked. We were not able to assemble enough authentic information at our meeting to complete a detail work plan for installation of the SCADA system. We should continue to monitor progress carefully since the system must be ready for final check out starting in early December 2000.

I suggest the design team and the contractors responsible for installing the SCADA system set an near future meeting date to completely review the installation sequence and to ensure that shop drawing checking and fabrication will proceed in a timely fashion. There was general agreement that such a meeting should be held as early as possible.

General:

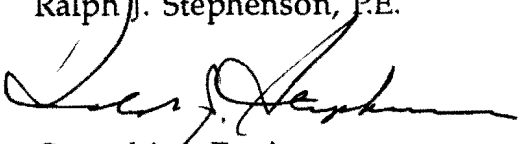
At this conference we had intended to make a complete review and updating of the network model, but there was not enough authentic information to complete a full analysis. However we did update the network to the greatest degree possible and will continue to work toward making a full review of the plan in the near future.

It is still critical for the project team to be constantly aware that the Phase 1, Segment #1 project is of a very short duration. Only 175 working days remain from April 18, 2000 (wd 586) to the pm of December 22, 2000 (wd 761). Therefore all involved must give constant attention to project needs, particularly submittal and checking of shop drawings, and delivery of materials and equipment. I also suggest we again review preparation of Operations and Maintenance manuals in the near future to ensure that the responsibility for their submittal and approval is clearly defined.

Our next monitoring and planning meeting is scheduled to be held on Tuesday May 23, 2000 (wd 611).

This set of notes is being sent directly to Mr. Robert Carlyon and Mr. Bob Root. Further distribution will be by them.

Ralph J. Stephenson, P.E.



Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
May 23, 2000

Monitoring Report #07: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
Bob Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Tuesday May 23, 2000 (wd 611

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) - completion of all Phase 1, Segment #1 work.
Time remaining to completion from May 23, 2000 (wd 611) - 150 working days

Monitored from:
Network model, sheet #2, issue #6 dated April 18, 2000 (wd 578).

Those attending
Robert Carlyon - Water Plant Supervisor - in meeting part time
Jeff Chappelle - President - Weinstein Electric
Bob Root - President - E & L Construction Group
Don Root - Project Manager - E & L Construction Group
Dirk Anderson - Field Inspector - Snell Environmental Group
Ralph J. Stephenson - Consultant

Actions taken:
- Inspected project with Don Root.
- Reviewed and discussed current project status with project team.
- Set preliminary agenda for next monitoring and planning meeting.

Summary of current status of Phase 1, Segment #1 project by major components as of May 23, 2000 (wd 611)

Boiler Building (BB) - target early finish date for boiler systems - pm November 22, 2000 (wd 740).

Boiler Building site clearance is substantially complete and work is proceeding on layout, excavation, and construction of the building foundations. During excavation some existing abandoned drain tile was found at the site, a length of old pipe wrapped in asbestos was also encountered and had to be removed by a remediation contractor, and a phone line was found at the Boiler Building site. In addition heavy rains have somewhat hindered job progress.

However work has proceeded and Mr. Don Root plans to complete foundation work about June 1, 2000 (wd 618). This completion date gives work at the BB a projected lag of 5 to 7 working days. Mr. Root anticipates bringing the project back on Issue #6 target dates once the excavation and foundation forming is cleaned so work wetted down by the recent heavy rains can proceed.

Boilers are still expected on the site by mid July, 2000 and will be set as soon as the building work is ready to receive them. A decision on a setting procedure for boilers as soon as specific dates of steel and precast erection ~~have~~ has been confirmed.

At our next planning meeting on Tuesday June 13, 2000 (wd 625) we will update the current Issue #6 network model to reflect building close in and setting of mechanical equipment in greater detail than it is shown at present.

Electrical Maintenance Building (EM) - target early finish date - pm August 17, 2000 (wd 672)

The floor slab on grade at the EM is completed and most of the metal building structure is erected, plumbed and trimmed. The building roof deck is installed and erection of metal siding and masonry is about to start. Brick is on the job.

Mezzanine structural steel is to be delivered May 26, 2000 (wd 615). This is slightly later than planned but should not materially affect the close in of the building and installation of interior work.

Operations Center (OC) - target early finish date - pm June 27, 2000 (wd 636)

Operations Center work is lagging current network model early starts in interior work installation. However the interior work schedules are such that the OC early tasks can now be given some float time. This revision will be reviewed at our updating planning session to be held on June 13, 2000 (wd 625).

Acoustic ceiling materials were to have been delivered on May 23, 2000 (wd 612) which is considerably earlier than the target late start. Again we will review the impact of the delivery on the plan of work at our next planning session.

Work on fabrication of miscellaneous iron handrails is continuing as submittals are processed. Bulletin #9a has been approved which should free up fabrication and delivery of most miscellaneous metals.

Rapid Mix & Flocculation (RMF) - target early finish date for building work - pm October 11, 2000 (wd 710)

Work is continuing on construction of tank walls and on installation of interior mechanical piping systems. Mr. Don Root said that he was going to start forming the east half of the RMF supported deck on May 24, 2000 (wd 569). The target early start of this deck shown in the issue #6 plan of work is June 1, 2000 (wd 617).

Primary Connection (PC) - target early finish date for building work - pm December 13, 2000 P.M. (wd 754)

Some limited backfill of the excavation at the PC has been placed but full backfilling has been deferred until the next work phase. Work on PC foundations has been started and currently lags early starts and finishes by 5 to 7 working days. However this time should be able to be recaptured and the project team will rediagram the Primary Connection at the updating session on June 13, 2000 (wd 625).

SCADA system (SCADA) - target completion date - December 22, 2000 P.M. (wd 761)

Currently SCADA shop drawings have been submitted and many have been checked and approved. Work is now proceeding on preparation of the graphics for the control panel.

The electrical contractor feels we can proceed with more detailed planning of the installation of the SCADA system at our next planning session.

General:

The project is currently meeting most critical construction targets between early and late starts and finishes. There are some deviations in the schedule sequence that indicate a full updating of the issue #6 network model is now appropriate.

Therefore the project team has agreed that our next monitoring and planning sequence should be concentrated on a major updating of issue #6.

The main agenda for this meeting as discussed in our session on May 23, 2000 (wd 611) includes the following items:

Next meeting - 09:00 A.M. Tuesday June 13, 2000 (wd 625) at Mr. Carlyon' office.

1. Make full update of issue #6 networks, dated April 18, 2000 (wd 586), with special attention given the mechanical, electrical and control systems procurement, and installation work yet to be done.

2. Update and integrate remaining architectural and structural work items with mechanical and electrical installation.

3. Expand and update the Scada system plan of work.

4. Determine the best method of coding architectural, mechanical and electrical work so selective runs can be made to determine trade requirements for remaining work.

5. Review current early start and late start listing of issue #6 network activities and revise sequencing and durations as needed.

6. Review current status of preparation and submittal of Operation and Maintenance manuals

7. Review current status of construction record drawings and the process for preparing the final set of these drawings.

It is still critical to be aware that the Phase 1, Segment #1 project is of a very short duration. Only 150 working days remain from May 23, 2000 (wd 611), to the pm of December 22, 2000 (wd 761). Therefore the entire project team management must give constant close attention to project needs, particularly submittals, checking of shop drawings, and delivery of materials and equipment.

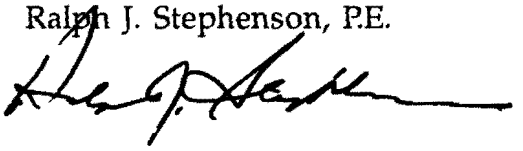
With this report I have enclosed copies of the current issue #6, sheet #2 network plan activities listed by location in early start sequence (list A) and in late start sequence (list B)

City of Flint, Michigan
Water Plant Rehabilitation
Phase 1, Segment #1
Monitoring Report #07

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
May 23, 2000

This set of notes and the listings is being sent directly to Mr. Robert Carlyon and Mr. Bob Root. Further distribution will be by them. It was noted in the most recent planning meetings that some of the field forces as well as the major contractors have not received either the updated network models nor the monitoring reports and project activity listing. I strongly recommend that the planning and monitoring documents be provided to these major contractors and to the owner's staff so they can fully participate in the planning sessions.

Ralph J. Stephenson, P.E.



Enclosures

Consulting Engineer

date printed: May 27, 2000

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
June 20, 2000

Monitoring Report #08: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
Robert Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Tuesday June 13, 2000 (wd 625)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) P.M. - completion of all Phase 1, Segment #1 work.
Time remaining to completion from June 13, 2000 (wd 625) - 136 working days

Monitored from:
Network model, sheet #2, issue #6 dated April 18, 2000 (wd 578).

Those attending
Robert Carlyon - Water Plant Supervisor - in meeting part time
Jeff Chappelle - President - Weinstein Electric
Don Root - Project Manager - E & L Construction Group
Dirk Anderson - Field Inspector - Snell Environmental Group
Ralph J. Stephenson - Consultant

Actions taken:
- Reviewed project status with project team.
- Updated issue #6 to issue #7.
- Review procurement of major items yet to be delivered.
- Reviewed and update SCADA plan of work.

Summary of current status of Phase 1, Segment #1 project by major components as of Tuesday June 13, 2000 (wd 625)

Boiler Building (BB) - updated target early finish date for boiler systems - pm September 21, 2000 (wd 696).

Boiler Building foundations are substantially complete, backfilling of foundation structures is about 90% complete. and installation of floor slab on grade is approximately 80% complete. The boiler will be put into place through the roof, and is currently scheduled for setting July 10, 2000 (wd 643)

Most major work at the Boiler Building is meeting targets between early starts and finishes, and late starts and finishes.

Electrical Maintenance Building (EM) - updated target early finish date - pm August 23, 2000 (wd 676)

The steel structure of the EM building is substantially complete, the interior slab on grade has been poured out, metal siding, roof deck and masonry is being erected and the mezzanine concrete slab is to be installed in the near future.

Most major work at the Electrical Maintenance Building is meeting targets between early starts and finishes, and late starts and finishes.

Operations Center (OC) - updated target early finish date - pm June 27, 2000 (wd 636)

The OC network was updated using some of the float time available in the interior work to bring the target completion date back into alignment with desired dates and with contract time requirements.

Current work is concentrated on installation of finish trades wherever work progress allows. In general field is meeting targets between early and late starts and finishes.

Rapid Mix and Flocculation (RMF) - updated target early finish date - pm September 28, 2000 (wd 701)

The east side deck is being formed and made ready for a pour on June 20, 2000 (wd 631). West side deck construction will follow east side work. Delivery of fiber reinforced ladders and monorail components have been set to meet the requirements of the updated network mode.

Most major work at the RMF building is meeting targets between early starts and finishes, and late starts and finishes.

Primary Connection (PC) - updated target early finish date for building work - pm December 22, 2000 P.M. (wd 761)

The primary connection structure is being erected concurrent with installation of equipment and piping at the various floor levels. At present the connection to the existing influent line is being set at elevation 716′ on the primary connector base slab. The structure erection will continue up to the roof level at about elevation 755.33′.

Exterior close in work and interior finish work will start after the concrete structure is completed. Most major work is meeting targets between early and late starts, and finishes.

SCADA system (SCADA) - Updated target completion date - December 22, 2000 (wd 761) P. M.

Currently SCADA work appears to be meeting target dates as shown in the updated network model. However all at the meeting felt that our next meeting should concentrate heavily on preparing a detailed network of the remaining SCADA procurement. This work should then be combined with the field installation model to validate the target end date of December 22, 2000 (wd 761).

General:

Most major work on the project is currently meeting targets between early and late starts and finishes. The updating to Issue #7, dated June 13, 2000 (wd 626) indicates that by using some of the earlier available float time we could bring some of the elements in at earlier dates as desired and required. However the project team decided to still consider the target completion of the entire program being the P.M. of December 22, 2000 (wd 761).

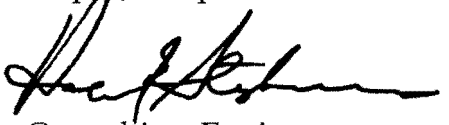
We will monitor the project on this basis at the pending planning and monitoring sessions. Our next planning and monitoring meeting has been set for Tuesday July 18, 2000. I shall be in touch with Mr. Carlyon shortly to confirm this meeting date.

I delivered the updated network, Issue #7 dated June 13, 2000 (wd 625) to Mr. Dave Jansen on Friday June 16, 2000. I also provided Mr. Jansen with copies of the activity listing for this latest issue. These include an early start listing and a late start listing

for the Issue #7 model.

This set of notes and the listings are being sent directly to Mr. Robert Carlyon and Mr. Robert Root. Further distribution will be by them.

Ralph J. Stephenson, P.E.



Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
July 24, 2000

Monitoring Report #09: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
Robert Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Tuesday July 18, 2000 (wd 649)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) P.M. - completion of all Phase 1, Segment #1 work.
Time remaining to completion from June 13, 2000 (wd 625) - 112 working days

Monitored from:
Network model, sheet #2, issue #7 dated June 13, 2000 (wd 625).

Those attending
Dirk Anderson - Field Inspector - Snell Environmental Group
Robert Carlyon - Water Plant Supervisor - in meeting part time
Jeff Chappelle - President - Weinstein Electric
Don Root - Project Manager - E & L Construction Group
Alan Popp - MPA - Mechanical Contractor
Ralph J. Stephenson - Consultant

Actions taken:
- Reviewed project status with project team.
- Updated sheet 2 from issue #7 to issue #8.
- Review procurement of major items yet to be delivered.
- Reviewed and updated SCADA plan of work.

Summary of current status of Phase 1, Segment #1 project by major components as of Tuesday June 13, 2000 (wd 625)

Boiler Building (BB) - updated target early finish date for boiler systems - pm

August 31, 2000 (wd 682).

Boilers are set at the boiler building and roof precast panels are set. Roofing is expected to start within the next few days. The remainder of exterior masonry will also be started soon and finish trades will follow the roofing and masonry. Once roofing is complete E & L will also install the concrete walks at the BB, complete bituminous paving and complete installing landscaping as required.

Careful attention should be given to the early and late dates specified for landscaping work.

The updated date for completion of the boiler building were derived from sheet #2, issue #8 dated July 18, 2000 (wd 649).

Electrical Maintenance Building (EM) - updated target early finish date - pm October 5, 2000 (wd 706)

The electrical maintenance building is currently being closed in to weather. Field work is running about 10 to 15 working days later than early and late starts and finishes. However the updated finish date is in early October, 2000 which is still within the desired completion range of the project.

Some restraints on completion of interior work may be able to be revamped and this may allow the project to meet an earlier completion. We will check these restraints at subsequent monitoring meeting s and inspections and will attempt to compress the current plan of work if required.

Interior electrical and mechanical work at the EM building is currently meeting desired late finish dates and should not delay finish work.

Operations Center (OC) - updated target early finish date - pm June 27, 2000 (wd 636)

The OC network, issue #7 dated June 13, 2000 (wd 625) was monitored but not updated due to lack of time at this meeting. Currently interior work is proceeding as space is available, and materials, particularly interior miscellaneous iron hand rails, arrive on the job. The project team feels the target dates for installation of the SCADA system will be met at the operations center. We will recheck this portion of

the project at our next meeting.

Rapid Mix and Flocculation (RMF) - updated target early finish date - pm October 6, 2000 (wd 706)

West tank walls have been poured and stripped. The supported deck at the east side of the RMF has been poured, stripped and reshored, and the sloped bottom of the west side tank has been poured out. It appears at present that the RMF activities still to be completed will be able to be installed ahead of, or concurrently with, installation of the SCADA system.

Primary Connection (PC) - updated target early finish date for building work - pm November 29, 2000 (wd 744).

Work had been proceeding on construction of the primary connection when a problem with the lining in the larger pipe sections was encountered in pipe already in place, and in other pipe that was being readied for installation.

On 7/12/2000 (wd 645) the 54' and 60" pipe was being set when it was noticed that the concrete lining was delaminating. The manufacturer inspected the pipe on 7/13/2000 (wd 646), and in conjunction with the engineering consultant decided that the pipe must to be relined. The pipe already set is currently being removed and sent back to the factory for relining. It will take two days to ship back to the plant, two days to repair and two more days to ship back to the site. We have assumed it will take 11 elapsed working days from July 18, 2000 (wd 649) to start up again on the primary connection structure.

While updating the network model and reviewing the SCADA system installation, the owner called attention to the fact that the SCADA system must interface with the primary connection structure & piping by late September, 2000. The current projected total completion of the primary connection is nearly two months later than the required date. We did compress the plan of work for the primary connection a small amount. However further shortening of the time of construction of the structure must be accomplished.

I shall be in touch shortly with Don Root to review sheet 2, issue #8 for methods by which we can bring completion of the primary connection to an earlier date than shown at present.

SCADA system (SCADA) - Updated target completion date - December 22, 2000 (wd 761) P. M.

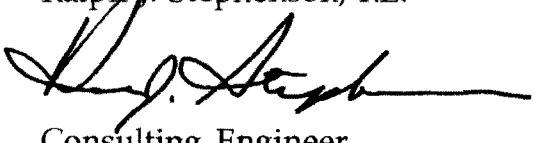
At this meeting we completely reviewed and revised the SCADA system network model, including some of the interfaces with other sectors of the project. Currently SCADA work appears to be meeting major target dates required to have the system complete by the pm of December 22, 2000 (wd 761). However other project components, particularly the primary connection, require additional attention be given their plan of work to achieve an earlier completion. I shall discuss this matter with Mr. Don Root in the near future as noted above.

General:

Major work on the project is encountering delays that must be addressed in the immediate future to allow installation of the SCADA system by the contract end date of December 22, 2000 (wd 761). The two areas that must be reviewed include the operations center and the primary connector. I shall talk to Don Root, the general contractor field superintendent shortly to set a course of planning and field action to bring the project back in line with the contract target dates. Meanwhile we have printed and distributed sheet #2, issue #8 dated July 18, 2000 (wd 649) to the project participants for their study and comments.

This report is being sent directly to Mr. Robert Carlyon and Mr. Robert Root. Further distribution will be by them.

Ralph J. Stephenson, P.E.



Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
August 24, 2000

Monitoring Report #10: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
Robert Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Tuesday August 22, 2000 (wd 674)

Location of meeting: Conference room at City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) P.M. - completion of all Phase 1, Segment #1 work.
Time remaining to completion from August 22, 2000 (wd 674) - 87 working days

Monitored from:
Network model, sheet #2, issue #8 dated July 18, 2000 (wd 649)

Those attending
Dirk Anderson - Field Inspector - Snell Environmental Group
Robert Carlyon - Water Plant Supervisor - in meeting part time
Jeff Chappelle - President - Weinstein Electric
Jim Franz - MPA - Mechanical Contractor
Don Root - Project Manager - E & L Construction Group
Ralph J. Stephenson - Consultant

Actions taken:
- Reviewed project status with Don Root, E & L's project manager.
- Updated sheet 2 from issue #8 to issue #9, except for PC network.
- Review procurement of items yet to be delivered.
- Reviewed and updated SCADA plan of work.

Summary of current status of Phase 1, Segment #1 project by major components as of Tuesday August 22, 2000 (wd 674)

Boiler Building (BB) - updated target early finish date for boiler systems - pm

October 6, 2000 (wd 707).

Work at the boiler building has slowed over the past month and the projected completion date of August 31, 2000 (wd 682) has slipped to October 6, 2000 (wd 707). Part of the lost time has been caused by problems with the steel stair and its relation to the motor control center. There were locational interferences and it was decided to revise the steel stair. Material for the stair remodeling is on the job and when the bulletin pricing is approved work will begin on stair revisions. These are expected to begin about September 1, 2000 (wd 682).

Also delaying completion of the Boiler Building is a late delivery of fiber reinforced doors until September 25, 2000 (wd 697). Other delays have been experienced in laying the roofing. In issue #8 of the network model roofing was to have started at an early start of July 18, 2000 (wd 649). However this start has been delayed until August 28, 2000 (wd 678). This, in turn will hold the start of spray on fireproofing until about September 1, 2000 (wd 682).

The scope of bituminous paving has been reduced but heavy traffic outside the Boiler Building has delayed start of site work.

These job disruptions have acted together to force the job completion to a late date of October 6, 2000 (wd 707). This date is very close to the time when heat will be needed in the areas served by the boiler facility, and heavy efforts must be made to complete clean up and turnover of the system by the current target.

Electrical Maintenance Building (EM) - updated target early finish date - pm October 4, 2000 (wd 705)

There have been some disruptions to sequencing of the Electrical Building interior activities. However the updated projected completion date remains in early October, 2000 which is within the desired completion range of the project.

Operations Center (OC) - updated target early finish date - pm October 18, 2000 (wd 715)

Some later-than-expected deliveries of fiber reinforced plastic doors has caused a slip in the planned completion of the Operations Center. The late delivery has revised the completion of the facility to October 18, 2000 (wd 715). However the project team feels that the late completion of the architectural trades will not

interfere with installation of the SCADA system. Those involved should review the issue #9 network model carefully to insure that the current logic plan and time frame will have no serious impact on installing devices and controls of the SCADA system.

Rapid Mix and Flocculation (RMF) - updated target early finish date - pm October 27, 2000 (wd 722)

The east supported floor deck at the RMF has been poured and reshored, and the east sloped tank bottom has been placed. Forming of the supported deck at the west side is in work and the deck will be poured out on August 23, 2000 (wd 676).

East side work including mixers, doors, masonry and in wall work is in progress, and some pipe railings at stairs, ramps and the balcony have been installed.

Presently it appears that the later-than-expected completion date will not delay installation of the SCADA system, and will be within the contract date requirements.

Primary Connection (PC) - updated target early finish date for building work - not determined at this monitoring

Work has fallen considerably behind the issue #8 network model completion date. The major problem has been getting the repaired pipe on the job and in place. Currently the 54' pipe is being set and connected on the base slab at elevation 716'. Concurrently the north wall is being constructed to elevation 722.50'. This wall will be poured out by August 30, 2000 (wd 681).

The project team attempted to update the issue #8 network model, but the information needed for a full updating was not available and the revised logic plan was printed and given to Mr. Don Root of E & L to review with his project team. I shall check with Mr. Root on his decisions in the near future and discuss the plan of action with him.

This Primary Connection delay is very serious and could possibly affect work in the succeeding phases of the work.

SCADA system (SCADA) - Updated target completion date - December 22, 2000 (wd 761) P. M.

At this meeting we again reviewed current progress of the SCADA system in relation to the required contract completion target. It appears at present that most of the work with which the SCADA system must interface will be available, and installation of the system should be able to make the completion target of December 22, 2000 (wd 761).

The project team should check work progress carefully and continually to insure that each of the components of the project is meeting critical dates, particularly where delayed deliveries might be encountered that would impact on completion to receive the SCADA system.

General:

Major delays to the work have been encountered over the past month. These have been incorporated into the updated network model, Issue #9, dated August 22, 2000 (wd 674). Most of the expected delays to desired completion dates can be accommodated while the SCADA system is being installed.

Work on the Primary Connector is lagging by an amount that may seriously affect the start date of the next phase of work on the rehabilitation program. Mr. Root is currently reviewing an updated action plan of the Primary Connector and will keep those concerned posted on his replanning efforts. I shall be in touch with him shortly to determine his planned actions to recapture the time lost at the Primary Connector.

This report is being sent directly to Mr. Robert Carlyon and Mr. Robert Root. Further distribution will be by them.

Ralph J. Stephenson, P.E.

Consulting Engineer

Ralph J. Stephenson, P. E., P. C.
Consulting Engineer
October 24, 2000

Monitoring Report #11: City of Flint Department of Public Works Water Plant #2 Rehabilitation - Phase 1, Segment #1
Flint, Michigan

To: Robert Carlyon - Flint Water Plant Supervisor
David Jansen, P.E. - Flint Water Assistant Plant Supervisor
Robert Root - President - E & L Construction Group

From: Ralph J. Stephenson, P.E. - Consulting Engineer

Date of meeting: Tuesday October 17, 2000 (wd 713)

Location of meeting: E & L trailer at site - City of Flint Water Plant.

Current contract dates: December 22, 2000 (wd 761) P.M. - completion of all Phase 1, Segment #1 work. Time remaining to completion from October 17, 2000 (wd 713) - 48 working days

Monitored from:
Network model, sheet #2, issue #8 dated July 18, 2000 (wd 649)

Those attending
Dirk Anderson - Field Inspector - Snell Environmental Group
David Murray - Weinstein Electric
Jeff Bryson - Assistant Water Plant Supervisor
Don Root - Project Manager - E & L Construction Group
George Reid - Field Superintendent - E & L Construction Group
Ralph J. Stephenson - Consultant

Actions taken:
- Inspected project with Dirk Anderson
- Reviewed project status with members of the project team

Summary of current status of Phase 1, Segment #1 project by major components as of Tuesday October 17, 2000 (wd 713).

Boiler Building (BB) - updated target early finish date for boiler systems - pm November 17, 2000 (wd 737).

Boilers have been set and are being piped up, mechanical and electrical equipment and systems are being installed, and spray on fireproofing will start on October 18, 2000 (wd 714). Exterior masonry is substantially complete and site work, including sidewalks and parking areas are being installed

In our project discussion the group was asked to set a series of estimated projected target dates for completing the facility and making the equipment operative. All present agreed that the pm of November 17, 2000 (wd 737) was a reasonable target date to set for the Boiler Building operative completion target. During this analysis, the project team reviewed a few of the major reasons for the delays at the Boiler Building over the previous target completion of the pm of October 6, 2000 (wd 707). Some of the reasons for the delay have been outlined in recent monitoring reports.

Electrical Maintenance Building (EM) - updated target early finish date - pm October 27, 2000 (wd 722) except for completion of site lighting.

Most interior work at the Electrical Maintenance building is substantially complete except for some ceiling, trim work and clean up. Site work is in progress and presently it is the intent to turn the building over to the owner for occupancy about October 27, 2000.

Exterior light fixtures are to be delivered about November 13, 2000 and will be installed as they become available. Landscaping work is planned to start in the near future and will proceed as weather allows.

Operations Center (OC) - updated target finish date - pm December 22, 2000 (wd 761).

Architectural finish work at the Operations Center is nearly complete except for architectural finishes and miscellaneous iron work. Installation of SCADA control components is planned for installation in the near future, and the present completion target is set for December 22, 2000 (wd 761).

At our next monitoring session we will plan to make a detailed review of the progress of the SCADA system installation since there seems to be some question about deliveries of the various SCADA system components. I shall be in touch with Bob Carlyon or Dave Jansen shortly to set the next inspection of the project.

Rapid Mix and Flocculation (RMF) - updated target finish date - pm December 22,

2000 (wd 761).

Most of the supported decks at the Rapid Mix and Flocculation area have been poured out and the mixers, and the electrical and mechanical work is being installed at the east and west sides of the RMF. Wire is being pulled and the mechanical systems are being piped up at all areas. Some ladders and the monorail system are yet to be installed.

The project team feels that the updated target finish date of December 22, 2000 (wd 761) is feasible to hold at present. It should be kept in mind that the SCADA system mechanical, electrical and control work must be installed concurrently with the work needed to complete the Rapid Mix and Flocculation area. We will pay special attention to this concurrent work progress in our next monitoring inspection.

Primary Connection (PC) - updated target finish date for building work is being held at the pm of December 22, 2000 (wd 761).

Pipe repairs are still in progress at the Primary Connection although work there is moving more slowly than is desired by the project team. However the mechanical contractor intends to place heavy focus on the facility in conjunction with erection of masonry and installation of concrete walls and decks. The start of succeeding contract work on the renovation program is heavily dependent on the availability of the Primary Connector, and the project team is very much aware of the need for an on-time delivery of the PC.

We shall give the Primary Connector close monitoring and inspection attention at near future planning and monitoring sessions. This will allow us to determine with more accuracy than is possible at present, the probability of meeting required completion dates.

SCADA System - contract completion date - December 22, 2000 (wd 761)

More information is needed from and for the project team to allow an accurate updating of the current plan of work to be prepared. I shall be in touch with Mr. Carlyon or David Jansen in the near future to set the next meeting and monitoring inspection.

Meanwhile the dates given in this report are those currently being held as completion targets. They should be continually reviewed and validated by the

project staff, since an early start of succeeding contract work on the job is essential to provide the greatest work continuity possible.

This report is being sent directly to Mr. Robert Carlyon, Mr. Dave Jansen and Mr. Robert Root. Further distribution will be by them.

Ralph J. Stephenson, P.E.

Consulting Engineer

Ralph J. Stephenson, P.E.
Consulting Engineer

COF Water - Lake Huron Water Supply (LHWS)

I. **Those involved**

A. City of Flint

1. Water Plant Staff
   a) Robert Carlyon - Water Plant Supervisor
   b) Dave Jansen- Assistant Water Plant Supervisor
   c) Jeff Bryson - Water Plant Facilities Engineer
2. Pipeline Advisory Committee
   a) David Ready - City Administrator
   b) Scott Kincaid - Council President
   c) Jack Minore - Councilman
   d) Robert Carlyon - Water Plant Supervisor
3. Ex officio Pipeline Advisory Committee members
   a) Karen McDonald - City Attorney
   b) Dave Jansen- Assistant Water Plant Supervisor
4. City administration
   a) Mayor Woodrow Stanley - Mayor
   b) DPW director
   c) Marc Puckett - Finance Director
   d) Matt Grady - Budget Director

B. Genesee County

1. Drain Commissioner's staff
   a) Ken Hardin - Genesee County Drain Commissioner
   b) Jake Schamberger - Director of Water and Waste Services
2. Pipeline Advisory Committee (county members)
   a) Tim Herman - Commissioner - 1998 chair Board of Commissioners
   b) JohnGleason - Commissioner - 1998 vice chair Board of Commissioners
   c) FredShaltz - Commissioner
   d) Bob Myers - Commissioner
3. Ex officio Pipeline Advisory Committee members
   a) Ken Hardin - Genesee County Drain Commissioner
   b) Jake Schamberger - Director of Water and Waste Services
   c) Leonard Smorch - County Comptroller
   d) Ward Chapman - County Attorney
4. County administration
   a) Dan Harrel - ?

C. Burke, Weaver and Prell - Legal Counsel

Report to the Pipeline Advisory Committee and are paid directly by the City of Flint and Genesee County.

1. Clifford Weaver - Principal

2. Maureen Crowley - Partner

D. Public Sector Consultants - Public Relations
Report to the Pipeline Advisory Committee and are paid directly by the City of Flint and Genesee County.
1. Craig Ruff - President
2. Nick Khoury - Consultant

E. Snell Environmental Group team
The Snell Environmental Group is under contract to the City of Flint for preparation of a project plan under the drinking water revolving fund. Report to Robert Carlyon.
1. Snell Environmental
   a) John O'Malia
2. Prein and Newhof
   a) Thomas Newhof
3. Alvord Burdick and Howson
   a) James Hedges - Partner
   b) Warren Green - Partner

II. **Those attending meeting**
A. Robert Carlyon - Water Plant Supervisor
B. Dave Jansen- Assistant Water Plant Supervisor
C. Jeff Bryson - Water Plant Facilities Engineer
D. Ralph J. Stephenson - Consultant

III. **Characteristics of project**
A. Key dates
1. 12/01/2000 (1002)- Detroit contract expiration date
2. 10/01/1998 (447) - Required ground breaking date for project finance by the dwrf
3. mdeq milestones for funding approval under dwrf (taken from page 3 of letter from mdeq to the City of Flint and dated 12/23/1997 (250)
   a) Group 1 milestones - environmental in nature
      (1) 01/02/1998 (257) - project plan submitted to mdeq by cof
      (2) 02/13/1998 (287) - mdeq comments on project plan submittal
      (3) 03/27/1998 (317) - submittal of final project plan by cof
      (4) 05/29/1998 (361) - publication of environmental assessment (of project plan) by mdeq
      (5) 06/30/1998 (383) - public notice clearance (what is this? end of public comment period?)
   b) Group 2 milestones - financial in nature
      (1) 03/27/1998 (317) - submit draft user charge system - cof
      (2) 04/30/1998 (341) - mdeq comments on user charge systems
      (3) 05/29/1998 (361) - submit final user charge system - cof
      (4) 06/30/1998 (383) - mdeq approve user charge system

(d) 05/29/1998 (361) - publication of environmental assessment (of project plan) by mdeq
(e) 06/30/1998 (383) - public notice clearance (what is this? end of public comment period?)

(2) Group 2 milestones - financial in nature
(a) 03/27/1998 (317) - submit draft user charge system - cof
(b) 04/30/1998 (341) - mdeq comments on user charge systems
(c) 05/29/1998 (361) - submit final user charge system - cof
(d) 06/30/1998 (383) - mdeq approve user charge system

(3) Group 3 milestones - engineering in nature
(a) 04/10/1998 (327) - submit draft plans & specs - cof
(b) 05/08/1998 (347) - mdeq comment on plans and specs
(c) 06/05/1998 (366) - cof submit final plans and specs
(d) 06/30/1998 (383) - mdeq issue construction permit

(4) Group 4 milestones - procedural in nature
(a) 06/02/1998 (363) - cof submit dwrf application part 1
(b) 06/30/1998 (383) - cof submit dwrf application part 2
(c) 08/17/1998 (416) - cof submit dwrf application part 3

(5) Group 5 milestones - procurement of services
(a) 07/04/1998 (385) - cof publish bid advertisement
(b) 08/04/1998 (407) - cof open bids
(c) 08/11/1998 (412) - tentative cof award of contract

(6) Approval
(a) 08/27/1998 (424) - mdeq issue order of approval

IV. **Abbreviations**

A. epa - Evironmental Protection Agency
B. mgd - million gallons per day
C. mdeq - Michigan Department of Environmental Quality
D. cof - City of Flint
E. dwrf - Drinking Water Revolving Fund - State of Michigan
F. emk - everyone must know - management style to be defined
G. gco - Genesee County
H. lhws - Lake Huron Water Supply
A joint program between the City of Flint and Genesee County designed to explore the implementation of a Lake Huron water supply utility that will serve water customers in the Flint Metropolitan Area. The lhws anticipates that the service area may be expanded or contracted as the demand changes during the next few years. Presently however the design service area consists of the present customers of the City of Flint and Genesee County water and waste services.
I. ntk - Need to know - management style to be defined
J. seg - Snell Environmental Group team - program consultants for preparation of the dwrf project plan

K. udm - Ultimate Decision Maker - That individual or group at the lowest organizational level who can make a final binding decision in any project related matter
L. wps - Water Plant Supervisor

V. Glossary of terms

A. Agency authority
A relation in which one person or organization acts on behalf of another with the other person's or organization's formal authority.

B. Approval
An official or formal consent, confirmation, or sanction.

C. Authority
The prerogatives, either vested or acquired over a long period of time, that allow an individual to carry out their responsibilities and duties. This includes the right to determine, adjudicate, or otherwise settle issues or disputes; the right to control, command, or determine.

D. Bulletin
An official notice that a change is being considered and that it is desired that those affected parties to the contract provide an estimate of the cost of the proposed change. The bulletin is often given other names such as change estimate request, request for proposal, or proposed change notice.

E. Change order
An official notice that the changes specified in the change order are to be done. A properly executed change order is a revision to the scope of work and the contract documents.

F. Close out
The process of completing a construction project. Usually extends from the start of preparing the contractor's punch list through receipt of final payment to the designers and constructors. May occasionally extend through the warranty period.

G. Commissioning
An inspection and testing system designed to independently evaluate a facility mechanical or electrical system to insure that its installation and performance is in conformance with the requirements of the contract documents.

H. Construction record documents
A set of annotated contract documents showing the as-constructed sizes and locations of all elements of the project which differ from the original, and subsequently issued contract documents. As-built drawings are generally called construction record drawings or documents.

I. Construction services contract
A legally enforceable oral or written agreement between two or more parties specifying construction-related services to be provided by one or more of the parties to other contract parties. The services generally relate to services that directly concern the relation, nature, cost, performance, or installation of specified work into specific facilities construction.

J. Constructive change
An owner's action or inaction that has the same effect as a written directive.

c) Group 3 milestones - engineering in nature
   (1) 04/10/1998 (327) - submit draft plans & specs - cof
   (2) 05/08/1998 (347) - mdeq comment on plans and specs
   (3) 06/05/1998 (366) - cof submit final plans and specs
   (4) 06/30/1998 (383) - mdeq issue construction permit
d) Group 4 milestones - procedural in nature
   (1) 06/02/1998 (363) - cof submit dwrf application part 1
   (2) 06/30/1998 (383) - cof submit dwrf application part 2
   (3) 08/17/1998 (416) - cof submit dwrf application part 3
e) Group 5 milestones - procurement of services
   (1) 07/04/1998 (385) - cof publish bid advertisement
   (2) 08/04/1998 (407) - cof open bids
   (3) 08/11/1998 (412) - tentative cof award of contract
f) Approval
   (1) 08/27/1998 (424) - mdeq issue order of approval

B. Project phases
   1. Existing water plant #2 rehabilitation
      a) General characteristics
         (1) Stand alone project
         (2) Financing has been applied for from the dwrf.
         (3) Project is required to meet the mdeq reliability standards
         (4) Target date for completion is for the rehabilitated plant to be operational on or before 04/01/2001 (1086±)
         (5) Capacity of plant = 36.0 mgd
         (6) Source of water - Flint River (adaptable for use with Lake Huron water)
      b) Assumptions
         (1) There is adequate water in the Flint River watershed to provide 36.0 mgd indefinitely.
         (2) The quality of the raw Flint River water has improved to the point where it can now be treated to meet all current and anticipated drinking water standards as defined by the epa
         (3) The plant will be designed to incorporate expansion to 72.0 mgd in the event that a joint water supply utility is formed.
         (4) .....
      c) mdeq milestones for funding approval under dwrf (taken from page 3 of letter from mdeq to the City of Flint and dated 12/23/1997 (250)
         (1) Group 1 milestones - environmental in nature
            (a) 01/02/1998 (257) - project plan submitted to mdeq by cof
            (b) 02/13/1998 (287) - mdeq comments on project plan submittal
            (c) 03/27/1998 (317) - submittal of final project plan by cof

K. Consulting services contract
A legally enforceable oral or written agreement between two or more parties specifying design and construction related services to be provided by one or more of the parties to other contract parties.

L. Contingency
A program of action set out against the possibility that an unlikely or unintended event may occur.

M. Contract document matrix
A two dimensional grid in which the rows contain action items for the various project components and the columns usually designate the geographic location of the item. At the intersection of a row and a column is inserted the designation of the contract document package in which the information is contained.

N. Contract documents
Usually considered to be the documents which provide the full definition of the scope of work for which the parties are legally responsible. Could include the agreement, the drawings, the specifications, instructions to bidders, addendum, and any other material included by mutual agreement and clearly identified as part of the contract.

O. Coordinate
To harmonize in a common action or effort. Many design and construction consultants recommend the word not be used in contracts since it has indistinct meanings as related to management in design and construction.

P. Critical path method
A mathematical modeling technique which allows the user to establish ranges within which resources can or must be used.

Q. Diary
Similar to a log but dealing more with personal observations of the individual writing it relative to his feelings about the job and the people.

R. Differing site conditions
Where actual site conditions differ materially from those indicated in the contract documents; or where unknown physical conditions at the site differ materially from those ordinarily expected to be encountered in work of the nature contemplated by the contract.

S. Directed change
A written or verbal change that falls within the scope of the contract. The owner has the responsibility of paying for the change.

T. Early finish (EF)
The earliest possible date by which a task can finish in a network model if it has been started at its early start date.

U. Early start (ES)
The earliest possible date at which a task can begin in a network model if all tasks immediately preceding it have been completed by their early finish dates.

V. Elapsed duration
The estimated or actual amount of calendar or clock time an activity requires to accomplish, considering all direct and indirect influences upon the task's activities. Includes temporary work delays and stoppage due to influencing actions on the task.

W. Engineer or architect of record
The legally licensed architect or engineer who oversees the production of drawings and specifications from which something is to be built. The architect or engineer of record is usually required to sign and seal the documents and is liable for their correctness.

X. Everyone-must-know communications
An organizational communications system based on the managerial belief that if everyone in the organization knows what all or most other people in the organization are doing and working on, the organization's overall output quality will be superior.

Y. Field order
An official notice that the actions or changes described in the field order are to be done. The field order is usually issued only in emergency situations where the time between decision and action does not permit issuance of a bulletin followed by a change order. A method of payment is usually specified in the field order.

Z. ***Force majeure***
An unexpected or uncontrollable event.

AA. Incentive-disincentive system
A payment system used in construction to pay a bonus or incentive to a contract party for performing their work in a superior manner to that specified. The bonus may relate to cost, time, quality, safety, or other such measurable component of the total job performance. If the standards set are not reached by a measurable point on the project, a disincentive is triggered where the contract party is penalized for inferior performance on the project.

AB. Isoquant line
A line drawn on a network model and connecting some or all equal date or resource points on the activities shown. The date isoquant line is the equivalent of a straight line in a time scaled bar chart.

AC. Joint water supply utility
An entity which is or may be created by the City of Flint and Genesee County to supply drinking water to customers in the Flint Metropolitan Area.

AD. Late finish (LF)
The latest allowable date by which a task can be completed in a network model without forcing those tasks that follow past their latest allowable start dates.

AE. Late start (LS)
The latest allowable date by which a task can be started in a network model without forcing those tasks that follow past their latest allowable starting dates.

AF. Laundry list
A list of items, usually at random, that are to be classified, rearranged and used to build specifically sequenced tabulations, network models, narrative schedules or other systems of which the items in the laundry list are a component.

AG. Life cycle cost
The total cost of a system over its entire defined life.

AH. Limited agent
The individual or organization acting as an agent and authorized to do only what is specified or what is reasonable to believe the principal wants done. A contract can be used to define the amount of authority to be granted an agent.

AI. Liquidated damages
The amount established by the parties to a contract which must be paid, by one or either of the parties, in the event of a default or a breach. Is related to the damages suffered by late performance.

AJ. Log
A permanently bound, dated, hand written record of job related events that have occurred on a project. The log is usually in ink, and is maintained by an individual in responsible charge of the work with which the record deals.

AK. Manage
To define, assemble and direct the application of resources.

AL. Monitoring
Measurement of current project conditions and position against the standards of performance set for the job.

AM. Must list
Those items that must be included in the scope of work to make the project a go. If any of the items in the must list are not able to be included the project is a no-go.

AN. Need-to-know communications
An organizational communications system based on the managerial belief that information should only be offered and provided to those who truly need it and can use it to add value to the product they are responsible for producing.

AO. Network
A system of interconnected, interacting components. Usually a part of an open system.

AP. Network plan
A graphic statement of the action standard of performance to be used in achieving project objectives.

AQ. Network planning
A graphic technique of showing necessary and desired actions needed to achieve end, intermediate and peripheral objectives.

AR. Over-the-wall management
A management style which subscribes to the actions of participants completing their work responsibilities and duties, and then passing the work product along to others (or throwing it over the wall) without adequate briefing for the successors to do their work effectively. Often identified by statements such as "We did our job and now they can do theirs", or, "That's not my job."

AS. Owner furnished items
Those items furnished by the owner according to the contract documents.

AT. Performance document
A document which provides information as to the performance desired and the amount that is to be spent.

Compare to prescriptive -oriented documents which provides detailed information as to the methods and means by which something is to be done or produced.

AU. Planning - in the management sense
Establishing and arranging necessary and desired actions leading to end, intermediate and peripheral objectives.

AV. Prequalified engineering consultant

Those engineering individuals, firms, or teams of firms that have been deemed qualified for consideration for work related to the Lake Huron Water Supply program: This, as a result of preparing and submitting an approved statement of qualifications in answer to a request for qualifications from the Pipeline Advisory Committee in July, 1997.

1. SEG
2. MPS
3. CTE

AW. Prescriptive document

A document which provides detailed information as to the methods and means by which something is to be done or produced. The document explicitly identifies the material and equipment components of the finished product.

Compare to performance-oriented documents which describe the performance desired and the amount that is to be spent to achieve the performance in the finished product.

AX. Prime contractor

A contractor whose business agreement is directly with the organization providing primary financing for the project.

AY. Proforma - in real estate development

A financial model unusually built early in a construction program to show by projecting income and expenses, how the money flow to and from the project will occur. It is often used to establish the capital amount to be allocated to a project based on simulated operating conditions. The term pro forma means according to form.

AZ. Project director

The individual responsible for implementation of several projects upon which his company is engaged.

BA. Project manager

One who helps establish objectives generated by a need, plans how these objectives are to be reached through a set of work actions, and then assembles and directs the application of available resources to achieve the objectives on one or more projects.

Usually the project manager is most concerned with supportive actions which bring resources to the point of effective use.

BB. Project plan

The document required by the dwrf describing a project application for funding. This is the plan which has been prepared by SEG for the City of Flint and dated 12/27/1997 (253).

BC. Project superintendent

The manager involved in the actual construction process and most directly responsible for the expenditure of funds to carry out the project. Usually the superintendent is responsible for field execution of the work.

BD. Regulators

Those who fill a review & inspection position to help insure protection of the health, safety, & welfare of the people. This is usually done by enforcing regulations written and adopted by qualified public or private bodies. Examples of regulators include those who work for building departments, departments of natural resources, public health agencies, fire prevention organizations, technical societies and other such groups.

BE. Risk

Any exposure to the possibility of harm, danger, loss or damage to people, property, or other interest. To expose to a chance of loss or damage.

BF. Risk management

The management and conservation of a firm's assets and earning power against the occurrence of accidental loss.

BG. Schedule

A graphic or written tabulation of project activities showing where the activities are to start and finish. The schedule is derived from the plan of action and the network model by locking the tasks and the resources they require into a specific time position.

BH. Shop drawing

A submittal in the form of a drawing, usually made specially for the application shown. Shop drawings usually show details of fabrication and installation.

BI. Specification

A narrative description of the various materials and systems to be incorporated in the work. The specification concentrates on identifying quality of materials, source of materials, allowable practices, and general requirements and conditions of the contract performance.

BJ. Standard of performance

A well defined, explicitly stated, approved and accepted statement of the measurements to be used as a gage of performance, and goal and objective achievement.

BK. Sub contractor

A contractor whose business agreement is directly with a prime contractor

BL. Submittal

Any document submitted by contracting parties to the owner's agents for review for accuracy, responsibility of design, general arrangement, and approval. Submittals are used by the fabricator and the installer to show adequate details so the intent of the contract documents can be achieved. There is a mild ongoing professional controversy as to whether approved submittals are contract documents. Generally they are not considered contract documents, but aids to better fabrication and installation procedures.

BM. Termination

The dismissal of a contractor, from a project, for convenience, resulting from factors beyond the contractor's control, or for default when the contractor's performance is not acceptable.

BN. Total float (TF)

The amount of discretionary time available to a task. The total float is the difference between the early and late starts or finishes. Formally, it is defined as the duration of the task, subtracted from the difference between the late finish (LF) and the early start (ES): i.e. (LF-ES)-DURATION=TF.

BO. Training

The teaching and learning process by which specific, explicit methods and systems of doing something, usually by rote, are conveyed to the learner.

BP. Turn key

A project delivery system in which a single contractor is given the total responsibility to plan, design, construct, and turn the key over to the owner upon its completion. Often, a turnkey contractor will provide land and financing, and in some cases, operate the facility for a specified time after construction.

BQ. Ultimate decision maker (UDM)
The individual or group at the lowest management level that has the authority to make a final binding decision in any job related matter.

BR. Unilateral meetings
A decision meeting at which only a portion of the parties affected are invited to participate.

BS. Value engineering
An engineering and architectural cost analysis process designed to achieve minimum total cost while maintaining maximum product quality within the price constraints.

BT. Want list
Those items that are wanted and can be included in the scope of work, over and above the must list items, since they provide a definable and acceptable rate of return on their cost.

BU. Wish list
Those items that the owner and the user wish they could include but might not be able to due to budgetary or other reasons. Wish list items are best added, not deleted, as the project moves into construction.

BV. Working drawings
The set of contract drawings that pictorially show the intended appearance of a job when complete.

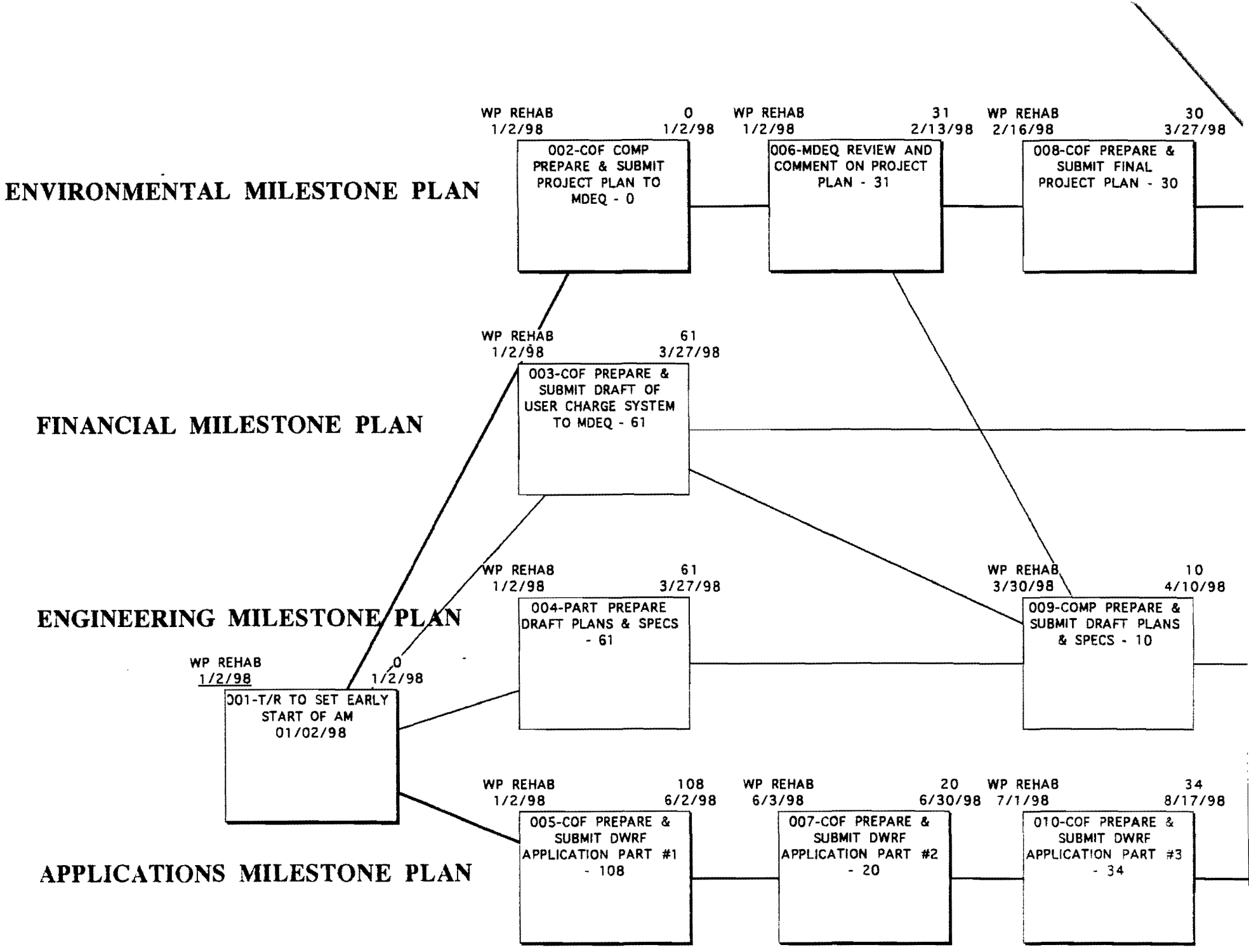
BW. World of nonwords
The world in which we live by our physical actions.

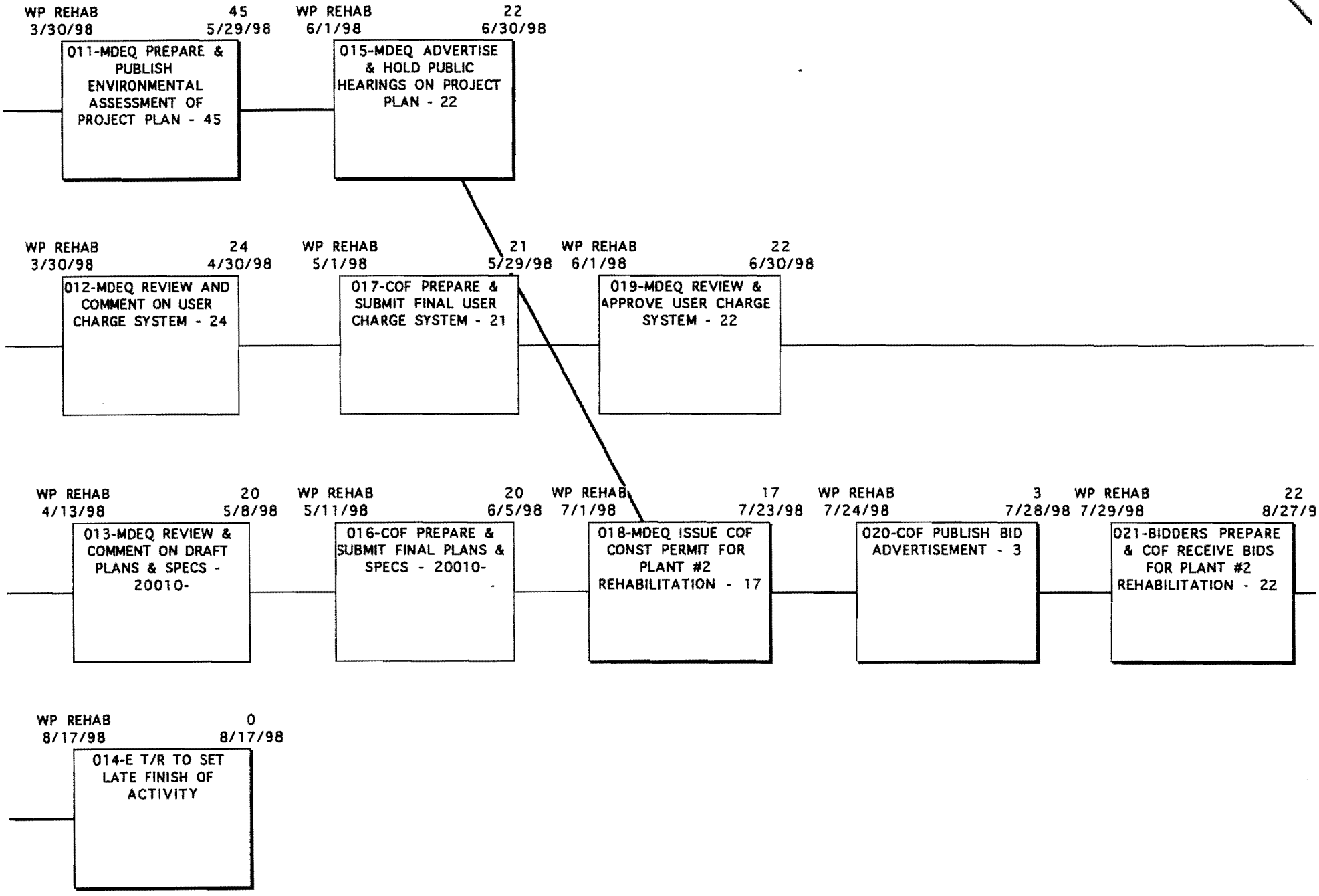
BX. World of words
The world in which we live by simulating actions through words and other symbols what might happen in the world of nonwords.

VI. **Reference material**

VII. **General notes (these are to be updated as the project work proceeds**
- A. Those involved
- B. Factors to be considered in the dwsd contract expiration event:
  1. Is plant #2 operational at the time of the contract expiration (12/01/2000)

VIII. **Meeting #1**
- A. Date of meeting - Thursday, January 8,1998 (260)
- B. Number of days remaining until dwsd contract expiration - 742 working days
- C. Those attending
  1.
- D. Agenda
  1. Prepare key date tabulation
  2. Begin preparation of laundry list for plant #2 rehabilitation
  3. Identify requirements for plant being brought on line


ENVIRONMENTAL MILESTONE PLAN
FINANCIAL MILESTONE PLAN
ENGINEERING MILESTONE PLAN
APPLICATIONS MILESTONE PLAN
WP REHAB 1/2/98 0 1/2/98
001-T/R TO SET EARLY START OF AM 01/02/98
WP REHAB 1/2/98 0 1/2/98
002-COF COMP PREPARE & SUBMIT PROJECT PLAN TO MDEQ - 0
WP REHAB 1/2/98 61 3/27/98
003-COF PREPARE & SUBMIT DRAFT OF USER CHARGE SYSTEM TO MDEQ - 61
WP REHAB 1/2/98 61 3/27/98
004-PART PREPARE DRAFT PLANS & SPECS - 61
WP REHAB 1/2/98 108 6/2/98
005-COF PREPARE & SUBMIT DWRF APPLICATION PART #1 - 108
WP REHAB 1/2/98 31 2/13/98
006-MDEQ REVIEW AND COMMENT ON PROJECT PLAN - 31
WP REHAB 6/3/98 20 6/30/98
007-COF PREPARE & SUBMIT DWRF APPLICATION PART #2 - 20
WP REHAB 2/16/98 30 3/27/98
008-COF PREPARE & SUBMIT FINAL PROJECT PLAN - 30
WP REHAB 3/30/98 10 4/10/98
009-COMP PREPARE & SUBMIT DRAFT PLANS & SPECS - 10
WP REHAB 7/1/98 34 8/17/98
010-COF PREPARE & SUBMIT DWRF APPLICATION PART #3 - 34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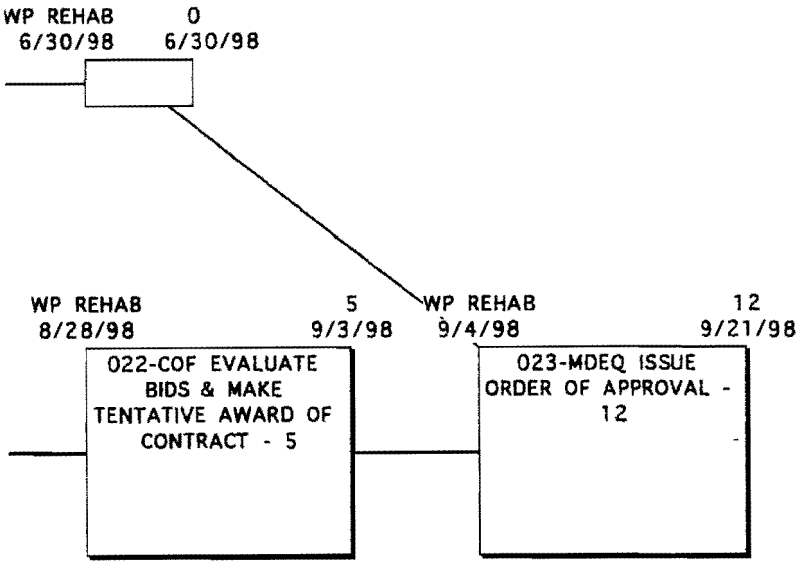
3/30/98
45
5/29/98
011-MDEQ PREPARE & PUBLISH ENVIRONMENTAL ASSESSMENT OF PROJECT PLAN - 45
WP REHAB
6/1/98
22
6/30/98
015-MDEQ ADVERTISE & HOLD PUBLIC HEARINGS ON PROJECT PLAN - 22
WP REHAB
3/30/98
24
4/30/98
012-MDEQ REVIEW AND COMMENT ON USER CHARGE SYSTEM - 24
WP REHAB
5/1/98
21
5/29/98
017-COF PREPARE & SUBMIT FINAL USER CHARGE SYSTEM - 21
WP REHAB
6/1/98
22
6/30/98
019-MDEQ REVIEW & APPROVE USER CHARGE SYSTEM - 22
WP REHAB
4/13/98
20
5/8/98
013-MDEQ REVIEW & COMMENT ON DRAFT PLANS & SPECS - 20010-
WP REHAB
5/11/98
20
6/5/98
016-COF PREPARE & SUBMIT FINAL PLANS & SPECS - 20010-
WP REHAB
7/1/98
17
7/23/98
018-MDEQ ISSUE COF CONST PERMIT FOR PLANT #2 REHABILITATION - 17
WP REHAB
7/24/98
3
7/28/98
020-COF PUBLISH BID ADVERTISEMENT - 3
WP REHAB
7/29/98
22
8/27/9
021-BIDDERS PREPARE & COF RECEIVE BIDS FOR PLANT #2 REHABILITATION - 22
WP REHAB
8/17/98
0
8/17/98
014-E T/R TO SET LATE FINISH OF ACTIVITY



INFORMATION SHOWN ON THIS NETWORK MODEL WAS DERIVED FROM MDEQ/DWRF PROJECT MILESTONE SCHEDULE DATED 12/23/97

SUMMARY NETWORK MODEL FOR EXISTING WATER PLANT #2 REHABILITATION

City of Flint Water Treatment Plant - Flint,Michigan

Ralph J. Stephenson P.E.
Consulting Engineer
323 Hiawatha Drive
Mt. Pleasant, Michigan 48858
ph 517 772 2537

SHEET #1

COF Water - Lake Huron Water Supply (LHWS)

I. **General notes (these are to be updated as the project work proceeds)**
   A. COF Water - Lake Huron Water Supply (LHWS)
      1. Those involved
         a) Burke, Weaver and Prell - Legal Counsel
            Report to the Pipeline Advisory Committee and are paid directly by the City of Flint and Genesee County.
            (1) Clifford Weaver - Principal
            (2) Maureen Crowley - Partner
         b) City of Flint
            (1) Water Plant Staff
               (a) Robert Carlyon - Water Plant Supervisor
               (b) Dave Jansen- Assistant Water Plant Supervisor
               (c) Jeff Bryson - Water Plant Facilities Engineer
            (2) Pipeline Advisory Committee - voting members
               Joint city-county committee (see Genesee County below)
               (a) David Ready - City Administrator
               (b) Scott Kincaid - Council President
               (c) Jack Minore - Councilman (3/2/99 - not on committee - now a state representative)
               (d) Robert Carlyon - Water Plant Supervisor
            (3) Ex officio Pipeline Advisory Committee members - non voting members
               (a) Karen McDonald - City Attorney
               (b) Dave Jansen- Assistant Water Plant Supervisor
            (4) City administration
               (a) Mayor Woodrow Stanley - Mayor
               (b) H. Jack Sargent - DPW director (3/2/99 - took position in early November 1998)
               (c) Marc Puckett - Finance Director (3/2/99 - has left position)
               (d) Matt Grady - Budget Director (3/2/99 - is acting Finance Director)
               (e) David Ready - City Administrator and Acting DPW Director (as of December 1, 1997 (234) - the effective date of J.B. Jones resignation on the pm of Friday, November 28, 1997 (234)). In addition Mr. Ready is the City of Flint's authorized representative on the Drinking Water Revolving Fund project. (3/2/99 no longer acting DPW director)

c) Drinking Water Revolving Fund team
   (1) David Ready - City Administrator and Acting DPW Director (as of December 1, 1997 (234) - the effective date of J.B. Jones resignation on the pm of Friday, November 28, 1997 (234)). Mr. Ready is the City of Flint's authorized representative on the Drinking Water Revolving Fund project. (3/2/99 no longer acting DPW director)
   (2) Robert Carlyon - Water Plant Supervisor and alternate representative and project manager for the Drinking Water Revolving Fund project
   (3) John O'Malia - Snell Environmental - consultant who prepared the project plan submitted by the City of Flint to MDEQ - on 01/02/98 (257)
   (4) Mark Puckett - City of Flint Finance Director (has left position)
   (5) Matt Grady - Budget Director (3/2/99 - is acting Finance Director)

d) Genesee County
   Joint city-county committee (see COF above)
   (1) Drain Commissioner's staff
      (a) Ken Hardin - Genesee County Drain Commissioner
      (b) Jake Schamberger - Director of Water and Waste Services (3/2/99 retired and was replaced by John O'Brien - Director of Water & Waste)
      (c) John O'Brien - Director of Water & Waste
   (2) Pipeline Advisory Committee (county members) - voting members
      (a) Tim Herman - Commissioner - 1998 chair Board of Commissioners
      (b) JohnGleason - Commissioner - 1998 vice chair Board of Commissioners
      (c) FredShaltz - Commissioner
      (d) Bob Myers - Commissioner
   (3) Ex officio Pipeline Advisory Committee members - non voting members
      (a) Ken Hardin - Genesee County Drain Commissioner
      (b) Jake Schamberger - Director of Water and Waste Services ((3/2/99 retired and was replaced by John O'Brien - Director of Water & Waste)
      (c) Leonard Smorch - County Comptroller
      (d) Ward Chapman - County Attorney
      (e) John O'Brien - Director of Water & Waste
   (4) County administration
      (a) Dan Harrel - ?

e) Michigan Department of Environmental Quality
   (1) Jim Cleland - Assistant Chief, Drinking Water and Radiological Protection Division - technical issues
   (2) Tom Kamppenin - Chief, Municipal Facilities Section - Environmental Assistance Division - administrative issues
   (3) Flint Watt - Chief, Drinking Water and Radiological Protection Division - supervisor

f) Michigan Municipal Bond Authority
   (1) Janet Hunter-Moore - Executive Director - financial issues involving the Drinking Water Fund

g) Public Sector Consultants - Public Relations
   Report to the Pipeline Advisory Committee and are paid directly by the City of Flint and Genesee County.
   (1) Craig Ruff - President
   (2) Nick Khoury - Consultant

h) Snell Environmental Group team
   The Snell Environmental Group is under contract to the City of Flint for preparation of a project plan under the drinking water revolving fund. Reports to Robert Carlyon.
   (1) Snell Environmental
      (a) John O'Malia - Project Director
   (2) Prein and Newhof
      (a) Thomas Newhof
   (3) Alvord Burdick and Howson
      (a) James Hedges - Partner
      (b) Warren Green - Partner

i) Warner Norcross and Judd - Legal consultants
   (1) Mike Robinson
   (2) Dan Dewitt

j) Bond counsel - 3/2/99 - information not available

k) Financing consultant - 3/2/99 information not available

2. Factors to be considered in the dwsd contract expiration event:
   a) Is plant #2 operational at the time of the contract expiration (12/01/2000) (3/2/99 answer currently is no)
   b) 3/2/99 - looks like phase 1 of water plant rehab will be underway by 12/01/2000/
3. Characteristics of project
   a) Key dates
      (1) 12/01/2000 (1002)- Detroit contract expiration date

(2) 10/01/1998 (447) - Required ground breaking date for project finance by the dwrf
(3) mdeq milestones for funding approval under dwrf (taken from page 3 of letter from mdeq to the City of Flint and dated 12/23/1997 (250)
  (a) Group 1 milestones - environmental in nature
    i) 01/02/1998 (257) - project plan submitted to mdeq by cof
    ii) 02/13/1998 (287) - mdeq comments on project plan submittal
    iii) 03/27/1998 (317) - submittal of final project plan by cof
    iv) 05/29/1998 (361) - publication of environmental assessment (of project plan) by mdeq
    v) 06/30/1998 (383) - public notice clearance (what is this? end of public comment period?)
  (b) Group 2 milestones - financial in nature
    i) 03/27/1998 (317) - submit draft user charge system - cof
    ii) 04/30/1998 (341) - mdeq comments on user charge systems
    iii) 05/29/1998 (361) - submit final user charge system - cof
    iv) 06/30/1998 (383) - mdeq approve user charge system
  (c) Group 3 milestones - engineering in nature
    i) 04/10/1998 (327) - submit draft plans & specs - cof
    ii) 05/08/1998 (347) - mdeq comment on plans and specs
    iii) 06/05/1998 (366) - cof submit final plans and specs
    iv) 06/30/1998 (383) - mdeq issue construction permit
  (d) Group 4 milestones - procedural in nature
    i) 06/02/1998 (363) - cof submit dwrf application part 1
    ii) 06/30/1998 (383) - cof submit dwrf application part 2
    iii) 08/17/1998 (416) - cof submit dwrf application part 3
  (e) Group 5 milestones - procurement of services
    i) 07/04/1998 (385) - cof publish bid advertisement
    ii) 08/04/1998 (407) - cof open bids
    iii) 08/11/1998 (412) - tentative cof award of contract
  (f) Approval
    i) 08/27/1998 (424) - mdeq issue order of approval
(4) Similar milestones for DWRF funding in FY-99

b) Project phases
  (1) Existing water plant #2 rehabilitation
    (a) General characteristics
      i) Stand alone project
      ii) Financing has been applied for from the dwrf.

iii) Project is required to meet the mdeq reliability standards
iv) Target date for completion is for the rehabilitated plant to be operational on or before 04/01/2001 (1086±)
v) Capacity of plant = 36.0 mgd
vi) Source of water - Flint River (adaptable for use with Lake Huron water)

(b) Assumptions
i) There is adequate water in the Flint River watershed to provide 36.0 mgd indefinitely.
ii) The quality of the raw Flint River water has improved to the point where it can now be treated to meet all current and anticipated drinking water standards as defined by the epa
iii) The plant will be designed to incorporate expansion to 72.0 mgd in the event that a joint water supply utility is formed.
iv) .....

(c) mdeq milestones for funding approval under dwrf (taken from page 3 of letter from mdeq to the City of Flint and dated 12/23/1997 (250)
i) Group 1 milestones - environmental in nature
(1) 01/02/1998 (257) - project plan submitted to mdeq by cof
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(1) 03/27/1998 (317) - submit draft user charge system - cof
(2) 04/30/1998 (341) - mdeq comments on user charge systems
(3) 05/29/1998 (361) - submit final user charge system - cof
(4) 06/30/1998 (383) - mdeq approve user charge system
iii) Group 3 milestones - engineering in nature
(1) 04/10/1998 (327) - submit draft plans & specs - cof
(2) 05/08/1998 (347) - mdeq comment on plans and specs

(3) 06/05/1998 (366) - cof submit final plans and specs
(4) 06/30/1998 (383) - mdeq issue construction permit

iv) Group 4 milestones - procedural in nature
(1) 06/02/1998 (363) - cof submit dwrf application part 1
(2) 06/30/1998 (383) - cof submit dwrf application part 2
(3) 08/17/1998 (416) - cof submit dwrf application part 3

v) Group 5 milestones - procurement of services
(1) 07/04/1998 (385) - cof publish bid advertisement
(2) 08/04/1998 (407) - cof open bids
(3) 08/11/1998 (412) - tentative cof award of contract

vi) Approval
(1) 08/27/1998 (424) - mdeq issue order of approval

4. Abbreviations
a) acd - Legal actions - negotiation of water purchase contract between the Authority and dwsd
b) bwp - Burke, Weaver Prell
c) cof - City of Flint
d) dwrf - Drinking Water Revolving Fund - State of Michigan
e) emk - everyone must know - management style to be defined
f) epa - Evironmental Protection Agency
g) fgwa - Flint Genesee Water Authority
h) fxd - Legal actions - extension of water purchase contract with dwsd
i) gco - Genesee County
j) lfa - Legal actions - formation of Authority
k) lhws - Lake Huron Water Supply
A joint program between the City of Flint and Genesee County designed to explore the implementation of a Lake Huron water supply utility that will serve water customers in the Flint Metropolitan Area. The lhws anticipates that the service area may be expanded or contracted as the demand changes during the next few years. Presently however the design service area consists of the present customers of the City of Flint and Genesee County water and waste services.
l) lws - Legal actions - preparation of Authority water supply contract
m) mdeq - Michigan Department of Environmental Quality
n) mgd - million gallons per day
o) mmba - Michigan Municipal Bond Authority
p) ntk - Need to know - management style to be defined
q) psc - Public Sector Consultants - Public Relations
r) seg - Snell Environmental Group team - program consultants for preparation of the dwrf project plan

s) udm - Ultimate Decision Maker - That individual or group at the lowest organizational level who can make a final binding decision in any project related matter
t) wnj - Warner Norcross and Judd - Legal consultants
u) wps - Water Plant Supervisor

5. Glossary of terms
   a) Agency authority
      A relation in which one person or organization acts on behalf of another with the other person's or organization's formal authority.
   b) Approval
      An official or formal consent, confirmation, or sanction.

   c) Authority - the action of authority
      The prerogatives, either vested or acquired over a long period of time, that allow an individual to carry out their responsibilities and duties. This includes the right to determine, adjudicate, or otherwise settle issues or disputes; the right to control, command, or determine.
   d) Authority - the managing entity for future water supply function
      The Flint Genesee Water Authority as formed under Act 233 by the City of Flint and Genesee County
   e) Bulletin
      An official notice that a change is being considered and that it is desired that those affected parties to the contract provide an estimate of the cost of the proposed change. The bulletin is often given other names such as change estimate request, request for proposal, or proposed change notice.
   f) Change order
      An official notice that the changes specified in the change order are to be done. A properly executed change order is a revision to the scope of work and the contract documents.
   g) Close out
      The process of completing a construction project. Usually extends from the start of preparing the contractor's punch list through receipt of final payment to the designers and constructors. May occasionally extend through the warranty period.
   h) Commissioning
      An inspection and testing system designed to independently evaluate a facility mechanical or electrical system to insure that its installation and performance is in conformance with the requirements of the contract documents.

i) Construction record documents
A set of annotated contract documents showing the as-constructed sizes and locations of all elements of the project which differ from the original, and subsequently issued contract documents. As-built drawings are generally called construction record drawings or documents.

j) Construction services contract
A legally enforceable oral or written agreement between two or more parties specifying construction-related services to be provided by one or more of the parties to other contract parties. The services generally relate to services that directly concern the relation, nature, cost, performance, or installation of specified work into specific facilities construction.

k) Constructive change
An owner's action or inaction that has the same effect as a written directive.

l) Consulting services contract
A legally enforceable oral or written agreement between two or more parties specifying design and construction related services to be provided by one or more of the parties to other contract parties.

m) Contingency
A program of action set out against the possibility that an unlikely or unintended event may occur.

n) Contract document matrix
A two dimensional grid in which the rows contain action items for the various project components and the columns usually designate the geographic location of the item. At the intersection of a row and a column is inserted the designation of the contract document package in which the information is contained.

o) Contract documents
Usually considered to be the documents which provide the full definition of the scope of work for which the parties are legally responsible. Could include the agreement, the drawings, the specifications, instructions to bidders, addendum, and any other material included by mutual agreement and clearly identified as part of the contract.

p) Coordinate
To harmonize in a common action or effort. Many design and construction consultants recommend the word not be used in contracts

since it has indistinct meanings as related to management in design and construction.

q) Critical path method
A mathematical modeling technique which allows the user to establish ranges within which resources can or must be used.

r) Customer
Those water systems which purchase Authority-treated water.

s) Diary
Similar to a log but dealing more with personal observations of the individual writing it relative to his feelings about the job and the people.

t) Differing site conditions
Where actual site conditions differ materially from those indicated in the contract documents; or where unknown physical conditions at the site differ materially from those ordinarily expected to be encountered in work of the nature contemplated by the contract.

u) Directed change
A written or verbal change that falls within the scope of the contract. The owner has the responsibility of paying for the change.

v) Early finish (EF)
The earliest possible date by which a task can finish in a network model if it has been started at its early start date.

w) Early start (ES)
The earliest possible date at which a task can begin in a network model if all tasks immediately preceding it have been completed by their early finish dates.

x) Elapsed duration
The estimated or actual amount of calendar or clock time an activity requires to accomplish, considering all direct and indirect influences upon the task's activities. Includes temporary work delays and stoppage due to influencing actions on the task.

y) Engineer or architect of record
The legally licensed architect or engineer who oversees the production of drawings and specifications from which something is to be built. The architect or engineer of record is usually required to sign and seal the documents and is liable for their correctness.

z) Everyone-must-know communications
An organizational communications system based on the managerial belief that if everyone in the organization knows what all or most other

people in the organization are doing and working on, the organization's overall output quality will be superior.

aa) Field order
An official notice that the actions or changes described in the field order are to be done. The field order is usually issued only in emergency situations where the time between decision and action does not permit issuance of a bulletin followed by a change order. A method of payment is usually specified in the field order.

ab) ***Force majeure***
An unexpected or uncontrollable event.

ac) Incentive-disincentive system
A payment system used in construction to pay a bonus or incentive to a contract party for performing their work in a superior manner to that specified. The bonus may relate to cost, time, quality, safety, or other such measurable component of the total job performance. If the standards set are not reached by a measurable point on the project, a disincentive is triggered where the contract party is penalized for inferior performance on the project.

ad) Isoquant line
A line drawn on a network model and connecting some or all equal date or resource points on the activities shown. The date isoquant line is the equivalent of a straight line in a time scaled bar chart.

ae) Joint water supply utility
An entity which is or may be created by the City of Flint and Genesee County to supply drinking water to customers in the Flint Metropolitan Area.

af) Late finish (LF)
The latest allowable date by which a task can be completed in a network model without forcing those tasks that follow past their latest allowable start dates.

ag) Late start (LS)
The latest allowable date by which a task can be started in a network model without forcing those tasks that follow past their latest allowable starting dates.

ah) Laundry list
A list of items, usually at random, that are to be classified, rearranged and used to build specifically sequenced tabulations, network models, narrative schedules or other systems of which the items in the laundry list are a component.

ai) Life cycle cost
The total cost of a system over its entire defined life.

aj) Limited agent
The individual or organization acting as an agent and authorized to do only what is specified or what is reasonable to believe the principal wants done. A contract can be used to define the amount of authority to be granted an agent.

ak) Liquidated damages
The amount established by the parties to a contract which must be paid, by one or either of the parties, in the event of a default or a breach. Is related to the damages suffered by late performance.

al) Log
A permanently bound, dated, hand written record of job related events that have occurred on a project. The log is usually in ink, and is maintained by an individual in responsible charge of the work with which the record deals.

am) Manage
To define, assemble and direct the application of resources.

an) Monitoring
Measurement of current project conditions and position against the standards of performance set for the job.

ao) Must list
Those items that must be included in the scope of work to make the project a go. If any of the items in the must list are not able to be included the project is a no-go.

ap) Need-to-know communications
An organizational communications system based on the managerial belief that information should only be offered and provided to those who truly need it and can use it to add value to the product they are responsible for producing.

aq) Network
A system of interconnected, interacting components. Usually a part of an open system.

ar) Network plan
A graphic statement of the action standard of performance to be used in achieving project objectives.

as) Network planning
A graphic technique of showing necessary and desired actions needed to achieve end, intermediate and peripheral objectives.

at) New definitions to be added to existing list
  (1) From Flint City Council supporting resolutions dated 12/08/97 (239) (Resolution #971656) and approving resolution dated 01/26/98 (273) (Resolution #980123).
    (a) Final project plan
    (b) Resolution
    (c) Resolution supporting implementation (does not identify funding sources)
    (d) Resolution approving implementation (identifies funding source)
    (e) Pledge to support (financing)
    (f) Authorize the provision (financing)

au) Over-the-wall management
A management style which subscribes to the actions of participants completing their work responsibilities and duties, and then passing the work product along to others (or throwing it over the wall) without adequate briefing for the successors to do their work effectively. Often identified by statements such as "We did our job and now they can do theirs", or, "That's not my job."

av) Owner furnished items
Those items furnished by the owner according to the contract documents.

aw) Performance document
A document which provides information as to the performance desired and the amount that is to be spent.

Compare to prescriptive -oriented documents which provides detailed information as to the methods and means by which something is to be done or produced.

ax) Planning - in the management sense
Establishing and arranging necessary and desired actions leading to end, intermediate and peripheral objectives.

ay) Prequalified engineering consultant
Those engineering individuals, firms, or teams of firms that have been deemed qualified for consideration for work related to the Lake Huron Water Supply program: This, as a result of preparing and submitting an approved statement of qualifications in answer to a request for qualifications from the Pipeline Advisory Committee in July, 1997.
  (1) SEG

(2) MPS
(3) CTE

az) Prescriptive document
A document which provides detailed information as to the methods and means by which something is to be done or produced. The document explicitly identifies the material and equipment components of the finished product.

Compare to performance-oriented documents which describe the performance desired and the amount that is to be spent to achieve the performance in the finished product.

ba) Prime contractor
A contractor whose business agreement is directly with the organization providing primary financing for the project.

bb) Proforma - in real estate development
A financial model unusually built early in a construction program to show by projecting income and expenses, how the money flow to and from the project will occur. It is often used to establish the capital amount to be allocated to a project based on simulated operating conditions. The term pro forma means according to form.

bc) Project director
The individual responsible for implementation of several projects upon which his company is engaged.

bd) Project manager
One who helps establish objectives generated by a need, plans how these objectives are to be reached through a set of work actions, and then assembles and directs the application of available resources to achieve the objectives on one or more projects.

Usually the project manager is most concerned with supportive actions which bring resources to the point of effective use.

be) Project plan
The document required by the dwrf describing a project application for funding. This is the plan which has been prepared by SEG for the City of Flint and dated 12/27/1997 (253).

bf) Project superintendent
The manager involved in the actual construction process and most directly responsible for the expenditure of funds to carry out the project. Usually the superintendent is responsible for field execution of the work.

bg) Regulators
Those who fill a review & inspection position to help insure protection of the health, safety, & welfare of the people. This is usually done by enforcing regulations written and adopted by qualified public or private bodies. Examples of regulators include those who work for building departments, departments of natural resources, public health agencies, fire prevention organizations, technical societies and other such groups.

bh) Risk
Any exposure to the possibility of harm, danger, loss or damage to people, property, or other interest. To expose to a chance of loss or damage.

bi) Risk management
The management and conservation of a firm's assets and earning power against the occurrence of accidental loss.

bj) Schedule
A graphic or written tabulation of project activities showing where the activities are to start and finish. The schedule is derived from the plan of action and the network model by locking the tasks and the resources they require into a specific time position.

bk) Shop drawing
A submittal in the form of a drawing, usually made specially for the application shown. Shop drawings usually show details of fabrication and installation.

bl) Specification
A narrative description of the various materials and systems to be incorporated in the work. The specification concentrates on identifying quality of materials, source of materials, allowable practices, and general requirements and conditions of the contract performance.

bm) Standard of performance
A well defined, explicitly stated, approved and accepted statement of the measurements to be used as a gage of performance, and goal and objective achievement.

bn) Sub contractor
A contractor whose business agreement is directly with a prime contractor

bo) Submittal
Any document submitted by contracting parties to the owner's agents for review for accuracy, responsibility of design, general arrangement,

and approval. Submittals are used by the fabricator and the installer to show adequate details so the intent of the contract documents can be achieved. There is a mild ongoing professional controversy as to whether approved submittals are contract documents. Generally they are not considered contract documents, but aids to better fabrication and installation procedures.

bp) Termination
The dismissal of a contractor, from a project, for convenience, resulting from factors beyond the contractor's control, or for default when the contractor's performance is not acceptable.

bq) Total float (TF)
The amount of discretionary time available to a task. The total float is the difference between the early and late starts or finishes. Formally, it is defined as the duration of the task, subtracted from the difference between the late finish (LF) and the early start (ES): i.e. (LF-ES)-DURATION=TF.

br) Training
The teaching and learning process by which specific, explicit methods and systems of doing something, usually by rote, are conveyed to the learner.

bs) Turn key
A project delivery system in which a single contractor is given the total responsibility to plan, design, construct, and turn the key over to the owner upon its completion. Often, a turnkey contractor will provide land and financing, and in some cases, operate the facility for a specified time after construction.

bt) Ultimate decision maker (UDM)
The individual or group at the lowest management level that has the authority to make a final binding decision in any job related matter.

bu) Unilateral meetings
A decision meeting at which only a portion of the parties affected are invited to participate.

bv) Value engineering
An engineering and architectural cost analysis process designed to achieve minimum total cost while maintaining maximum product quality within the price constraints.

bw) Want list
Those items that are wanted and can be included in the scope of work, over and above the must list items, since they provide a definable and acceptable rate of return on their cost.

bx) Wheeling charges
The charges based on costs for transmitting Authority-treated water through one customer's distribution system to another customer's point of connection.

by) Wish list
Those items that the owner and the user wish they could include but might not be able to due to budgetary or other reasons. Wish list items are best added, not deleted, as the project moves into construction.

bz) Working drawings
The set of contract drawings that pictorially show the intended appearance of a job when complete.

ca) World of nonwords
The world in which we live by our physical actions.

cb) World of words
The world in which we live by simulating actions through words and other symbols what might happen in the world of nonwords.

6. Reference material
   a) See Meeting #4 - Tuesday March 2, 1999 for current comments on project

II. **Meeting #1 - Thursday, January 8,1998 (260)**
   A. Date of meeting - Thursday, January 8,1998 (260)
   B. Number of days remaining until dwsd contract expiration - 742 working days
   C. Those attending meeting
      1. Robert Carlyon - Water Plant Supervisor
      2. Dave Jansen- Assistant Water Plant Supervisor
      3. Jeff Bryson - Water Plant Facilities Engineer
      4. Ralph J. Stephenson - Consultant
   D. Those involved
      1. City of Flint
         a) Water Plant Staff
            (1) Robert Carlyon - Water Plant Supervisor
            (2) Dave Jansen- Assistant Water Plant Supervisor
            (3) Jeff Bryson - Water Plant Facilities Engineer
         b) Pipeline Advisory Committee
            (1) David Ready - City Administrator
            (2) Scott Kincaid - Council President
            (3) Jack Minore - Councilman
            (4) Robert Carlyon - Water Plant Supervisor
         c) Ex officio Pipeline Advisory Committee members
            (1) Karen McDonald - City Attorney

(2) Dave Jansen- Assistant Water Plant Supervisor

d) City administration
(1) Mayor Woodrow Stanley - Mayor
(2) DPW director
(3) Marc Puckett - Finance Director
(4) Matt Grady - Budget Director

2. Genesee County
a) Drain Commissioner's staff
(1) Ken Hardin - Genesee County Drain Commissioner
(2) Jake Schamberger - Director of Water and Waste Services
b) Pipeline Advisory Committee (county members)
(1) Tim Herman - Commissioner - 1998 chair Board of Commissioners
(2) JohnGleason - Commissioner - 1998 vice chair Board of Commissioners
(3) FredShaltz - Commissioner
(4) Bob Myers - Commissioner
c) Ex officio Pipeline Advisory Committee members
(1) Ken Hardin - Genesee County Drain Commissioner
(2) Jake Schamberger - Director of Water and Waste Services
(3) Leonard Smorch - County Comptroller
(4) Ward Chapman - County Attorney
d) County administration
(1) Dan Harrel - ?

3. Burke, Weaver and Prell - Legal Counsel
Report to the Pipeline Advisory Committee and are paid directly by the City of Flint and Genesee County.
a) Clifford Weaver - Principal
b) Maureen Crowley - Partner

4. Public Sector Consultants - Public Relations
Report to the Pipeline Advisory Committee and are paid directly by the City of Flint and Genesee County.
a) Craig Ruff - President
b) Nick Khoury - Consultant

5. Snell Environmental Group team
The Snell Environmental Group is under contract to the City of Flint for preparation of a project plan under the drinking water revolving fund. Report to Robert Carlyon.
a) Snell Environmental
(1) John O'Malia

b) Prein and Newhof
(1) Thomas Newhof
c) Alvord Burdick and Howson
(1) James Hedges - Partner
(2) Warren Green - Partner

E. Agenda
1. √ Prepare key date tabulation
2. Begin preparation of laundry list for plant #2 rehabilitation
3. √ Identify requirements for plant being brought on line

III. **Meeting #2 - Wednesday, February 18, 1998 (289)**

A. Date of meeting - Wednesday, February 18, 1998 (289)
B. Number of days remaining until dwsd contract expiration - 713 working days
C. Those attending meeting
1. Robert Carlyon - Water Plant Supervisor
2. Dave Jansen- Assistant Water Plant Supervisor
3. Jeff Bryson - Water Plant Facilities Engineer
4. Ralph J. Stephenson - Consultant
D. Agenda
1. Prepare network model for immediate actions to be taken by the COF water plant management and others on the project team to restart the program.
2. Prepare check list of actions to be taken by the Water Department staff
3. Begin preparation of laundry list for plant #2 rehabilitation
4. Discuss document filing system to be used for the project and program.
5. Begin preparation of updated decision tree reflecting current conditions. (alternate strategies)
6. √ Review current status of project
E. Current status of project - monitored from Issue #1 sheet #1 network model for existing water plant #2 rehabilitation
1. Activity 002 - Complete as of 01/02/98 (257)
2. Activity 006 - 02/18/98 (289) - Review and comments of MDEQ resulted in MDEQ publishing a draft project priority list which excluded the City of Flint. MDEQ claimed submittal was incomplete because the City Council resolution date preceded the public hearing. No letter of exclusion is available at this time.
a) The City Council resolution was dated 12/08/97 (239)
b) The public hearing was held on 12/17/97 (246)
c) A second City Council resolution dated 01/26/98 (273) was provided to MDEQ on 01/27/98 (274)

F. New definitions to be added to existing list
   1. From Flint City Council supporting resolutions dated 12/08/97 (239) (Resolution #971656) and approving resolution dated 01/26/98 (273) (Resolution #980123).
      a) Final project plan
      b) Resolution
      c) Resolution supporting implementation (does not identify funding sources)
      d) Resolution approving implementation (identifies funding source)
      e) Pledge to support (financing)
      f) Authorize the provision (financing)

G. Statements re City of Flint exclusion from project priority list of DWRF - shown on network model monitored as of 02/18/98 (289)
   1. 02/18/98 (289) - All incomplete work by the City of Flint shown in this network model was suspended in writing by the management staff of the Flint Water Plant on 02/18/98. This action was taken because the management staff of the Flint Water Plant received written notification by FAX from Mr. Tom Kamppinen, Chief, Municipal Facilities Section of MDEQ of the City of Flint's exclusion from the project priority list of the Drinking Water Revolving Fund.

   2. This exclusion eliminates funding assistance from the Revolving Fund to the City of Flint for the Water Plant Rehabilitation project during the Revolving Fund's fiscal year 1998 extending from October 1, 1998 to October 1, 1999.

H. Check list of actions to be taken by the Water Plant staff
   1. Prepare letter to SEG suspending negotiations re their engineering proposal.
   2. Prepare draft letter from David Ready to Bob Carlyon instructing him to cease certain work on the drinking water revolving fund project.
   3. Prepare draft letter from David Ready to Bob Carlyon instructing him to continue strategic planning activities on certain work on the drinking water revolving fund project
   4. Prepare draft letter from David Ready to Bob Carlyon instructing him to initiate legal services required for implementation of the drinking water revolving fund project.
   5. Check approval and public hearing dates of all approved project plans by those on the project priority list.

6. Prepare documentation plan for use on the drinking water revolving fund project
7. Replan course of action to resolve funding problem for the dwrf project.

IV. **Meeting #3 - Friday, March 27, 1998 (316)**□

A. Date of meeting - Friday, March 27, 1998 (316)
B. Number of days remaining until dwsd contract expiration - 686 working days
C. Those attending meeting
   1. Robert Carlyon - Water Plant Supervisor
   2. Dave Jansen- Assistant Water Plant Supervisor
   3. Jeff Bryson - Water Plant Facilities Engineer - in meeting late A.M. and all P.M.
   4. Ralph J. Stephenson - Consultant
D. Agenda
   1. Continue prepare network models for near future actions to be taken by the COF water plant management and others on the project team to restart the program.
      a) Formulate and implement activation of Flint Genesee Water Authority
         (1) Legal - formation of authority (lfa)
         Current legal status - bwp drafting articles of incorporation and bylaws for the formation of an Act 233 water authority.
         (a) BURKE WEAVER AND PRELL PREPARE AND SUBMIT DRAFT 1 OF ARTICLES OF INCORPORATION AND BYLAWS
         (b) PIPELINE ADVISORY COMMITTEE REVIEW & COMMENT ON DRAFT 1 OF THE ARTICLES OF INCORPORATION AND BY LAWS
         (c) PIPELINE ADVISORY COMMITTEE REVIEW & COMMENT ON DRAFT 1 OF THE ARTICLES OF INCORPORATION AND BY LAWS
         (d) BURKE WEAVER AND PRELL COMPLETE PREPARE AND SUBMIT FINAL DRAFT OF ARTICLES OF INCORPORATION AND BYLAWS
         (e) PIPELINE ADVISORY COMMITTEE REVIEW & COMMENT ON FINAL DRAFT OF THE ARTICLES OF INCORPORATION AND BY LAWS
         (f) PIPELINE ADVISORY COMMITTEE REVIEW & COMMENT ON FINAL DRAFT OF THE ARTICLES OF INCORPORATION AND BY LAWS
         (g) BURKE WEAVER AND PRELL COMPLETE PREPARE AND SUBMIT FINAL ARTICLES OF INCORPORATION AND

BYLAWS FOR APPROVAL BY CITY AND COUNTY LEGISLATIVE BODIES

(h) CITY COUNCIL REVIEW & APPROVE FINAL ARTICLES OF INCORPORATION AND BYLAWS

(i) COUNTY BOARD OF COMMISSIONERS REVIEW & APPROVE FINAL ARTICLES OF INCORPORATION AND BYLAWS

(2) Legal - negotiations of water supply contract (lws)

(a) BURKE WEAVER & PRELL MEET WITH PIPELINE ADVISORY COMMITTEE AND ESTABLISH TERMS OF DRAFT 1 OF WATER PURCHASE AGREEMENT

i) Water purchase rates
ii) Methodology for rate changes
iii) Debt retirement strategy
iv) Bonding sales procedures
v) Treated water capacity allocation
vi) Length of agreement
vii) Procedures for reopening the agreeement
viii) Wheeling charges for distribution
ix) Identify method of conveying assets to Authority

(b) BURKE WEAVER & PRELL PREPARE AND SUBMIT DRAFT 1 OF WATER PURCHASE AGREEMENT

(c) PIPELINE ADVISORY COMMITTEE REVIEW & COMMENT ON DRAFT 1 OF THE WATER PURCHASE AGREEMENT

(d) BURKE WEAVER AND PRELL COMPLETE PREPARE AND SUBMIT FINAL DRAFT OF THE WATER PURCHASE AGREEMENT

(e) PIPELINE ADVISORY COMMITTEE REVIEW & COMMENT ON FINAL DRAFT OF THE WATER PURCHASE AGREEMENT

(f) BURKE WEAVER AND PRELL COMPLETE PREPARE AND SUBMIT FINAL WATER PURCHASE AGREEMENT FOR APPROVAL BY CITY AND COUNTY LEGISLATIVE BODIES

(g) CITY COUNCIL REVIEW & APPROVE FINAL WATER PURCHASE AGREEMENT

(h) COUNTY BOARD OF COMMISSIONERS REVIEW & APPROVE FINAL WATER PURCHASE AGREEMENT

(i)

(3) Legal - negotiation by COF of required extension of cof contract with dwsd if needed (fxd)
   (a) ESTABLISH THOSE TO BE IN VOLVED IN NEGOTIATIONS FOR COF
   (b) SCHEDULE AND CONDUCT MEETINGS WITH DWSD TO PREPARE DRAFT 1 OF PROPOSED TERMS OF THE CONTRACT EXTENSION
   (c) COF ADMIN REVIEW AND COMMENT ON DRAFT 1 OF PROPOSED CONTRACT EXTENSION
   (d) DWSD & CITY OF DETROIT REVIEW AND COMMENT ON DRAFT 1 OF PROPOSED CONTRACT EXTENSION
   (e) PREPARE & SUBMIT FINAL DRAFT OF PROPOSED CONTRACT EXTENSION
   (f) COF ADMIN REVIEW & APPROVE CONTRACT EXTENSION
   (g) DWSD & CITY OF DETROIT REVIEW& APPROVE CONTRACT EXTENSION.

(4) Legal - negotiation by Authority of a required contract with dwsd for water supply (acd)
   (a) ESTABLISH THOSE TO BE IN VOLVED IN NEGOTIATIONS FOR FGWA
   (b) SCHEDULE AND CONDUCT MEETINGS WITH DWSD TO PREPARE DRAFT 1 OF PROPOSED TERMS OF THE FGWA CONTRACT WITH DWSD
   (c) FGWA ADMIN REVIEW AND COMMENT ON DRAFT 1 OF PROPOSED FGWA CONTRACT WITH DWSD
   (d) DWSD & CITY OF DETROIT REVIEW AND COMMENT ON DRAFT 1 OF PROPOSED FGWA CONTRACT WITH DWSD
   (e) PREPARE & SUBMIT FINAL DRAFT OF PROPOSED CONTRACT EXTENSION
   (f) FGWA REVIEW & APPROVE CONTRACT FGWA CONTRACT WITH DWSD
   (g) DWSD & CITY OF DETROIT REVIEW& APPROVE CONTRACT BETWEEN FGWA AND DWSD

2. Prepare check list of actions to be taken by the Water Department staff.
3. Begin preparation of laundry list for plant #2 rehabilitation.
4. Discuss document filing system to be used for the project and program.

5. Begin preparation of updated decision tree reflecting current conditions. (alternate strategies).
6. The public hearing comments must be received by the end of the next day after the hearing.

E. General

1. Notes to be reviewed and possibly deleted from these notes
   a) Judge's ruling said today that mdeq is entitled to disqualify the city of Flint from receiving funding.
   b) If cof wants to be on next year's funding list they must publish a notice of public hearing 30 days prior to holding the public hearing by April 1, 1998 to meet a May 1, 1998 submittal deadline.
   c) After the public hearing the cof must obtain a council resolution approving the project plan. This is needed to prepare and submit the May 1, 1998 request
   d) The May1, 1998 submittal includes or requires
      (1) Public hearings
      (2) Transcripts of the public hearing
      (3) Council resolution
      (4) Comments made in the comment period after the public hearing. Public hearing comments must be received by the end of the next day after the hearing.
      (5) A project plan
   e) Appears to be no immediate action which can restore cof to the list.
   f) Laundry list of actions from March 27, 1998 through May 1, 1998
      (1) PREPARE FOR PUBLIC HEARING
         (a) DECIDE TO PROCEED OR NOT - CITY ADMINISTRATOR MUST DECIDE BASED ON RECOMMENDATIONS FROM THE COF WATER DEPARTMENT STAFF
         (b) ADVERTISE FOR HEARING - MUST BE PUBLISHED BY MARCH 29, 1998
         (c) SELECT DATE FOR HEARING - APRIL 29, 1998
         (d) END DATE FOR PUBLIC HEARING COMMENTS - DAY AFTER PUBLIC HEARING
      (2) HOLD PUBLIC HEARING
      (3) ADVERTISE FOR PUBLIC HEARING (THIS WEEKEND)
      (4) SECURE COUNCIL RESOLUTION SUBSEQUENT TO PUBLIC COMMENT PERIOD AFTER PUBLIC HEARING
      (5) OBTAIN TRANSCRIPTS OF PUBLIC HEARING AND COMMENTS
      (6) REVIEW AND UPDATE, AS REQUIRED, THE PROJECT PLAN.

(7) PREPARE PROJECT PLANS AND MAKE AVAILABLE TO PUBLIC FOR REVIEW
(8) IDENTIFY COST OF RESUBMITTING FOR FUNDING
(9) IDENTIFY SOURCE OF RESUBMITTAL FUNDING

V. **Meeting #4 - Tuesday March 2, 1999 (wd 297)**
A. From here use 1998, 99, 2000, and 2001 wd calendar
B. Date of meeting - Tuesday March 2, 1999 (297)
C. Number of days remaining until DWSD contract expiration - 448 working days
D. Those attending meeting
1. Robert Carlyon - Water Plant Supervisor
2. Dave Jansen- Assistant Water Plant Supervisor
3. Ralph J. Stephenson - Consultant
E. Agenda
1. Discuss current alternatives
2. Discuss alternative of partnering with DWSD for future water supply needs for COF
3. Prepare check list of things for the City of Flint to do in the immediate future
4. Plan program for immediate future
5. Discuss documentation that might be needed later as the program evolves
6. √Review big picture including all projects relative to water renovation - perhaps as many as 10 or more that are on the agenda for start in 1999. Completion dates vary.
a) Projects that are not currently related directly to plant #2 rehab
(1) Cedar Street pump control and isolation valve
(2) Rehab Kearsley dam
(3) Replace center concrete pad at Holloway dam
(4) Cedar Street heating replacement
(5) Dam safety inspections contract with consultants
(6) High service pump master plan
(7) Remove underground storage tanks
(8) Relocate lime from plant 1 to Bray Road facility
b) Projects that are currently related to plant #2 rehab
(1) Phase 1 water plant rehab
(2) 1999 roof replacement on plant site buildings - construction interrelation between contractors might be required
F. Status of 1999 projects at water plant facilities
1. Projects that are not currently related directly to plant #2 rehab
a) Cedar Street pump control and isolation valve

(1) Scope of work - Purchase and install 3 butterfly and 2 control valves
(2) Approximate cost - $30,000
(3) Approximate time from contract award to operational unit - 3 months (± 66 working days)

b) Rehab Kearsley dam
   (1) Scope of work
      (a) Repair concrete
      (b) Replace superstructure
      (c) Replace vertical lift gate seals
      (d) Repair sluice gate
      (e) Construct gravel parking area
   (2) Approximate cost - $308,000
   (3) Approximate time from contract award to completion of construction - 150 calendar days - about 110 working days
      (a) Some work must be done after Labor Day for repairs at the water line after lake level is lowered about 2 feet.

c) Replace center concrete pad at Holloway dam
   (1) Scope of work
      (a) Replace existing concrete pad with structural steel
   (2) Approximate cost - $82,000
   (3) Approximate time from contract award to completion of construction - 45 working days
      (a) Must be constructed 1/2 at a time to maintain gate operations.

d) Cedar Street heating replacement
   (1) Scope of work
      (a) Replace boiler
      (b) Install individual heating units at various locations
   (2) Approximate cost - $50,000
   (3) Approximate time from contract award to completion of construction - 90 working days to procure boiler - 30 working days to install replacement - total 120 working days

e) Dam safety inspections contract with consultants
   (1) Scope of work
      (a) Select consultants to regularly inspect dams & revise emergency action plans.
      (b) Conduct inspections over 3 year period
   (2) Approximate cost - $26,000

(3) Approximate time from contract award to completion of service contract - 3 years
(4) Milestone dates
(a) Inspection work and report for 1999 and 2001 must be done by November 1st of the respective year.

f) High service pump master plan
(1) As of 3/2/99 rfp is being developed for the work
(2) Scope of work
(a) Evaluate high service pumping at four locations
i) Plant site
(1) Pump station #4
(2) Future county connection
ii) Cedar Street
(1) Variable speed drive application
(2) Switchgear replacement
iii) West side
(1) Surge control valves
(2) Pump control valves
(3) Methods to reduce water hammer
iv) Torrey Road
(1) Replace #2 pump with appropriate size or a variable speed drive application
(b) Evaluate existing hydraulic model for adequacy
(c) Prepare master plan of recommendations or results of above evaluations
(3) Approximate cost - $25,000
(4) Approximate time for completion from notice to proceed - 60 working days

g) Remove underground storage tanks
(1) Scope of work
(a) Empty materials from tanks and recycle
(b) Remove and dispose of tanks
(c) Sample soil and remediate site if necessary - some has been done - requires additional checking
(d) Restore site
(2) Approximate cost - $30,000
(3) Approximate time for completion from award of contract - 22 working days

h) Relocate lime from plant 1 to Bray Road facility
(1) Scope of work

(a) Provide access and egress to and from building
(b) Provide conveyance system to remove lime
(c) Remove lime from bins in plant #1
(d) Transport lime to Bray Road facility and stage on site

(2) Approximate cost - $55,000
(3) Approximate time for completion from award of contract - 22 working days

2. Projects that are currently related to plant #2 rehab
   a) Phase 1 water plant rehab
      (1) Scope of work - dependent on amount of funding available
         (a) Electric maintenance facility
         (b) Operations center
         (c) SCADA system - automated control of the water supply system
         (d) Boiler facility
         (e) Dual electrical power service
         (f) Rapid mix for coagulant
         (g) Floculation structure
      (2) Approximate cost for all work - $7.5 million
      (3) Approximate time for completion from award of contract - 255 working days (one year - very rough as of 3/2/99)
   b) 1999 roof replacement on plant site buildings - construction interrelation between contractors might be required
      (1) Scope of work
         (a) Replace selected areas of plant #2 roof ~~to replace~~
      (2) Approximate cost - $155,000
      (3) Approximate time for completion from award of contract - 3 months - 66 working days

Ralph J. Stephenson, P.E.
Consulting Engineer

VI. **Meeting #5 - Wednesday June 16, 1999 (wd 372)**
- A. Wednesday June 16, 1999 (wd 372)
- B. Number of days remaining until DWSD contract expiration on 12/01/2000 (wd 746) - 374 working days
- C. Those attending meeting
  1. Dave Jansen - Assistant Water Plant Supervisor
  2. Jeff Bryson - Water Plant Facilities Engineer
  3. Ralph J. Stephenson - Consultant
- D. Agenda
  1. Review status of 1999 projects as of June 16, 1999 (wd 372)
  2. Discuss scope of rjs involvement in current program
     a) Attend July14, 1999
     b) Work with contractors to help assemble progress schedules. If contractors prefer to prepare their network models on their systems they are free to do this subject to discussions with the owner's planning consultant.
     c) Attend bi weekly job conferences (assume 6 meetings total)
     d) Inspect project at each monitoring
     e) Monitor project & report on regular basis
- E. Status of 1999 projects at water plant facilities as of June 16, 1999 (wd 372)
  1. Projects that are not currently related directly to plant #2 rehab (as of wd 06/16/99)
     a) Cedar Street pump control and isolation valve
        (1) Scope of work - Purchase and install 3 butterfly and 2 control valves
        (2) Approximate cost - $30,000
        (3) Approximate time from contract award to operational unit - 3 months (± 66 working days)
     b) Rehab Kearsley dam
        (1) Scope of work
            (a) Repair concrete
            (b) Replace superstructure
            (c) Replace vertical lift gate seals
            (d) Repair sluice gate
            (e) Construct gravel parking area
        (2) Approximate cost - $308,000
        (3) Approximate time from contract award to completion of construction - 150 calendar days - about 110 working days
            (a) Some work must be done after Labor Day for repairs at the water line after lake level is lowered about 2 feet.

c) Replace center concrete pad at Holloway dam
   (1) Scope of work
      (a) Replace existing concrete pad with structural steel
   (2) Approximate cost - $82,000
   (3) Approximate time from contract award to completion of construction - 45 working days
      (a) Must be constructed 1/2 at a time to maintain gate operations.

d) Cedar Street heating replacement (deferred for minimum of one year)
   (1) Scope of work
      (a) Replace boiler
      (b) Install individual heating units at various locations
   (2) Approximate cost - $50,000
   (3) Approximate time from contract award to completion of construction - 90 working days to procure boiler - 30 working days to install replacement - total 120 working days

e) Dam safety inspections contract with consultants
   (1) Scope of work
      (a) Select consultants to regularly inspect dams & revise emergency action plans.
      (b) Conduct inspections over 3 year period
   (2) Approximate cost - $26,000
   (3) Approximate time from contract award to completion of service contract - 3 years
   (4) Milestone dates
      (a) Inspection work and report for 1999 and 2001 must be done by November 1st of the respective year.

f) High service pump master plan
   (1) As of 3/2/99 rfp is being developed for the work
   (2) Scope of work
      (a) Evaluate high service pumping at four locations
         i) Plant site
            (1) Pump station #4
            (2) Future county connection
         ii) Cedar Street
            (1) Variable speed drive application
            (2) Switchgear replacement
            (3) Evaluate alternative disinfection systems
            (4) Evaluate for additional pumping and express mains for county reliability

iii) West side
(1) Surge control valves
(2) Pump control valves
(3) Methods to reduce water hammer
(4) Evaluate alternative disinfection systems
(5) Evaluate for additional pumping and express mains for county reliability

iv) Torrey Road
(1) Replace #2 pump with appropriate size or a variable speed drive application

(b) Evaluate existing hydraulic model for adequacy
(c) Prepare master plan of recommendations or results of above evaluations

(3) Approximate cost - $90,000
(4) Approximate time for completion from notice to proceed - 9 months

g) *Remove underground storage tanks - fire department owns all tanks and will remove all tanks. Tank at the east of laboratory will be removed by contractor if fire department has not removed it before construction of boiler building
(1) Scope of work
(a) Empty materials from tanks and recycle
(b) Remove and dispose of tanks
(c) Sample soil and remediate site if necessary - some has been done - requires additional checking
(d) Restore site
(2) Approximate cost for entire removal plan - $30,000
(3) Approximate time for completion from award of contract - 22 working days

h) Relocate lime from plant 1 to Bray Road facility
(1) Scope of work
(a) Provide access and egress to and from building
(b) Provide conveyance system to remove lime
(c) Remove lime from bins in plant #1
(d) Transport lime to Bray Road facility and stage on site
(2) Approximate cost - $55,000
(3) Approximate time for completion from award of contract - 22 working days

i) Remove & replace 11 roof sections - 4 ply built up roof with 20 year warranty
   (1) Scope of work
      (a) Cedar Street pump house
      (b) Pump Station #4
      (c) 9 sections located on Plant #2 in various locations
   (2) Approximate cost - $155,000
   (3) Approximate time for completion from award of contract - 2 months

2. Projects that are currently related to plant #2 rehab only (as of 06/16/99)
   a) Phase 1 - Segment 1 - water plant rehab
      (1) Scope of work - dependent on amount of funding available
         (a) Electric maintenance facility
         (b) Operations center
         (c) SCADA system - automated control of the water supply system
         (d) Boiler facility
         (e) Dual electrical power service
         (f) Rapid mix, floculation, primary connection structure
            i) Rapid mix for coagulant
            ii) Floculation structure
            iii) Demolition & excavation for primary clarifier
      (2) Approximate dates for phase 1 work
         (a) 07/02/99 (wd 385) - Send out invitations to bid
         (b) 07/14/99 (wd 392) - Pre bid meeting
         (c) 08/03/99 (wd 406) - Bids due
         (d) 08/19/99 (wd 418) - Notice to proceed & execute contract
         (e) 12/22/2000 pm (wd 761) - Approximate time for completion from execution of contract - 389 working days approximately
      (3) Approximate cost for all work in phase 1 - $7.5 million
   b) 1999 roof replacement on plant site buildings - some construction interrelation between contractors might be required. No contract relationship exists between phase 1 work & roof replacement work under roofing master plan.
      (1) Scope of work
         (a) Replace selected areas of plant #2 roof
      (2) Approximate cost - $155,000
      (3) Approximate time for completion from award of contract - 3 months - 66 working days

VII. **Meeting #6 - Tuesday September 7, 1999 (wd 429)**

A. Tuesday September 7, 1999 (wd 429)
B. Number of days remaining until DWSD contract expiration on 12/01/2000 (wd 746) - 317 working days
C. Those attending meeting
   1. Robert Carlyon - Water Plant Supervisor
   2. Dave Jansen - Assistant Water Plant Supervisor
   3. Ralph J. Stephenson - Consultant
D. rjs involvement in current program
   1. Attend July 14, 1999
   2. Work with contractors to help assemble progress schedules. If contractors prefer to prepare their network models on their systems they are free to do this, subject to discussions with the owner's planning consultant.
   3. Attend bi weekly job conferences (assume 6 meetings total)
   4. Inspect project at each monitoring
   5. Monitor project & report on regular basis
E. Agenda
   1. Work on phase 1 segement 1 water plant rehabiliation
      a) Phase 1 - Segment 1 - water plant rehab
         (1) Scope of work
            (a) Electric maintenance facility
            (b) Operations center
            (c) SCADA system - automated control of the water supply system
            (d) Boiler facility
            (e) Dual electrical power service
            (f) Rapid mix, floculation, primary connection structure
               i) Rapid mix for coagulant
               ii) Floculation structure
               iii) Demolition & excavation for primary clarifier
         (2) Approximate dates for phase 1 work
            (a) 07/02/99 (wd 385) - Send out invitations to bid
            (b) 07/14/99 (wd 392) - Pre bid meeting
            (c) 07/29/99 (wd 402) - Bids due
            (d) 08/19/99 (wd 418) - Tentative notice of award of contract issued to the E & L Construction Group, Inc.
            (e) 09/03/99 (wd 429) MDEQ issue order of approval
            (f) 09/13/99 (wd 434) - Sign contract for bonds
            (g) 09/30/99 - Close on bond issue - MMBA
            (h) 09/13/99 - Flint City Council approve bond issue

(i) 09/22/99 - Tentative preconstruction meeting with contractor
(j) 10/04/99 - Issue notice to proceed to contractor
(k) Monthly progress meetings
(l) September, 2000 -
(m) 12/22/2000 pm (wd 761) - Approximate time for completion from execution of contract - 389 working days approximately

(3) Approximate cost for all work in phase 1 - $7.5 million (actual total project cost is now estimated at $7.22 million

2. Prepare summary network model for
   a) phase 1 segement 1 water plant rehabiliation
   b) Phase 1 segement 2
      (1) Construction anticipated to start in October, 2000
      (2) Document preparation to start about September 27, 1999
   c) Phase 1 segement 3
      (1) Construction anticipated to start in October, 2001
      (2) Document preparation to start in September, 2000
3. Abstract elements of project draft plans and specifications that are suitable from a constructibility standpoint and match the available funding.

F. Summary laundry list for phase 1 segement 1

Ralph J. Stephenson, P.E.
Consulting Engineer