

AUDIT REPORT



CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
BUREAU OF FINANCIAL AUDIT
WILLIAM C. THOMPSON, JR., COMPTROLLER

Audit Report on Job Order Contracting By the Department of Environmental Protection

FR07-121A

June 30, 2008



THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET
NEW YORK, N.Y. 10007-2341

WILLIAM C. THOMPSON, JR.
COMPTROLLER

To the Citizens of the City of New York

Ladies and Gentlemen:

In accordance with the responsibilities of the Comptroller contained in Chapter 5, § 93, of the New York City Charter, my office has audited the administration of the job order contracting system by the Department of Environmental Protection.

Under the provisions of a job order contract—a procurement method for expeditiously performing maintenance, repairs, and small- or medium-sized construction projects—the Department of Environmental Protection can direct a contractor to perform individual tasks as needed, rather than awarding individual contracts for each small project. We audit programs such as this as a means of ensuring that agencies effectively administer and monitor City contracts with private concerns to assure their compliance with the terms of their agreements.

The results of our audit, which are presented in this report, have been discussed with officials of the Department of Environmental Protection, and their comments have been considered in preparing this report. Their complete written responses are attached to this report.

I trust that this report contains information that is of interest to you. If you have any questions concerning this report, please e-mail my audit bureau at audit@Comptroller.nyc.gov or telephone my office at 212-669-3747.

Very truly yours,

A handwritten signature in black ink, appearing to read "William C. Thompson, Jr.", written in a cursive style.

William C. Thompson, Jr.

WCT/fh

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*The City of New York
Office of the Comptroller
Bureau of Financial Audit*

**Audit Report on
Job Order Contracting by the
Department of Environmental Protection**

FR07-121A

AUDIT REPORT IN BRIEF

We performed an audit of the Department of Environmental Protection's (Department's) administration of job order contracts. Job order contracting (JOC) is a procurement method for expeditiously performing maintenance, repairs, and small- or medium-sized construction projects.

Under a job order contract, four Department bureaus—Wastewater Treatment, Water and Sewer Operations, Water Supply, and Facilities Management and Construction—can direct a contractor to perform individual tasks as needed rather than awarding individual contracts for each small project. For each individual task, the Department issues either a job order or a supplemental job order to the job order contractor. The cost of JOC work is based on previously established unit prices for specific items (e.g., electrical, plumbing, roofing).

The Department's use of JOC began in 2000 when it employed a consultant, The Gordian Group, to develop and implement the Department's JOC program, create catalogs of unit prices, and provide consulting services, for which it is paid a fee on the basis of a sliding scale.

For Fiscal Years 2005 through 2007, the Department issued 1,174 job orders and supplemental job orders totaling \$46.4 million.

Audit Findings and Conclusions

We found weaknesses with the Department's administration of the job order contracting program. Specifically, there is a lack of adequate internal controls that govern the timeliness of JOC work. Consequently, most job order projects were not developed or completed on time, thereby reducing the JOC program's effectiveness and resulting, in one case, in the expenditure of an additional \$171,807. Moreover, when job order work was delayed, the Department did not impose liquidated damages totaling more than \$800,000.

Furthermore, we found problems with job order work whose costs were not based on pre-established prices contained in the construction task catalogs. In some of these cases, the Department should not have used JOC to carry out the work. In other cases, the prices lacked required supporting documentation. We also identified one job order that was overpriced by almost \$90,000 because the Department did not use the required pre-established prices.

In addition, we found inaccurate use of multiplier factors, missing contractor submittals, and problems with the PROGEN database.

Audit Recommendations

This report makes a total of 23 recommendations. The major recommendations are that the Department should:

- Complete job order development and issue job orders within required time frames.
- Ensure that JOC contractors complete work on schedule. In this regard, the Department should ensure that unfinished work is completed without further delay.
- Ensure that all job orders contain provisions for liquidated damages. Assess liquidated damages when contractors fail to complete work in accordance with scheduled timeframes. Determine whether liquidated damages should be assessed for the seven cases noted in this report.
- Cease its practice of using JOC for work that is not based on any established unit prices in the construction task catalogs, and calculate job order work on the basis of established unit prices in the construction task catalogs.
- Ensure that JOC contractors submit all required material samples, product data, drawings, and test reports. Implement an effective system of administration to record, collect, file, and properly maintain all required documentation in Departmental files.
- Implement adequate controls to ensure that the data contained in the PROGEN database is complete, current, and accurate.

INTRODUCTION

Background

The Department of Environmental Protection (Department) delivers drinking water to over nine million City and State residents, oversees more than 13,000 miles of water mains and sewers, and operates 14 water pollution control plants that can process more than 1.3 billion gallons of wastewater a day. In addition, the Department enforces the City's Noise, Air, and Hazardous Materials Codes.

Since 2000, the Department has used job order contracting (JOC), a construction procurement method, for performing maintenance, repairs, and small or medium-sized construction projects.¹ A JOC is a competitively bid, indefinite quantity contract under which a contractor performs a series of individual tasks as needed. JOC contracts are based on previously established unit prices for specific work items (e.g., electrical, plumbing, roofing). Vendors seeking to obtain a JOC contract must competitively bid on an adjustment factor known as a "multiplier," which represents a bidder's indirect costs such as overhead, profit, bonds, and insurance.² Contracts are awarded to the bidder with the lowest multiplier. To determine payment for each work item, the unit price is multiplied by the quantity of units of work performed, and then adjusted by the multiplier. Consequently, under JOC, the Department does not have to competitively bid individual contracts for each small project.

JOC contracts are solicited and administered by four Department bureaus—Wastewater Treatment, Water and Sewer Operations, Water Supply, and Facilities Management and Construction. The Bureau of Wastewater Treatment (Wastewater) solicited eight contracts that commenced between 2005 and 2007 for general construction, plumbing, electrical, and mechanical work. The Bureau of Water and Sewer Operations (Operations) solicited five contracts that commenced in 2006 for general construction, electrical, and plumbing work.³ The Bureau of Water Supply (Water Supply) solicited four contracts that commenced in 2006 and 2007 for general construction and electrical work. The Bureau of Facilities Management and Construction (Facilities Management) has solicited two contracts that commenced in 2006 for general construction. JOC contracts generally range from \$1 million to \$6 million. The term of each current JOC contract is two years, with one two-year renewal option.

The Department's use of JOC began in 2000 when it employed a consultant, The Gordian Group, to develop and implement the Department's JOC program and to provide consulting services, for which it is paid a fee on the basis of a sliding scale.⁴ The Gordian Group also

¹ JOC was originally developed for military procurement applications.

² There are separate multipliers for work performed during normal hours and overtime.

³ The Department terminated one of the two electrical contracts on December 11, 2006.

⁴ The current four-year contract between the Department and The Gordian Group commenced on August 24, 2004. Gordian is responsible for consulting services such as: developing technical specifications and

created for each bureau construction task catalog of unit prices for specific work items, upon which the value of JOC contracts are based. Each catalog contains approximately 8,000 prices for general construction, electrical, plumbing, and mechanical work. Unit prices consist of the costs for local labor, material, and equipment and are annually adjusted in accordance with an industry standard construction cost index. Work items for which there are no unit prices in the construction task catalog are known as “non-prepriced” items.

Work requests are generated by the Department’s facility managers and forwarded to the respective Departmental bureau for evaluation. If the request is deemed suitable for job order contracting, a project is formally initiated and individual work scopes are jointly determined by Department engineers and JOC contractors. Based on this determination, a contractor must submit a job order proposal to the respective bureau that identifies specific work items and their associated unit prices from the construction task catalog. After approval by bureau officials, a job order authorizing the work is issued to the contractor. Any subsequent changes in the work must be authorized under a supplemental job order. Once a JOC contractor carries out a job order, the work is inspected by project engineers employed by the respective Department bureaus.

Information about the JOC program is contained in PROGEN, a proprietary software application developed and maintained by The Gordian Group.

Objectives

The objectives of this audit were to determine whether the Department of Environmental Protection is properly administering job order contracts; whether the cost of work is reasonable; and whether the quality of work is satisfactory.

Scope and Methodology

The scope of this audit covered JOC projects performed under job orders associated with construction, plumbing, electrical, and mechanical job order contracts that commenced in Fiscal Years 2005, 2006, and 2007. During this period, these included 23 JOC contract agreements totaling \$75.5 million with 12 contractors. (See Appendix for a list of contractors and contracts.) Our population excluded the electrical contract that Operations terminated on December 11, 2006, and also excluded the two general construction contracts solicited by Facilities Management, as this bureau had completed only a single job order during our scope period.

We reviewed rules and regulations governing the program and Department policies and procedures. These included job order contracts, training manuals, standard guides for auditing job order contracts, and construction task catalogs that we used as criteria in conducting our audit. To understand the Department’s internal controls for administering the program, we conducted walk-through meetings and interviewed Department personnel who oversee the

bid documents; assisting with procurement of JOC contractors; conducting a JOC training program; and monitoring the JOC program and conducting random reviews of job orders.

program for the four bureaus that use job order contracting. We also obtained from the respective bureaus, flow charts that describe the process by which job orders are generated and implemented. We documented our understanding of the Department's processes and controls in written descriptions.

We obtained from each Department bureau databases of JOC contracts and job orders. To determine data reliability, we compared the information in the contract databases with a database of registered contracts that we independently obtained from the Comptroller's Office of Contract Administration. Similarly, in order to determine the reliability of the job order databases, we independently obtained job order information from the PROGEN system and compared it with the data obtained from the Department. We compared job order information such as number, title, approved amount, contractor, and construction start and end dates. We also determined the reliability of the data in PROGEN by reviewing information in the 97 job order files and comparing this data to that recorded in PROGEN.

Our population consisted of JOC projects initiated during our scope period by three of the four Department bureaus that use JOC contracts. We excluded the Facilities Management from our audit review, as this bureau had completed only a single job order during our scope period. Wastewater initiated 970 job orders and supplemental job orders totaling \$40.7 million; Operations initiated 114 job orders and supplemental job orders totaling \$1.8 million; and Water Supply initiated 90 job orders and supplemental job orders totaling \$3.9 million. Thus, the total population consisted of 1,174 job orders and supplemental job orders totaling \$46.4 million.

For Wastewater, we selected a judgmental sample of 40 JOC projects consisting of 78 job orders and supplemental job orders. For Operations, we selected a random sample of five JOC projects consisting of 11 job orders and supplemental job orders. For Water Supply, we selected a judgmental sample of 10 JOC projects consisting of 22 job orders and supplemental job orders. Our judgmental samples were chosen by selecting job orders with the highest dollar amount for general construction, plumbing, electrical, and mechanical contractors.

Overall, our combined sample for all three bureaus consisted of 55 JOC projects that comprised 111 job orders and supplemental job orders. After we commenced audit work, we found that 14 of the 111 job orders and supplemental job orders were subsequently canceled, not yet started, or were simply issued to adjust the original job order price. Accordingly, we excluded these 14 and reduced the sample from 111 to 97 job orders and supplemental job orders. The 97 sampled job orders totaled \$14,318,339 (31 percent of the \$46.4 million population) and ranged from \$1,480 to \$570,408.

To determine whether the Department is properly administering JOC contracts, we reviewed file documentation for the 97 selected job orders and supplemental job orders. We determined whether the files contained all required documentation and submittals such as product data, catalog cuts, shop drawings, and test reports. We also reviewed construction management records to determine whether there was adequate oversight of the work. In addition, we reviewed analyses of completed job order work that were prepared by The Gordian Group.

To verify that the cost of the work was reasonable, we compared the prices that comprised the individual job orders with the established unit prices in the construction task catalogs. Furthermore, we determined whether job order prices were adjusted by the correct multiplier factors by ascertaining whether the multipliers were consistent with those specified in the applicable JOC contract. We also reviewed the Department's payments to contractors for individual job order work to verify that the overall cost of the job orders did not exceed maximum contract amounts. Finally, we reviewed the Department's payments to The Gordian Group for consulting service fees to verify their accuracy.

To determine whether the quality of work was satisfactory, we conducted inspections to observe the work of the sampled job orders. Our inspections were conducted from September 7, 2007, to January 31, 2008. We also accompanied an inspector of the Department on July 31, 2007, to observe procedures for carrying out typical JOC inspections. Our own inspections were limited to visual observations of completed work because we were unable to inspect underground, in-wall, or other construction work that was covered by finishing materials.

Because each job order and project site is independent and has different work requirements, the field observations and file review were not projected to all job orders. However, the results of our tests provide a reasonable basis to determine whether the Department is properly administering its JOC contracts.

This audit was conducted by staff that included auditors who are engineers. This audit was conducted in accordance with generally accepted government auditing standards (GAGAS) and included tests of the records and other auditing procedures considered necessary. This audit was performed in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter.

Discussion of Audit Results

The matters covered in this report were discussed with Department officials during and at the conclusion of this audit. A preliminary draft report was sent to Department officials on May 8, 2008, and was discussed at an exit conference on May 22, 2008. On June 2, 2008, we submitted a draft report to Department officials with a request for comments; the Department provided a written response on June 19, 2008. In its response, the Department stated, "Your Draft Report provides a good summary of the procedures and controls that can ensure a successful JOC program. Many of these controls have already been put in place at DEP."

The Department agreed with 21 of the 23 recommendations. The Department partially agreed with our recommendation to complete development and issue job orders within required time frames. The Department apparently disagreed with our recommendation to cease its practice of using JOC for work that is not based on any established unit prices in the construction task catalogs.

The full text of the Department's response is included as an addendum to this report.

FINDINGS AND RECOMMENDATIONS

While the quality of job order work was generally satisfactory, there are weaknesses with the Department's administration of the job order contracting program. In particular, there is a lack of adequate internal controls that govern the timeliness of JOC work. Consequently, most job order projects were not developed or completed on time, thereby reducing the JOC program's effectiveness and resulting, in one case, in the expenditure of an additional \$171,807. Moreover, when job order work was delayed, the Department did not impose liquidated damages totaling more than \$800,000.

Furthermore, we found problems with job order work whose costs were not based on pre-established prices contained in the construction task catalogs. In some of these cases, the Department should not have used JOC to carry out the work. In other cases, the prices lacked required supporting documentation. We also identified one job order that was overpriced by almost \$90,000 because the Department did not use the required pre-established prices.

In addition, we found inaccurate use of multiplier factors, missing contractor submittals, and problems with the PROGEN database.

These matters are discussed in greater detail below.

The Department Lacks Adequate Controls To Ensure That Job Order Work Is Completed in a Timely Manner

The Department does not have adequate internal controls to ensure that the JOC program is carried out in a timely manner. Consequently, our review indicated that the overall time to plan and complete 67 (81%) of 83 sampled job orders exceeded Department guidelines and anticipated construction schedules.⁵ In these cases, the excessive work time averaged 278 days and ranged up to 814 days later than called for. Problems with ensuring the timely completion of job order work occurred in developing the price and work scope of job orders before commencing construction, and during the actual construction phase itself.

The Department's primary use of JOC is to rapidly undertake required maintenance, repair, and replacement work at the City's water pollution control plants. Since these plants must comply with New York State permits that specify allowable levels of pollutants in treated wastewater, the timely completion of job order work is critical to ensure adherence to permit requirements. Moreover, the Department is operating under the auspices of a court-appointed federal monitor, who requires that job order work pertaining to health and safety matters be performed quickly. Accordingly, the expeditious completion of JOC projects is essential so as not to jeopardize the Department's standing with the federal monitor or with State permit requirements, thereby subjecting the Department to monetary penalties.

⁵ Our analysis was based on 83 of the 97 sampled job orders. We could not analyze the timeliness of the remaining 14 job orders because the Department was unable to provide accurate information about construction commencement and/or completion dates.

Problems with Job Order Development

Overall, 72 (77%) of 94 sampled job orders exceeded standard timeframes for developing JOC projects.⁶ Critical development tasks include preparing scopes-of-work, requesting, obtaining, and reviewing contractor price proposals, and issuing job orders.

According to Wastewater guidelines, job orders should be issued within 34 days of initiating a JOC project. However, 54 (79%) of Wastewater's 68 sampled job orders exceeded this timeframe. In these cases, duration of project development ranged from 38 days to 335 days (the average time took 105 days); in 11 cases, job orders were not issued until more than six months after the start of the project. For example, Wastewater issued a job order on February 12, 2007, (No. 06-WI00-GEOH1-025.00) for \$492,323 to install new air conditioning units at the Wards Island Water Pollution Control Plant. The duration of project development totaled 335 days rather than the 34 days specified in Wastewater guidelines.

As another example, the bureau issued a job order on June 1, 2006, (No. 05-CI00-VBEE2-003.00) totaling \$165,796 to install a chlorination system at the Coney Island Water Pollution Control Plant. The duration of project development totaled 323 days. As a third example, the bureau issued a job order on December 6, 2006, (No. 06-CI00-OMEH2-009.00) totaling \$256,143 to reconstruct air handling units at the Coney Island Water Pollution Control Plant. It took 301 days for the job order to be developed. In none of these cases was there any file documentation to indicate the reason for the delays in developing the job orders. Had the bureau adhered to its development timeframes, these job order projects would have been started and completed much sooner.

Similarly, two other Department bureaus that carry out job order contracting work lagged in developing and issuing job orders.⁷ For Water Supply, the development of 12 (60%) of 20 sampled job orders exceeded 34 days, while all 6 (100%) of Operation's job orders took longer to develop. The average time to develop Operation's job orders was 130 days; for Water Supply job orders the average time was 89 days.

Problems with planning JOC projects promptly were also pointed out by The Gordian Group, the Department's consultant. Under its contract with the Department, The Gordian Group is required to analyze random job orders and submit its analyses in written "Job Order Review Reports." Our review of all 30 Job Order Review Reports prepared by The Gordian Group in 2007 showed that development time for 26 (87%) of the 30 job orders exceeded Wastewater's 34-day guideline. Of the 26 job orders whose development time exceeded the

⁶ Our analysis was based on 94 of the 97 sampled job orders. We could not analyze the timeliness for developing the remaining 3 job orders because the Department was unable to provide accurate information about when job orders were initiated and/or job orders were issued. Of the 94 job orders, 68 were issued by Wastewater, 6 by Operations, and 20 by Water Supply.

⁷ The Bureaus of Water Supply and Water and Sewer Operations do not specify a maximum time period for job order development. However, we applied the 34-day guideline to these bureaus since their procedures for developing JOC work are similar to those of the Bureau of Wastewater Treatment.

guideline, 14 took from 39 to 96 days; 12 of the job orders were in development from 112 to 321 days.

Thus, The Gordian Group noted that for job order No. 06-TI00-VBEE2-051.00 issued on January 3, 2007, to supply power to the main sewage backup pumps at Tallman Island Water Pollution Control Plant, “The Job Order Development Time took 246 days from project identification until the job order was issued. There was a seven (7) month lag from the time of the joint scope meeting and an RFP⁸ was issued. BWT [Bureau of Wastewater Treatment] should investigate the circumstance for such a lag in time.” In another review, for job order No. 06-OH00-JCH2-018.01 issued on May 11, 2007, to support limestone walls at the Owls Head Water Pollution Control Plant, The Gordian Group noted that “The Total Job Order Development Time for this project was 321 days. This development time defeats the purpose of using Job Order Contracting and reflects traditional contracting procuring methods.”

Many of the problems described above can be attributed to inadequate project management controls, including limited supervisory oversight to ensure that Department engineers prepare scopes-of-work promptly; request, obtain, and review contractor proposals; and issue job orders. Moreover, as discussed on page 27 of this report, the Department’s PROGEN system is used ineffectively for tracking and monitoring the progress and timely development and completion of job order work.

Department Response: “BWT – The report refers to a ‘standard timeframe’ of 34 days for a Job Order to be issued after a project is initiated. Please note that DEP has no such standard. This is merely a guideline to ensure that Job Order’s progress in a structured manner and important steps in the process are not overlooked. There is only one timeline criterion in the Job Order preparation process that is included in the contract between the DEP and the contractor and that is as follows (Article 3B.2.4): ‘The time allowed for preparation of the Contractor’s Proposal will be between two (2) and fourteen (14) days. On complex Job Orders, the time allowed may be greater than fourteen (14) as approved by the Engineer.’ As you can see, even this one criterion may vary depending on the complexity of the project. Our projects vary a great deal in complexity and, therefore, cannot be held to a fixed, standard timeline for Job Order issuance. Also, the Environmental Health and Safety Program commenced in February 2006 and the development and implementation of policies and procedures are still ongoing. As they come into play, they also affect the Job Order issuance timeline and add to the complexity of the project. The 34-day timeline should only be referred to as a guideline and that strict adherence to it is impractical due to the varied complexity of our projects.”

“Bureau of Water and Sewer Operations (BWSO) – Addressing the statement that BWSO Job Orders ‘took longer to develop’ in 6 projects reviewed, with an average time

⁸ The Department’s “Job Order Contracting Training Manual” (Section I.B.18) prepared by the Gordian Group, defines a “Request for Proposal (RFP) – a PROGEN document prepared by the Project Coordinator and sent to a Contractor requesting the Contractor to prepare a Proposal for the Detailed Scope of Work. The Request for Proposal includes basic information about the work such as location, scheduling requirements, application of liquidated damages and special instructions.”

to develop of 130 days, does not take into consideration that 3 projects required hazardous material remediation, such as lead paint and asbestos containing material removal. This required development of specific lead paint removal protocols and DEP Asbestos Task Force intervention.

“The DEP Asbestos Task Force was required to independently subcontract and remove asbestos containing roofing at the Central Park gatehouse before the JOC project could proceed. The Central Park gatehouse roof and parapet restoration required a landmark building to be restored with special structural strengthening by a certified restoration subcontractor using the latest ACI code methods, including composite carbon fiber reinforcement for the existing structure. Specialized work of this nature requires that the subcontractors and the proposed procedures be scrutinized for a successful outcome. By doing this ‘in house’ with the JOC contract, a large savings in time and consultant fees was also achieved.

“The Silver Lake reservoir project, also a restoration job, required a qualified restoration subcontractor and was analyzed and discussed with BWSO managers and elected officials regarding the level of repair or restoration to be done. Delays were due to the fact that BWSO had limited resources with respect to implementing this project while maintaining uncompromising standards and obtaining the best result. In addition, the original general contractor was deemed unqualified to do the specialized work and was replaced by another general contractor. This caused a substantial delay in starting this project.”

Auditor Comment: The Department provided us with Wastewater’s “JOC Procedures” flowchart that specifies a maximum 34-day period between project initiation and the date a job order is issued. According to the procedures, the activities encompassed in the 34-day period include requesting and obtaining contractor proposals, preparing preliminary and detailed work scopes and cost estimates, and arranging a joint scope meeting. But as the audit demonstrated, Wastewater did not adhere to its 34-day guideline to ensure the “Job Order’s progress in a structured manner.”

Moreover, the Department did not adhere to its guidelines for preparing contractor proposals in a timely manner. Of Wastewater’s 68 sampled job orders, 41 required proposal submissions within 14 days; however, our review found that 31 (76%) of these proposals were late by as many as 224 days. Of the 27 sampled job orders for which Wastewater granted more than 14 days to submit proposals, 16 (59%) were late by as many as 129 days.

The Department contends that the commencement of an “Environmental Health and Safety Program” in February 2006 affected the job order timeline, despite the lack of substantiating evidence. In any case, if the Department believes that the 34-day guideline for developing job orders is no longer appropriate, it should revise its guidelines accordingly and ensure they are properly implemented.

The Operations bureau contends that three job order work delays were necessitated by the need to remediate environmental hazards. However, in one case, (No. 05-RY-OME2G-029.00), the job order work scope indicated that the Department—not the JOC contractor—would be required to remediate asbestos. Accordingly, “DEP Asbestos Task Force intervention” would not have been an activity associated with the development of the actual job order work scope, as Operations contends.

In the case of sampled job order No. 05-SM-OME2G-004.01, the work scope required the JOC contractor to “Apply appropriate material to encapsulate existing lead based paint.” There was no evidence that the execution of this required activity during the construction phase adversely affected the development of the job order during the pre-construction phase.

In another sampled case, (No. 05-RE-MEG1G-023.00), file documentation does not contain evidence that asbestos abatement delayed the development of the job order work at the Central Park Reservoir Gatehouse. In fact, given that the “The DEP Asbestos Task Force was required to independently subcontract and remove asbestos containing roofing at the Central Park gatehouse before the JOC project could proceed,” it is unclear why the independent asbestos work project would have necessitated a delay in developing the work that was actually associated with the job order. Furthermore, it is unclear why its contention that “specialized work of this nature requires that the subcontractors and the proposed procedures be scrutinized for a successful outcome,” would have necessitated a delay in developing the work. Operations did not provide any evidence to substantiate this belief.

We are curious about the Department’s remark about delays at the Silver Lake reservoir as this work was not included in our audit sample and was not examined under this audit. (We informed Operations’ officials about this fact on May 27, 2008. when our auditors reexamined Department files, as requested at the exit conference.)

Recommendations

The Department should:

1. Complete development and issue job orders within required time frames.

Department Response: “**BWT** – DEP will strive to proceed with Job Order development on a continuous basis to ensure that they are issued as expeditiously as possible.

“**BWS** - As noted in the report, the Bureau of Water Supply JOC contract does not specify 34 days for JOC development. There are several reasons a 34-day guideline is not appropriate for BWS:

- Some BWS projects are not straight replacement or repairs in kind and require extensive engineering, design and environmental, health and safety (EH&S)

considerations which necessitate changes in scope as the development process progresses.

- Some delays in initiation are due to Bureau constraints; for example delays to accommodate operational schedules for WWTPs [wastewater treatment plants] and Aqueducts, etc.
- BWS assigns a priority listing of increasing priority (Low → Medium → High → Emergency) to each job. Given limited JOC program management personnel, as multiple JOC projects are initiated those with higher priority are developed first, which may result in placing lower priority projects on hold.
- BWS believes Project Initiation is not the proper time to start the clock on a project; the initiation really gives the project its priority and a place in the project queue. A more useful milestone for starting the project clock would be the Request for Proposal. At this time there is a detailed scope of work that can be passed on to the contractor, which is not usually fully developed at the time of initiation.”

Auditor Comment: If the Department’s Water Supply bureau does not deem the 34-day guideline appropriate, it should put into practice an alternative timeline for developing job orders. Water Supply contends that some of its projects require “extensive engineering” and are not “straight replacement or repairs in kind.” If so, the use of JOC may not be appropriate given that the JOC program is intended for performing maintenance, repairs, and small- or medium-sized construction projects. Furthermore, delays to “accommodate operational schedules for WWTPs and Aqueducts, etc.” or “placing lower priority projects on hold” are not relevant to the timeliness of job order development. In the first case, delays that are necessitated by the facilities in which job order work will occur are pertinent to the construction phase of job order work—not the preceding development phase. In the second case, if a low priority project is placed “on hold,” this action would obviously make the project inactive at that point and no longer subject to development guidelines. Our review of sampled job orders did not indicate any such projects that were placed “on hold.”

2. Implement more effective project management controls and supervisory oversight to ensure that job order work is developed and carried out on a timely basis.

Department Response: “To ensure that the development of Job Orders progress in a timely basis, existing controls such as implementation guidelines and supervisory oversight will be enhanced. A ‘JOC Handbook’ is currently being finalized that will serve to be an all-inclusive summary of existing procedures and guidelines to be updated and enhanced as the JOC program continues.”

Problems with Construction Scheduling

Department practice requires that job orders contain construction duration times by including anticipated construction start and end dates for all JOC projects. Overall, our review

indicated that the construction duration for 50 (63%) of 79 sampled job orders exceeded their planned schedules.⁹ Specifically, we found that planned construction time was exceeded in:

- 40 (70%) of 57 Wastewater job orders.
- 6 (37%) of 16 Water Supply job orders.
- 4 (77%) of 6 Operations job orders.

For example, Wastewater issued a job order on March 4, 2006, (No. 05-NR00-MYEE1-006.00) for \$290,886 to upgrade a closed circuit TV system at the North River Water Pollution Control Plant. As of January 22, 2008 (the date of our audit inspection), construction had been delayed by 540 days—almost 18 months. Department engineers were unable to tell us when the work would be completed. As previously discussed, the duration of this job order’s development was also excessive and totaled 151 days. Overall, the job order has so far taken 698 more days to complete than planned.

Department Response: “BWT – The complexity of the DEP projects often results in construction schedules having to be revised and extended. Field conditions often result in the need for additional work that typically causes extended construction schedules. ‘Supplemental’ Job Orders, which authorize additional construction work, are the typical method by which field conditions are addressed. These Supplemental Job Orders become a part of the original project file and are typically the best form of documentation on the reasons for delays.”

Auditor Comment: Our independent analysis of construction schedules showed that construction durations exceeded their planned schedules for both job orders and associated supplemental job orders. Thus, 12 (30%) of the 40 delayed Wastewater projects were for supplemental job orders; 2 (33%) of the 6 delayed Water Supply projects were for supplemental job orders; and 1 (25%) of the 4 delayed Operations projects was for a supplemental job order. Therefore, the Department’s contention that construction delays were necessitated by additional work authorized under supplemental job orders is not supported by the evidence.

As another example, Operations issued a job order on August 17, 2006 (No. 05-SM-OME2G-004.01) for \$50,151 to repair or replace a wrought iron fence at Shaft 9A in Astoria, Queens. Construction was delayed by 68 days according to Department engineers. As previously discussed, the duration of this job order development was also excessive and totaled 143 days. Overall, the job order took 210 more days to complete than planned.

As a third example, Water Supply issued a job order on February 27, 2007 (No. 06-WOH-SASS-005.0) for \$151,460 for fixed air monitoring at Tannersville and Grand Gorge Water Pollution Control Plants. Construction was delayed by 111 days according to Department

⁹ Our analysis was based on 79 of the 97 sampled job orders. The duration of the remaining 18 job orders could not be ascertained because Department files lacked appropriate information.

engineers. The duration of job order development totaled 165 days. Overall, the job order took 293 more days to complete than planned.

However, in none of these cases was there adequate file documentation to indicate the reason for the delays in carrying out construction work for these job orders. Had the Department ensured that contractors adhered to their scheduled construction times, these job order projects would have been started and completed much sooner.

Recommendations

The Department should:

3. Ensure that JOC contractors complete work on schedule. In this regard, the Department should ensure that unfinished work is completed without further delay.

Department Response: “**BWT** – Effective January 2008, all Job Orders include liquidated damages along with an approved construction progress schedule to ensure all JOC projects are completed on time.

“In addition, the Engineering Audit Office requires a memorandum of acceptance verifying completion of work before payout of project is issued; therefore, there is completion oversight in place. There is no unfinished directed work in BWS JOC other than items intentionally put on hold by the JOC program managers.”

Auditor Comment: There was no response to the recommendation by the Department’s Operations bureau even though the audit disclosed that 77 percent of sampled Operations’ job order projects were late.

4. Examine the reasons for construction delays and develop procedures to remedy any deficiencies that hinder the timely completion of job order work.

Department Response: “**BWT** - Progress schedules will be reviewed and compared to actual construction to ensure that there are no delays.

“Since the time of this audit, **BWS** now requires the contractor to submit a project schedule for time of completion as one of the deliverables. Any deviation from this schedule is to be communicated in writing to the bureau.”

Auditor Comment: The new procedure is a step forward in ensuring job order work completion without delay. However, the Department must also put into practice an effective system of internal controls (as noted in our recommendation no. 2) to ensure that this recommendation is properly implemented. The lack of internal controls contributed to 63 percent of the sampled job orders exceeding their planned schedules. We also note that the Department’s Wastewater and Water Supply bureaus responded to this recommendation. As noted in recommendation 3, there was no response to the recommendation by the Department’s Operations bureau.

Failure to Remediate Hazards Promptly Cost the Department \$171,807

In three cases, job order work was delayed by the Department's failure to anticipate the need to remediate environmental hazards prior to commencing job order work. Thus, Wastewater issued a job order on November 11, 2006, (No. 06-WI00-DELP1-045.00) for \$570,408 to reconstruct primary sludge piping at the Wards Island Water Pollution Control Plant.¹⁰ As of January 23, 2008 (date of our audit inspection), construction had been delayed 293 days because the Department failed to remediate hazardous lead paint and asbestos before instructing the contractor to commence work. According to the Department, work was scheduled to be completed by May 30, 2008—almost 13 months after the original completion date.

Since the plant must remain operational while the sludge piping is being reconstructed, the Department has had to expend funds to install a pipe to temporarily divert the sewage sludge. We estimate the cost of the temporary piping will be \$171,807. The Department would not have had to expend this money had the required remediation been completed before the construction work began. However, as noted, the Department did not take adequate steps to remediate the hazardous lead paint and asbestos conditions before instructing the contractor to start work.

In the second case, Wastewater issued a job order on April 11, 2006, (No. 05-JA00-OMEH2-003.00) for \$341,708 to replace air compressors and dryers for the low air system at the Jamaica Water Pollution Control Plant.¹¹ As of January 14, 2008 (the date of our audit inspection), construction had been delayed 159 days—almost six months—because the Department failed to remediate hazardous lead paint before instructing the contractor to commence work.

In the third case, Wastewater issued a job order on September 13, 2005, (No. 05-WI00-MYEE1-008.00) for \$296,640 and a supplemental job order on July 28, 2006, (No. 05-WI00-MYEE1-008.01) for \$82,640 to reconstruct electrical resistor banks for the main sewage pump controls at the Wards Island Water Pollution Control Plant. As of January 23, 2008 (the date of our audit inspection), construction had been delayed by at least 164 days—almost six months—because the Department failed to abate hazardous asbestos before instructing the contractor to commence work.¹²

None of the three job order cases discussed above have been completed because of insufficient planning for eliminating hazardous conditions on the part of the Department. Thus, the inability to complete these projects in a timely manner calls into question the efficacy of the

¹⁰ The high cost of this job order can be attributable to special equipment specifications and working conditions.

¹¹ The high cost of this job order can be attributable to special equipment specifications.

¹² We used the planned construction duration for supplemental job order No. 05-WI00-MYEE1-008.01 to ascertain the construction delay as Department files lacked appropriate information about the duration of job order No. 05-WI00-MYEE1-008.00

Department's administration of the JOC program and, in one case cited above, will subject the City to additional monetary costs.

Department Response: "BWT - Each of the projects that were referenced involved field conditions that were not originally anticipated. These field conditions were regulated/hazardous wastes such as lead-based paint and asbestos that were discovered during construction. Once identified, the means to safely remove and dispose of these materials had to be planned and coordinated, which resulted in delays to the original construction schedules. Asbestos removal is by DEP's Asbestos Task Force and that contractor's schedule had to be coordinated with the JOC contractor's schedule and such coordination inherently results in delays. The paint removal required multiple proposals and subcontractor approvals which, again, results in delays to the original schedule. Once these materials were discovered, the construction schedules were completely modified to allow for a phased approach to the work (i.e., once the material is properly removed, construction continues until it has to be stopped to allow for the next phase of hazardous/regulated material removal)."

Auditor Comment: In its response, the Department acknowledged that unanticipated field conditions related to environmental hazards delayed the completion of certain job order work. Given that these types of environmental hazards are not uncommon in projects involving mechanical and electrical equipment described in the audit report, the Department should have attempted to identify and remediate the hazards before commencing job order work. Had the Department done so, it would have avoided the \$171,807 expenditure for temporary piping as cited in the audit.

We also note that there was no evidence in file documentation or in the PROGEN tracking system to show that the Department modified the construction schedules of the sampled job orders after the discovery of hazardous materials. In any case, we again assert that the hazards could have been identified and remediated before the original job orders were issued. We also note that according to information obtained from the Department, two of the three cited cases (to reconstruct primary sludge piping and reconstruct electrical resistor banks for the main sewage pump controls at the Wards Island Water Pollution Control Plant) were still not completed as of June 24, 2008.

Recommendations

The Department should:

5. Identify and remediate environmental hazards prior to commencing job order work.

Department Response: "BWT – Adequate investigation will be conducted in advance to determine the absence or presence of regulated/hazardous materials and their potential impact on the project schedule. Current procedures require that it be addressed at the start of the Job Order process, at the Joint Scope Meeting.

"BWS has a process to address this in the job order development phase and does not have a problem in this area. Furthermore, BWS requires a Safe Work Plan & Health and

Safety Plan reviewed and approved by Environmental Health & Safety compliance personnel. These plans identify any environmental hazards and subsequent remediation methods, for example, drilling through lead painted surfaces, torching of lead paint, identification of asbestos containing materials, etc.”

6. Ensure that the job order cases cited in this report are completed without further delay.

Department Response: “The Job Order projects cited under this finding will be monitored to be sure they progress on schedule and without unnecessary delay.”

More Than \$800,000 in Liquidated Damages Not Assessed

The Department did not assess contractors \$885,500 in liquidated damages when job order work was not completed on time. If work is delayed beyond its scheduled completion date, JOC contract Article 15 states that a contractor may, for individual job orders, be required to pay to the Department a specified amount of liquidated damages. As noted previously, there were 50 cases in which construction was delayed. However, 41 of the job orders for which construction were delayed beyond scheduled completion dates did not contain provisions to assess liquidated damages, nor was there any documentation to support those decisions. In at least four of these cases, our review of documentation and discussions with Department engineers indicate delays that could be attributable to contractors, thereby warranting the imposition of liquidated damages, which we calculate total \$623,000. (See Table I below.)

Table I
Schedule of Liquidated Damages for Job Orders
That Lacked Liquidated Damage Provisions

Job Order No. and Contractor	Job Title	Liquidated Damages per Day	Scheduled Completion Date	No. of Days Late	Amount Not Assessed through January 2008
06-OH00-JCHG2-011.00* JCH Delta Contracting	Installation of new site glasses	\$ 700	12/15/2006	390	\$273,000
05-CI00-VBEE2-003.00* V. Barile Electrical	Installation of a Chlorination System	\$ 700	8/14/2006	367	\$256,900
06-TI00-GEOH1-034.00 Geomatrix Services	Replace AC Unit in Dewatering Building and Main Building	\$ 700	8/30/2006	118	\$82,600
06-TI00-GEOH1-034.01 Geomatrix Services	Replace AC Unit in Dewatering Building and Main Building	\$ 500	9/24/2007	21	\$10,500
				Total	\$623,000

* Job orders that were delayed and have still not been completed.

Moreover, the Department chose not to impose liquidated damages even when individual job orders contained the appropriate provisions. For at least three of the nine cases for which construction was delayed, our review of documentation and discussions with Department engineers indicate delays that could be attributable to contractors, which we calculate total \$262,500. (See Table II below.)

Table II

Schedule of Liquidated Damages for Job Orders
That Contained Liquidated Damage Provisions

Job Order No. and Contractor	Job Title	Liquidated Damages per Day	Scheduled Completion Date	No. of Days Late	Amount Not Assessed through January 2008
06-CS00-JCHG2-028.00 JCH Delta Contracting	Roof clay tiles replacement at Paerdegat pump house	\$ 700	4/13/2007	102	\$71,400
06-OH00-JCHG2-011.01* JCH Delta Contracting	Installation of new site glasses	\$ 700	9/28/2007	108	\$75,600
06-WI00-GEOH1-025.00* Geomatrix Services	Install new AC units at locker, kitchen, and staffing rooms	\$ 700	4/30/2007	165	\$115,500
				Total	\$262,500

* Job orders that were delayed and have still not been completed.

While the Department is not obligated to assess liquidated damages, the practice of Department staff to routinely relieve contractors of this obligation increases the City's risk that work may not be completed on time and jeopardize the Department's standing with the federal monitor and state permit requirements.

Recommendations

The Department should:

7. Ensure that all job orders contain provisions for liquidated damages. Assess liquidated damages when contractors fail to complete work in accordance with scheduled timeframes.

Department Response: "Effective January 1, 2008 all Job Orders include provisions for liquidated damages."

Auditor Comment: Including provisions for imposing liquidated damages in all job orders is an important step. However, the audit showed that even when individual job orders contained the appropriate provisions, the Department chose not to invoke them.

Therefore, the Department must also ensure that it assesses liquidated damages when contractors do not complete work on time.

8. Determine whether liquidated damages should be assessed for the seven cases noted in this report.

Department Response: “A delay analysis will be performed on the JOC projects that include liquidated damages and, if warranted, they will be assessed.”

Problems with Non-Prepriced Tasks

Inappropriate Use of Job Order Contracting

The Department improperly used JOC to undertake certain project work. According to the Department’s standard JOC contract Articles 3B.2.1 and 3B.2.2, the cost of job orders is to be based on unit prices for work items contained in the construction task catalogs, and may also include work items for which there are no previously established prices (i.e., non-prepriced tasks). However, 9 (9%) of the 97 sampled job orders were based entirely on non-prepriced tasks whose prices were obtained with limited competition from vendors or subcontractors.¹³ Accordingly, JOC was not an appropriate method for performing these tasks. Instead, the work should have been carried out under procurement methods recognized by the City’s Procurement Policy Board Rules.

Department Response: “The use of non-prepriced tasks is essential in certain projects because not all necessary work at the DEP facilities could possibly have been envisioned and incorporated into the JOC books. As a result, reasonable procedures were established for the use of non-prepriced work (e.g., the solicitation of three independent bids) and, in the newer contracts, a separate adjustment factor is independently bid for non-prepriced work.”

Auditor Comment: We acknowledge that portions of job order work may sometimes contain unforeseen tasks that lack previously established unit prices. However, JOC is not appropriate for undertaking work in its entirety for which there are no established prices at all. Notwithstanding the Department’s contention that “reasonable procedures were established for the use of non-prepriced work,” as discussed on page 20, 58 percent of non-prepriced items in sampled job orders lacked required price quotations or justification. Accordingly, the Department must use other procurement methods to undertake work that is based entirely on non-prepriced tasks.

¹³ Six of the job orders were issued by Wastewater (Nos. 05-2600-JCHG2-004.01, 05-CI00-VBEE2-006-.00, 05-CI00-VBEE2-006-.01, 06-CS00-JCHG2-028.00, 07-JA00-OMEH2-016.00, 05-NR00-MYEE1-005.02.); three job orders were issued by Water Supply (07-WOH-VOLGW-024, 07-EOH-GEOGE-004.01, 07-EOH-GEOGE-004.02).

Undertaking work that is not based on any established unit prices is inconsistent with the JOC method and diminishes its cost effectiveness. Since JOC relies on applying recognized prices to establish the cost of the work, the failure to use those prices calls into question the process by which prices are solicited and obtained.

Recommendation

The Department should:

9. Cease its practice of using JOC for work that is not based on any established unit prices in the construction task catalogs.

Department Response: “**BWT** – As new JOC contract books are developed, more and more unit price items are being added to supplement the already voluminous list of pre-priced tasks in order to reduce the use of non-prepriced tasks.

“However, the diversified nature of the projects at DEP may never lend itself to the possibility of completely eliminating the use of the non-prepriced method of work. This is particularly true for **BWS**. Some tasks are so unique in the upstate watershed the work items do not appear in the catalog. This contract provision allows us to perform work not included in the construction task catalog but which is extremely important to be rapidly completed and which otherwise could not be completed in the timeframe required under other normal procurement methods. **BWS** has and will continue to solicit a minimum of three bids as allowed by the contract terms.”

Auditor Comment: The audit did not advocate completely eliminating the use of non-prepriced tasks, a goal that we recognize may be unfeasible. Instead, the audit objected to the Department’s practice of using JOC in cases where work items were *based entirely* on non-prepriced tasks. In these cases, if the Department is concerned that work “could not be completed in the time frame required under other normal procurement methods,” the City’s Procurement Policy Board Rules provide for expedited procurement under an emergency declaration.

Lack of Required Price Quotations

Some of the costs for work items in 46 of 97 job orders were based on previously established unit prices, while other work items were non-prepriced. In these cases, the Department’s standard JOC contract Article 3B.2.2b requires that contractors solicit prices from a minimum of three vendors. If required price quotations are not obtained, the JOC contract and the Department’s “Job Order Contracting Training Manual” state that the reason for not doing so must be justified in writing by the respective Department bureau or division chief.

Despite this stipulation, we found that 72 (58%) of 124 non-prepriced items in the 46 job orders lacked the required price quotations or justification.¹⁴ Problems with using non-prepriced items were also identified by The Gordian Group in its “Job Order Review Reports.” The Gordian Group found that required price quotations or justification were lacking in 10 (33%) of the 30 job orders that it reviewed.

There was no file documentation to ascertain why the required number of price quotations was not solicited in these cases. The lack of adequate quotations may result in the City paying higher prices for materials, products, and construction services if there is limited competition. Moreover, by relying on sole suppliers, the Department may experience project delays if the supplier does not perform adequately.

We believe that the Department may not be taking adequate steps to ensure that additional vendors are contacted for price quotations. Our audit engineers found various sources, including manufacturer Web sites, the Blue Book, and Thomas Net, that listed multiple vendors that could have provided the required materials and services for the non-prepriced items that lacked sufficient price quotations. For example, we identified alternate vendors for items including Appleton 6-pole disconnects, spare parts for Wemco sewage pumps, Magtech magnetic level gauges, a Chemtainer containment basin, Mobotix camera and accessories, and bridge repair and remediation work. If the Department were to instruct its JOC contractors to expand their bidding lists, it might be able to enhance competition and obtain additional competitive prices for non-prepriced items.

Recommendations

The Department should:

10. For items whose price cannot be determined by established unit prices in the construction task catalogs, ensure that contractors obtain a minimum of three bids. Alternatively, ensure that Department officials who deem the lack of price solicitations to be warranted provide written justification for the decision in project documentation.

Department Response: “A minimum of three bids will be obtained and when not possible, proper justification will be on file with the appropriate authority to warrant such decision.”

11. Review and ascertain the reasons project files lacked required price quotations or written justification letters for the cases cited in this report.

Department Response: “The cited project files will be investigated and appropriate measures will be taken with regard to any missing documentation.”

¹⁴ In addition, non-prepriced items in two of the nine job orders (05-CI00-VBEE2-006.01 and 07-WOH-VOLGW-024) discussed in the previous section lacked the required price quotations or justification.

12. Instruct contractors to contact additional sources to obtain multiple competitive bids for non-prepriced items.

Department Response: “Contractors will be reminded of non-prepriced procedures to obtain multiple bids for his type of work.”

Job Order Work Overpriced by \$86,680

JOC contract Article 3B.2.1 requires, “For Prepriced Tasks the Contractor shall identify the task and quantities required from the Unit Price Book” (i.e., construction cost catalog). However, for a \$129,150 job order issued on August 15, 2005 (No. 05-CS00-JCHG2-006.00) to install concrete barriers at a collection facility in Brooklyn, Wastewater deemed the cost of the entire work as non-prepriced, even though the cost should have been based on items contained in the catalog. The contractor solicited three price quotations for the work ranging from \$137,533 to \$208,000. However, our analysis indicated that the cost of the work using catalog unit prices should have been \$42,470—\$86,680 less than the amount of the job order.

According to the Department, the decision to forgo the use of the prices in the construction task catalog was to “expedite the work.” However, the express purpose of JOC and the use of the construction task catalog is to expedite work that would otherwise take longer to execute by conventional procurement methods. Furthermore, according to the Department, the ostensible \$137,533 low bid was negotiated to \$129,150, although there was no substantiating file documentation. Clearly, the Department’s decision to competitively bid an individual contract for this job order work was not cost effective in this case and was an inappropriate use of the JOC method.

Department Response: “The project that was cited necessitated a type of concrete barrier that was not in the JOC book. There was, however, other work (concrete work, rebar, etc.) that was in the book. The decision to non-preprice the entire project was made because it was believed that a ‘package’ bid would be received from the various bidders that would be more cost effective than breaking out the largest component of the project and receiving bids on only that part.”

Auditor Comment: Our analysis of this job order showed that the total cost of the prepriced items was \$39,566, whereas the cost of the non-prepriced concrete barrier was only \$2,903. Thus, the total cost should have been \$42,470—\$86,680 less than the amount of the actual job order. Obviously, the Department’s decision to deviate from its procedures governing the development and pricing of job order work was anything but “cost effective.”

Recommendations

The Department should:

13. Calculate job order work on the basis of established unit prices in the construction task catalogs.

Department Response: “DEP will endeavor to utilize unit price book items on Job Order projects to the maximum extent possible.”

Auditor Comment: The Department must also put into practice an effective system of internal controls (as noted in our recommendation no. 2) to ensure that this recommendation is properly implemented. The lack of internal controls contributed to the cited job order being overpriced by \$86,680.

14. Review and revise the cost of the job order listed in this report and recoup from the contractor any excess payments.

Department Response: “DEP will investigate whether it is feasible for monies to be recouped from the contractor on this project.”

Problems with Multiplier Factors

The Department calculates the total cost of job order work items by adjusting item unit prices with the respective contractor’s multiplier factor. However, based on our review of the sampled job orders, it appears that the Department does not adequately ensure that stipulated multiplier factors are used. Specifically, we noted that unit prices of work items in 13 (13%) of 97 sampled job orders were adjusted by inaccurate multiplier factors.¹⁵ Consequently, the Department paid contractors a total of \$83,813 less than was required in some cases, while in others, the Department overpaid a total of \$17,664.

Department Response: “**BWT** – Adjustment factors may be incorrectly used at times due to changes in work schedules after Job Order issuance. For example, the work site may have become available to the contractor during normal working hours but, in the Job Order, the adjustment factor that was used was for other than normal working hours because it was originally contemplated that the work would have to be performed during such time. Because the Job Order may not have been corrected for this change in work schedule, the incorrect adjustment factor was used for payment purposes.”

Auditor Comment: The Department’s response demonstrates how its administration of the JOC program is fraught with deficient internal controls. Clearly, if work is re-scheduled from regular to overtime hours, the Department must have appropriate procedures to ensure that this information is transmitted to the staff that are responsible for applying the correct multiplier factors and computing the cost of job orders.

Department Response: “**BWSO** – The auditors’ comment that contractors were underpaid or overpaid due to an inaccurate multiplier factor is vague and does not reflect multiplier factor change during the contract duration to compensate for inflation.

¹⁵ Twelve of the job orders were for Wastewater projects; one of the job orders was for an Operations project.

Consequently, Job Orders issued earlier in the contract did carry a lower factor, which is correct.”

Auditor Comment: We disagree. The Department’s standard JOC contract §1.2.4c. “provides a means to update the base year Adjustment Factors to the subsequent year adjustment factors by using actual escalation/de-escalation as measured by the Construction Cost Index.” The Department’s engineering audit office’s “Standard Guide for Auditing Job Order Contracts” also stipulates that JOC contractors use the adjustment factor (i.e., multiplier) in effect on the submittal date of a contractor’s proposal. Consequently, for the time periods and proposal dates during which job order work was authorized, we applied the appropriate multiplier factors specified in the applicable JOC contracts. These multiplier factors were clearly adjusted to “compensate for inflation.”

Recommendation

15. The Department should ensure that job order unit prices are adjusted by the appropriate multiplier factor.

Department Response: “Payments and Job Orders will be scrutinized to ensure appropriate adjustment factors are used.”

Problems with Documentation

The Department does not always ensure compliance with guidelines for effectively administering the JOC program. As a result, Department files did not contain evidence that required project documentation from contractors was submitted and approved. Furthermore, the Department does not maintain JOC files in a consistent manner.

Contract specifications and job order work scopes stipulate that JOC contractors fulfill certain requirements. These include: submitting material samples, product data, drawings, and test reports; and obtaining manufacturer’s warranties and guarantees for materials and equipment. However, as far as work for the 80 of 97 sampled job orders that required submittals is concerned, we found that overall, 47 (59%) of the files lacked required documentation to substantiate that contractors provided the required submittals for all items. This information was lacking in:¹⁶

¹⁶ In response to the Department’s request at the exit conference, we re-examined the Wastewater and Operations job order files that lacked all required documentation. As a result of our re-examination of 38 Wastewater files, we found that three files now contained all documentation. Accordingly, we revised the number of deficient Wastewater job order files from 38 to 35. We also found that although seven other Wastewater and one Operations job order files contained some additional documentation, those files still lacked all the required documentation.

- 35 (60%) of 58 files for Wastewater job orders.
- 6 (38%) of 16 files for Water Supply job orders.
- 6 (100%) of 6 files for Operations job orders.

Department Response: “**BWT** – Accurate and complete documentation for each JOC project is a rudimentary aspect of the JOC program that DEP will continuously strive to improve upon.

“**BWSO** – The auditor’s statement that 100% of Operations Job orders were lacking in submittals for material samples, product data, drawings, test reports, is vague and misleading. No mention is made of which projects are involved and which items are presumed required, or missing. The projects do in fact have extensive submittals for the items used where required. The Central Park project has material samples and certification copies in the project book. The Silver Lake project and other project books have extensive items, product data, and vendor submittals in the project book.

“In addition, the JOCs pre-priced line items book has a corresponding specification book with the specifications for products and items in the pre-priced book. The use of pre-priced line items with a corresponding pre-determined specification is for simplicity. Consequently, requiring duplicate submittals for items pre-qualified is redundant and inefficient.”

Auditor Comment: Our review of the Central Park project file found the following required documentation that was not submitted: catalog cuts for roofing material and a roof hatch, shop drawings, evaluation reports, warranties, health and safety plan, and a containment plan to prevent contaminants from entering the reservoir during construction. The other five Operations job orders that were missing required documentation were:

- No. 05-MY-JEM2E-003.00, which lacked product data, UPS sizing calculations, guarantee/warranty, equipment list, manufacturer's seismic qualification certification, and field quality control test reports;
- No. 05-RE-MEG1G-023.01, which lacked catalog cuts and sample.
- No. 05-RE-PAR1P-014.00, which lacked product data, samples, product list, shop drawings, product certificates, operation and maintenance data, and field quality-control tests.
- No. 05-SM-OME2G-004.01, which lacked shop drawings, product data, samples, approval for use of non-toxic herbicide.
- No. 05-RY-OME2G-029.00, which lacked roof product data, shop drawings, samples.

As stated previously, the Silver Lake project was not part of our audit sample.

The requirement that JOC contractors make submittals is specified in the detailed scopes of work that accompany each job order, and in the technical specifications. There is no requirement that contractors make “duplicate” submittals, as the Department believes.

Documentation is important because it is the means of ensuring that contractors obtain approval, subsequently install, and receive payment for only specified items such as circuit breakers, pumps, and air-handling equipment. Based on our audit inspections, we were able to independently attest that many of the specified materials were installed in most of the sampled job order cases. However, we were unable to attest that specified materials were installed in four job order cases in which work was concealed and inaccessible. Furthermore, job order files for these four cases that lacked submittals also lacked inspection reports and progress photos, which would offer further corroboration that specified materials were installed.¹⁷ If the Department had enforced contract provisions for submitting and obtaining approval of required documentation, our concerns about the types of materials and equipment installed would not have occurred.

Recommendations

The Department should:

16. Ensure that JOC contractors submit all required material samples, product data, drawings, and test reports.
17. Maintain all required inspection reports and supporting documentation in Department files.
18. Implement an effective system of administration to record, collect, file, and properly maintain all required documentation in Departmental files.
19. Ensure that all inspections of job order work are adequately conducted and documented.
20. Review the four cases mentioned in this report to ensure that all appropriate materials and equipment were installed.

Department Response (Recommendations 16-20): “**BWT** – There is a continued effort to meet the goal of ‘complete’ project notebooks. The same type project binder is being transitioned into the program to maintain uniformity in project files. A ‘JOC Handbook’ is being prepared to consolidate all past procedures that have been instituted and it will

¹⁷ The four job orders were: No. 05-2600-JCHG2-004.01 to install electrical controls at the 26 Ward Water Pollution Control Plant; No. 06-CI00-OMEH2-009.01 to install a compressor and dryer at Coney Island Water Pollution Control Plant; No. 07-JA00-OMEH2-016.00 to install circuit breakers at the Jamaica Water Pollution Control Plant; and No. 06-WOH-VOLGW-001.1 for fencing, concrete and excavating at Tannersville Pump Station.

include checklists to ensure that work does not proceed and payments are not processed unless all documentation is in place.

“Over the past six months **BWS** has become more stringent in collecting samples, catalog cuts, submittals, etc. and has aggressively addressed these issues. In addition, BWS has developed a project manager checklist which lists the various required contractor submittals that must be collected. BWS project files have greatly improved since the implementation of the JOC program. This was the bureau’s first experience with building a project file of this nature, and it is improving with continued practice and experience. In addition, BWS has recently initiated a Project Management checklist for all JOC project management personnel to improve its project management controls and supervisory oversight. Regarding the specific cases mentioned in Recommendation 20, please see comment to footnote below.”

Auditor Comment: We note that the Department’s Wastewater and Water Supply bureaus responded affirmatively to these recommendations; however, there was no response to these recommendations from the Department’s Operations bureau. Therefore, the Department must ensure that these recommendations are uniformly implemented in all bureaus that participate in the JOC program.

Problems with PROGEN Database

The Department does not have an adequate control system to ensure that information that should be contained in the program’s PROGEN database is recorded and updated in a timely manner. The PROGEN database, which is used for managing the JOC program, contains information about contracts and contractors, job order estimates and proposals, detailed scopes of work, and critical tracking dates.

We found that the information that should be contained in PROGEN is not regularly updated and that often, information is not recorded. In addition, the database is not reliable because it contains inconsistent information about critical tracking dates, such as project initiation, job order issue, planned and actual construction start/end, etc. Thus, our review indicated that for the 97 sampled job orders, PROGEN contained:

- 21 (22%) inaccurate and 12 (12%) missing project initiation dates.
- 16 (16%) inaccurate and 8 (8%) missing job order issue dates.
- 29 (30%) inaccurate and 11 (11%) missing construction start dates.
- 54 (56%) inaccurate and 12 (12%) missing construction completion dates.

As a result, information about a project’s status is often unreliable and cannot be accurately determined. As noted previously, we were unable to determine the status of many of

the sampled job orders because of problems with the information in the PROGEN database. Further, the database cannot be used as a tracking tool to adequately monitor projects.

Recommendation

21. Implement adequate controls to ensure that the data contained in the PROGEN database is complete, current, and accurate.

Department Response: “The Progen database will be monitored to ensure that it is accurate and up-to-date at all times. Monthly progress meetings with all contractors, engineers and immediate supervisors will continue and will aid in the effort to maintain an accurate database.”

Deficient Conditions

While our inspections of job order projects indicated that accessible work was generally performed satisfactorily, we did note the following minor deficient conditions: one inoperable camera and computer monitor at North River Water Pollution Control Plant (Metro York Electrical Job Order No. 05-NR001-MYEE1-006.00), mini-blinds and a specified light fixture not installed at the Jerome Avenue Machine Shop (Par Plumbing Job Order No. 05-RE-PAR1P-014.00), four of eight trees not planted at Gooseberry Creek (Volmar Construction Job Order No. 06-VOLGW-001.001), and debris and sharp objects placed on unfinished roofing work at Wards Island Water Pollution Control Plant (Volmar Construction Job Order No. 06-WI00-VOLG1-044.00).

In addition, we identified the following deficiencies that are more serious:

- Collapsed streambank stabilization wall and dislodged plantings at Gooseberry Sewer Crossing (Volmar Construction Job Order No. 06-WOH-VOLGW-001). Our cost estimate for the deficient work is \$19,174.
- Poor roofing installation at the Staten Island Repair Yard (Omega Service Maintenance Job Order Nos. 05-RY-OME2G-029.00 and 05-RY-OME2G-029.01). Our cost estimate for the deficient work is \$19,929.

Although these deficiencies do not materially alter our view about the overall condition of the work, the Department should ensure the adequacy of its procedures for identifying and remedying deficiencies before job order work is completed.

Recommendations

The Department should:

22. Compel the contractors mentioned in this report to perform necessary work to correct the noted deficiencies.

Department Response: “Contractors will be directed to complete all work in accordance with the detailed scopes of work and correct any deficiencies that are discovered.”

23. Ensure that procedures for inspecting and certifying job order work are adequate.

Department Response: “Field inspection reports and final certificates of inspection have been developed to ensure uniform reporting and documentation. Procedures will be reinforced to ensure field inspections and certification of work complete are accurate and all-inclusive to ensure that work is complete on time, there are no deficiencies, and it is in accordance with the project’s detailed scope of work.

“As stated earlier, **BWS** has recently initiated a Project Management checklist for all JOC project management personnel to improve our project management controls and supervisory oversight.”

Appendix I

List of JOC Contracts
(Effective during Fiscal Years 2005, 2006, and 2007)

Bureau of Wastewater Treatment 2005 - Present Contracts						
Contract Number	Contractor	Trade	Region	Contract Maximum	Start Date	Term (Years)
JOC-04-1G	Volmar Construction	GC	1	\$6,000,000	6/13/2005	2
JOC-04-1G (R)	Volmar Construction	GC	1	\$6,000,000	8/30/2006	2
JOC-04-2G	JCH Delta Contracting	GC	2	\$6,000,000	6/13/2005	2
JOC-04-1E	Metro York Electrical	Elec	1	\$5,000,000	8/8/2005	2
JOC-04-1E (R)	Metro York Electrical	Elec	1	\$5,000,000	11/3/2006	2
JOC-04-2E	V. Barile Electrical	Elec	2	\$5,000,000	9/19/2005	2
JOC-04-2E (R)	V. Barile Electrical	Elec	2	\$5,000,000	10/11/2006	2
JOC-04-1P	Delphi Plumbing	Plum	1	\$3,000,000	7/11/2005	2
JOC-04-1P (R)	Delphi Plumbing	Plum	1	\$3,000,000	9/1/2006	2
JOC-04-2P	Wittmann Plumbing	Plum	2	\$3,000,000	6/13/2005	2
JOC-04-2P (R)	Wittmann Plumbing	Plum	2	\$3,000,000	6/13/2007	2
JOC-04-1H	Geomatrix Services	HVAC	1	\$2,000,000	6/13/2005	2
JOC-04-1H (R)	Geomatrix Services	HVAC	1	\$2,000,000	6/13/2007	2
JOC-04-2H	Omega Service Maintenance	HVAC	2	\$2,000,000	6/27/2005	2
JOC-04-2H (R)	Omega Service Maintenance	HVAC	2	\$2,000,000	7/1/2006	2
SUM				\$58,000,000		

Bureau of Water and Sewer Operation						
Contract Number	Contractor	Trade	Region	Contract Maximum	Start Date	Term
JOC-1G	Mega Contracting	GC	1	\$2,000,000	3/27/2006	2
JOC-2G	Omega Service Maintenance	GC	2	\$2,000,000	3/27/2006	2
JOC-2E	Jemco Electrical Contractors	Elec	2	\$1,500,000	5/11/2006	2
JOC-1P	Par Plumbing	Plum	1 & 2	\$1,000,000	3/27/2006	2
SUM				\$6,500,000		

Bureau of Water Supply						
Contract Number	Contractor	Trade	Region	Contract Maximum	Start Date	Term
CRO-405G	Geomatrix Services	GC	East	\$4,000,000	1/3/2007	2
DEL-250G	Volmar Construction	GC	West	\$3,000,000	5/8/2006	2
CRO-405E	J & J Sass Electrical	Elec	East	\$2,000,000	4/10/2006	2
DEL-250E	J & J Sass Electrical	Elect	West	\$2,000,000	4/10/2006	2
SUM				\$11,000,000		

Total of all Contracts =	\$75,500,000
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**Additional Auditor Comments to Address
Department Response to Specific Job Orders**

Job order No. 05-SM-OME2G-004.01 to repair or replace a wrought iron fence at Shaft 9A in Astoria, Queens: This project was cited in the report because construction was delayed by 68 days; the duration of this job order development totaled 143 days. Overall, the job order took 210 more days to complete than planned.

Department Response: “BWSO -The item example claiming excessive time duration for Job Order issue, presumably the entry into JOCs Progen program listing on September 13, 2005, specifically No. 05-SM-OME2G-004.01 to repair or replace a wrought iron fence at Shaft 9A, where a Job Order was issued on August 17, 2006 and final inspection completed in December 14, 2006, is addressed as follows:

“The audit claim that the Job Order took 210 days more than planned to complete is incorrect. The General Contracts for JOCs were not approved and awarded until the end of March 2006. A listing into Progen on September 13, 2005, seven months before the contract was awarded and the contractor given notice to proceed, is not relevant. It is merely one of many entries in a compilation of future projects. It did not imply any planned start or finish dates.

“It should be noted that the Joint Scope meeting occurred on June 7, 2006, within 2 ½ months of the General Contract Notice to Proceed. An actual duration of 6 months to completion, from the Joint Scope meeting, is reasonable. There were delays because BWSO had to comply with environmental, health, and safety rules and regulations for a fence requiring lead paint remediation. In addition, there were weather delays due to rain for the extensive exterior painting.”

Auditor Comment: The Department is mistaken in its belief that we analyzed this job order on the basis of a “listing into Progen.” In fact, we based our delay analysis of this job order by applying the associated contract’s March 27, 2006 registration date and comparing it to the date that the job order was issued, August 17, 2006; accordingly, it took 143 days for Operations to develop this job order. The project should have taken 64 days from initiation on March 27, 2006, to planned completion on October 11, 2006, according to the job order. In actual fact, the project took 274 days from initiation to actual completion on December 26, 2006. Therefore, the overall delay was 210 days (i.e., 274 less 64 days).

Job Order No. 06-WOH-SASS-005.0 for fixed air monitoring at Tannersville and Grand Gorge Water Pollution Control Plants: This project was cited in the report because construction was delayed by 111 days. The duration of job order development totaled 165 days. Overall the job order took 293 more days than planned to complete.

Department Response: “This project required BWS to obtain and receive delivery on specific Mine Safety Appliance (MSA) air monitoring equipment which was compatible and modular with our other facilities. The Bureau had to outsource the programming, which also needed to be compatible with other facilities and SCADA systems. Delivery of the computer hardware was delayed and, as mentioned above, the audit clock was based on project initiation, not the date the job order was issued, which BWS believes is a more appropriate metric.”

Auditor Comment: The “audit clock” was not based on project initiation as the Department contends. We assessed the duration of the construction on the basis of the dates that construction actually started and ended. This time period totaled 132 days in contrast to the planned construction time totaling 21 days. The resultant construction delay was 111 days. We should note that the job order work scope required the JOC contractor to obtain and install the air monitoring equipment (i.e., the computer hardware). The Department issued separate supplemental job orders to program the equipment. There was no evidence in the project file to indicate how the programming would have contributed to any construction delays for the cited job order.

Job order Nos. 07-WOH-VOLGW-024 for Lowes Corners bridge repair, 07-EOH-GEOGE-004.01 for a rescue team at Mahopac Wastewater Treatment Plant, and 07-EOH-GEOGE-004.02 to reconstruct a primary digester at Mahopac Wastewater Treatment Plant: These projects were cited in the report because they were based entirely on non-prepriced tasks, whose prices were obtained with limited competition from vendors or subcontractors.

Department Response: “BWS – Some tasks are so unique in the upstate watershed the work items do not appear in the catalog. In a specific example, the Lowes Corners Bridge 07-WOH-VOLGW-024, was an emergency engineered repair designed by a BEDC consultant. This will not appear in the task catalogs because of the detailed specific type of work items and materials, and to exclude this type of work from the JOC program would be counterproductive. BWS solicited bids from 12 firms; of 12 solicitations, two (2) bids were received by reputable firms. The Non-Pre-Priced provision of the JOC program allowed us to quickly and effectively remediate and repair a direct threat to public safety in the case of Lowes Corners Bridge.

“Regarding 07-EOH-GEOGE-004.01 and 07-EOH-GEOGE-004.02 these two particular Job Orders, while based entirely on Non Pre-priced items, were based on 3 (three) solicited quotes as required by the JOC contract articles. We therefore believe that the Comptroller’s audit report needs to be corrected regarding these jobs under this list.”

Auditor Comment: The use of JOC is inappropriate for undertaking tasks that are so unique that work items do not appear in the cost catalog. If the work required under Job Order No. 07-WOH-VOLGW-024 was deemed an “emergency engineered repair” by the Department, it should have carried out the procurement as an emergency purchase under the provisions of Procurement Policy Board Rules §3-06.

The Department's explanation that Job Order Nos. 07-EOH-GEOGE-004.01 and 07-EOH-GEOGE-004.02 were "based on three solicited quotes," does not justify using the JOC program for undertaking work that was "based entirely on Non Pre-priced items." As stated in the audit, the work should have been carried out under alternate City procurement methods.

Job Order No. 07-WOH-VOLGW-024 for Lowes Corner bridge repair: This project was cited in the report because it was based entirely on non-pre-priced tasks. Moreover, the non-pre-priced task items lacked the required price quotations or justification.

Department Response: "BWS – All solicitations are documented. BWS far exceeded the required minimum of three solicitations – twelve solicitations were issued to various qualified local contractors in the case of the Lowes Corners Bridge 07-WOH-VOLGW-024. The list was obtained from the approved NYSDOT contractors list, but only 2 of the 12 contractors submitted bids. BWS does not believe the lack of bids is a deficiency within the JOC program. It is also common within the standard capital construction program."

Auditor Comment: As previously discussed, this work should not have been carried out under the JOC program. In any case, there was no evidence in the file documentation to indicate that "all solicitations are documented." The only information in the project file were two price quotations and a fax transmittal stating that "two other contractors verbally declined bid."

Job Order No. 06-WOH-VOLGW-001.1 for fencing, concrete and excavating at Tannersville Pump Station: This project was cited in the report because files lacked submittals, inspection reports, and progress photos.

Department Response: "All appropriate materials and equipment were installed per the project specifications and this is documented in the project file. There was a BWS approved change from a barbed wire and chain-link fence to a stockade fence to better suit the residential neighborhood. Otherwise the concrete foundation is in place and the excavation for that foundation was performed."

Auditor Comment: While we acknowledge that the quality of the accessible work was satisfactory, we cannot attest that all specified materials and equipment (including the concrete design mix) were installed, as this information was not in the project files, notwithstanding the Department's contention.

Job Order No. 05-RE-PAR1P-014.00 for a bathroom renovation at the Jerome Avenue Machine Shop: This project was cited in the report because mini-blinds and a specified light fixture were not installed

Department Response: "BWSO – The auditors' comments that a mini-blind and specified light fixture was not being installed at the Jerome machine shop is inaccurate and misleading. The light fixture was certainly installed and of the type specified in the

scope of work. Due to a very large variety of light fixtures available, the exact model and make installed was not listed in the pre-priced JOCs book. An equivalent power rated commercial grade light fixture was specified from the pre-priced catalog, since it included the hardware and labor for installation at a lower price than for the exact model which was installed and electricians labor utilized for its installation . . .

“Regarding the statement that mini blinds were not installed at the machine shop, the auditors fail to state that the blinds were in fact delivered to DEP, at DEPs request, to be installed by the shop personnel at their convenience. The contractor did not install the blinds because the window moldings were painted and needed to dry before the blind mount brackets were attached with screws.”

Auditor Comment: If the Department chose to substitute a different light fixture and exempt the contractor from installing the mini-blinds, this information should have been documented and contained in the project files.

Job Order Nos. 05-RY-OME2G-029.00 and 05-RY-OME2G-029.01 for roofing installation at the Staten Island Repair Yard: This job order was cited in the report because of poor roofing installation.

Department Response: “The auditors’ comment about poor roofing installation at the Staten Island Repair Yard, specifically Job Order Nos. 05-RY-OME2G-029.00 and 05-RY-OME2G-029.01, is inaccurate and misleading. The contractor repaired the existing roof as required in the scope of work. At the conclusion of the work, there were still leaks at the building in question during heavy rain events. To determine if the JOC contractor had correctly repaired the roof, a test was conducted. The roof was flooded in dry weather. No leaks from the area of the roof repaired by the JOC contractor were found. It was determined that the leaks were caused by various cracks and a damaged window, and were outside the scope of work given to the JOC contractor. Therefore, the auditors’ statement about deficient work is inaccurate: There was no deficient work.”

Auditor Comment: Notwithstanding the Department’s belief, photographs we took during our visit indicate problems with the quality of work. Examples of this include high spots on the main roof that obstruct proper drainage and cause ponding, and poor roofing at drains. In addition, file documentation did not contain any records to indicate that a flood test was conducted.

Job Order No. 06-VOLGW-001.001 to install a gate at Gooseberry Creek : This job order was cited in the report because four of eight trees were not planted.

Department Response: “BWS – Post-audit: Contractor was notified to plant four (4) more trees as specified. This has not been completed, so we have requested a credit on an upcoming job order for the four trees. After further review of the completed project, the additional four trees will not provide significant tangible benefit, nor enhance the function of the project, and a credit for the missing trees is in our best interests.”

Auditor Comment: The Department’s decision to obtain a credit for this work item was appropriate and should be noted in the file documentation.

Job Order No. 06-VOLGW-001 for Gooseberry Sewer Crossing: This job order was cited in the report because of a collapsed streambank stabilization wall and dislodged plantings.

Department Response: “BWS - The job is functioning as originally designed to protect the sanitary collection system. Since its completion there has been no encroachment due to erosion of the stream bank, and no exposure of the concrete pipe sewer crossing in the stream. It is true that due to scouring, the wing on one rock vane, settled into the scour pool, and new plantings were dislodged by flood waters, however, the project continues to meet all of its goals and objectives. The project was installed according to the design. BWS cannot hold contractor accountable for natural flood damage after the job was accepted.”

Auditor Comment: Gooseberry Sewer Crossing contract specifications, section one, state: “All work, including landscaping and Japanese Knotweed control, shall be guaranteed for a minimum of one year from the date of final acceptance of the landscaping work or the date of substantial completion, whichever is later.” We inspected the work on October 31, 2007—within the one-year guarantee period. However, if the Department believes that the contractor is not responsible for damages in this instance, it should properly document this fact in writing.

June 19, 2008

Mr. John Graham
Deputy Comptroller - Audits, Accountancy & Contracts
The City of New York
Office of the Comptroller
1 Centre Street
New York, New York 10007-2341

**Re: Audit FR07-121A: Audit Report on Job Order Contracting by the
Department of Environmental Protection**

Dear Mr. Graham:

Thank you for the opportunity to comment in response to your June 2, 2008 Draft Report on DEP's Job Order Contracting ("JOC") Program. We appreciate the thorough and detailed audit undertaken by your office of our Job Order Contracting (JOC) Program.

Our JOC program has been an essential means of completing projects quickly and at a volume that cannot be matched by any other method. The JOC program has enabled DEP to rapidly repair and improve its infrastructure in a quality manner and with good value. We believe we are executing the program in accordance with the overall program intent and enthusiastically support the continuation of the program. It is used for a wide array of emergency projects to prevent facility shutdowns, critical projects to address community concerns, mandated Environmental Health and Safety projects under the Federal Monitor's supervision and, most typically, standard projects to maintain satisfactory and uninterrupted facility operation. We were pleased that at the exit conference on May 22, 2008, your staff described JOC as a good program that should be continued. We believe that the benefits and success of our JOC program are well worth noting as a means of efficiently providing essential City services.

Your Draft Report provides a good summary of the procedures and controls that can ensure a successful JOC program. Many of these controls have already been put in place at DEP, including:

- Continued monthly progress meetings with all JOC contractors, project engineers, and immediate supervisors to review project status, discuss issues, and ensure progress on all projects.
- Continued training of contractors and engineers in JOC procedures, including Department policies and procedures.
- Maintaining an accurate and up-to-date Progen database on all projects.



DEPARTMENT OF
ENVIRONMENTAL
PROTECTION

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- Development of a "JOC Handbook" as a means of maintaining an all-inclusive repository of necessary procedures, checklists, forms, etc.
- Transitioning to one type of project notebook to ensure all documentation is consistent and complete between engineers.
- Field inspections utilizing a standardized report that, in addition to ensuring contract work is progressing satisfactorily and in accordance with the established scope of work, will provide a means to check prevailing wage compliance.

Although DEP's JOC program represents less than 2% of the annual Capital commitment, it is one of the primary means of addressing projects that are most critical at many of our facilities. I would like to thank you for your office's review of our program and can assure you that we will use the recommendations in your report as we continue to improve and build upon the success of the JOC program.

Our detailed responses to the findings and recommendations contained in the Draft Report are attached.

Sincerely,



Steven W. Lawitts,
First Deputy Commissioner

cc: Commissioner Emily Lloyd

DEPARTMENT OF ENVIRONMENTAL PROTECTION AUDIT RESPONSE
Audit Number FR07-121A: Audit Report on Job Order Contracting by the Department of
Environmental Protection

Please note that the JOC program involves several Bureaus in DEP. To provide clarity, comments relevant to a particular Bureau are identified as such below.

Finding (p.7): **The Department Lacks Adequate Controls to Ensure
That Job Order Work Is Completed in a Timely Manner.**

DEP Response:

Bureau of Wastewater Treatment (BWT) - The projects performed under the JOC program are diverse in nature and, as such, construction periods vary and are often subject to unknown conditions which may cause delays. Controls have been established to ensure Job Order work progresses in a timely basis. These include periodic site inspections by the engineer, oversight of construction activities by location personnel, monthly progress meetings with each JOC contractor to review all projects and addressing problems (such as field conditions) immediately and with prompt resolution. These controls continue to be fortified through periodic training seminars, updates on training/guidance manuals, improved supervision by various levels of management, continued oversight by the JOC consultant (Gordian) and the use of the JOC computer system (Progen).

Finding (p. 8): **Problems with Job Order Development**

DEP Response: BWT- The report refers to a “standard timeframe” of 34 days for a Job Order to be issued after a project is initiated. Please note that DEP has no such standard. This is merely a guideline to ensure that Job Order’s progress in a structured manner and important steps in the process are not overlooked. There is only one timeline criterion in the Job Order preparation process that is included in the contract between the DEP and the contractor and that is as follows (Article 3B.2.4): “The time allowed for preparation of the Contractor’s Proposal will be between two (2) and fourteen (14) days. On complex Job Orders, the time allowed may be greater than fourteen (14) as approved by the Engineer.” As you can see, even this one criterion may vary depending on the complexity of the project. Our projects vary a great deal in complexity and, therefore, cannot be held to a fixed, standard timeline for Job Order issuance. Also, the Environmental Health and Safety Program commenced in February 2006 and the development and implementation of policies and procedures are still ongoing. As they come into play, they also affect the Job Order issuance timeline and add to the complexity of the project. The 34-day timeline should only be referred to as a guideline and that strict adherence to it is impractical due to the varied complexity of our projects.

Bureau of Water and Sewer Operations (BWSO) - Addressing the statement that BWSO Job Orders “took longer to develop” in 6 projects reviewed, with an average time to develop of 130 days, does not take into consideration that 3 projects required hazardous material remediation,

such as lead paint and asbestos containing material removal. This required development of specific lead paint removal protocols and DEP Asbestos Task Force intervention.

The DEP Asbestos Task Force was required to independently subcontract and remove asbestos containing roofing at the Central Park gatehouse before the JOC project could proceed. The Central Park gatehouse roof and parapet restoration required a landmark building to be restored with special structural strengthening by a certified restoration subcontractor using the latest ACI code methods, including composite carbon fiber reinforcement for the existing structure. Specialized work of this nature requires that the subcontractors and the proposed procedures be scrutinized for a successful outcome. By doing this "in house" with the JOC contract, a large savings in time and consultant fees was also achieved.

The Silver Lake reservoir project, also a restoration job, required a qualified restoration subcontractor and was analyzed and discussed with BWSO managers and elected officials regarding the level of repair or restoration to be done. Delays were due to the fact that BWSO had limited resources with respect to implementing this project while maintaining uncompromising standards and obtaining the best result. In addition, the original general contractor was deemed unqualified to do the specialized work and was replaced by another general contractor. This caused a substantial delay in starting this project.

Recommendation: **1. Complete development and issue job orders within required time frames.**

DEP Response: BWT - DEP will strive to proceed with Job Order development on a continuous basis to ensure that they are issued as expeditiously as possible.

BWS - As noted in the report, the Bureau of Water Supply JOC contract does not specify 34 days for JOC development. There are several reasons a 34-day guideline is not appropriate for BWS:

- Some BWS projects are not straight replacement or repairs in kind and require extensive engineering, design and environmental, health and safety (EH&S) considerations which necessitate changes in scope as the development process progresses.
- Some delays in initiation are due to Bureau constraints; for example delays to accommodate operational schedules for WWTPs and Aqueducts, etc.
- BWS assigns a priority listing of increasing priority (Low → Medium → High → Emergency) to each job. Given limited JOC program management personnel, as multiple JOC projects are initiated those with higher priority are developed first, which may result in placing lower priority projects on hold.
- BWS believes Project Initiation is not the proper time to start the clock on a project; the initiation really gives the project its priority and a place in the project queue. A more useful milestone for starting the project clock would be the Request for Proposal. At this time there is a detailed scope of work that can be

passed on to the contractor, which is not usually fully developed at the time of initiation.

Recommendation: 2. Implement more effective project management controls and supervisory oversight to ensure that job order work is developed and carried out in a timely basis.

DEP Response: To ensure that the development of Job Orders progress in a timely basis, existing controls such as implementation guidelines and supervisory oversight will be enhanced. A "JOC Handbook" is currently being finalized that will serve to be an all-inclusive summary of existing procedures and guidelines to be updated and enhanced as the JOC program continues.

Finding (p. 9): Problems with Construction Scheduling

DEP Response: BWT - The complexity of the DEP projects often results in construction schedules having to be revised and extended. Field conditions often result in the need for additional work that typically causes extended construction schedules. "Supplemental" Job Orders, which authorize additional construction work, are the typical method by which field conditions are addressed. These Supplemental Job Orders become a part of the original project file and are typically the best form of documentation on the reasons for delays.

BWSO - The item example claiming excessive time duration for Job Order issue, presumably the entry into JOCs Progen program listing on September 13, 2005, specifically No. 05-SM-OME2G-004.01 to repair or replace a wrought iron fence at Shaft 9A, where a Job Order was issued on August 17, 2006 and final inspection completed in December 14, 2006, is addressed as follows:

The audit claim that the Job Order took 210 days more than planned to complete is incorrect. The General Contracts for JOCs were not approved and awarded until the end of March 2006. A listing into Progen on September 13, 2005, seven months before the contract was awarded and the contractor given notice to proceed, is not relevant. It is merely one of many entries in a compilation of future projects. It did not imply any planned start or finish dates.

It should be noted that the Joint Scope meeting occurred on June 7, 2006, within 2 ½ months of the General Contract Notice to Proceed. An actual duration of 6 months to completion, from the Joint Scope meeting, is reasonable. There were delays because BWSO had to comply with environmental, health, and safety rules and regulations for a fence requiring lead paint remediation. In addition, there were weather delays due to rain for the extensive exterior painting.

In addition, the audit's finding that construction times were excessive in 4 of 6 job orders is misleading in that most of the projects required fair weather and specialized restoration work, as in the Central Park project and the Silver Lake project. Specialized restoration work cannot be

timed by conventional construction methods, since special procedures are implemented and custom parts made.

BWS now requires contractor submission of a project schedule and has recently initiated a Project Management checklist for all JOC project management personnel to improve project management controls and supervisory oversight.

Problems with Construction Scheduling:

- **As a third example, Water Supply issued a job order on February 27, 2007 (No. 06-WOH-SASS-005.0) for \$151,460.00 for fixed air monitoring at Tannersville and Grand Gorge Water Pollution Control Plants. Construction was delayed by 111 days according to Department engineers. The duration of job order development totaled 165 days. Overall the job order took 293 more days than planned to complete.**

This project required BWS to obtain and receive delivery on specific Mine Safety Appliance (MSA) air monitoring equipment which was compatible and modular with our other facilities. The Bureau had to outsource the programming, which also needed to be compatible with other facilities and SCADA systems. Delivery of the computer hardware was delayed and, as mentioned above, the audit clock was based on project initiation, not the date the job order was issued, which BWS believes is a more appropriate metric.

Recommendation: 3. Ensure that JOC contractors complete work on schedule. In this regard, the Department should ensure that unfinished work be completed without further delay.

DEP Response: BWT - Effective January 2008, all Job Orders include liquidated damages along with an approved construction progress schedule to ensure all JOC projects are completed on time.

In addition, the Engineering Audit Office requires a memorandum of acceptance verifying completion of work before payout of project is issued; therefore, there is completion oversight in place. There is no unfinished directed work in BWS JOC other than items intentionally put on hold by the JOC program managers.

Recommendation: 4. Examine the reason for construction delays and develop procedures to remedy any deficiencies that hinder the timely completion of job order work.

DEP Response: BWT - Progress schedules will be reviewed and compared to actual construction to ensure that there are no delays.

Since the time of this audit, BWS now requires the contractor to submit a project schedule for time of completion as one of the deliverables. Any deviation from this schedule is to be communicated in writing to the bureau.

Finding (p.10): **Failure to Remediate Hazards Promptly Cost the Department \$171,807**

DEP Response: BWT - Each of the projects that were referenced involved field conditions that were not originally anticipated. These field conditions were regulated/hazardous wastes such as lead-based paint and asbestos that were discovered during construction. Once identified, the means to safely remove and dispose of these materials had to be planned and coordinated, which resulted in delays to the original construction schedules. Asbestos removal is by DEP's Asbestos Task Force and that contractor's schedule had to be coordinated with the JOC contractor's schedule and such coordination inherently results in delays. The paint removal required multiple proposals and subcontractor approvals which, again, results in delays to the original schedule. Once these materials were discovered, the construction schedules were completely modified to allow for a phased approach to the work (i.e., once the material is properly removed, construction continues until it has to be stopped to allow for the next phase of hazardous/regulated material removal).

Recommendation: **5. Identify and remediate environmental hazards prior to commencing job order work.**

DEP Response: BWT - Adequate investigation will be conducted in advance to determine the absence or presence of regulated/hazardous materials and their potential impact on the project schedule. Current procedures require that it be addressed at the start of the Job Order process, at the Joint Scope Meeting.

BWS has a process to address this in the job order development phase and does not have a problem in this area. Furthermore, BWS requires a Safe Work Plan & Health and Safety Plan reviewed and approved by Environmental Health & Safety compliance personnel. These plans identify any environmental hazards and subsequent remediation methods, for example, drilling through lead painted surfaces, torching of lead paint, identification of asbestos containing materials, etc.

Recommendation: **6. Ensure that the job order cases cited in this report are completed without further delay.**

DEP Response: The Job Order projects cited under this finding will be monitored to be sure they progress on schedule and without unnecessary delay.

Finding (p. 12): **More Than \$800,000 in Liquidated Damages Not Assessed**

DEP Response: Liquidated damages were not originally included on most Job Orders but as more projects were initiated to address Environmental, Health and Safety issues that had specific deadlines, the need to include liquidated damages on Job Orders was realized. Effective January 1, 2008, all Job Orders include provisions for liquidated damages.

Recommendation: 7. **Ensure that all job orders contain provisions for liquidated damages. Assess liquidated damages when contractors fail to complete work in accordance with scheduled timeframes.**

DEP Response: Effective January 1, 2008, all Job Orders include provisions for liquidated damages.

Recommendation: 8. **Determine whether liquidated damages should be assessed for the seven cases noted in this report.**

DEP Response: A delay analysis will be performed on the JOC projects that include liquidated damages and, if warranted, they will be assessed.

Finding (p.14): **Problems with Non-Prepriced Tasks**

DEP Response: The use of non-prepriced tasks is essential in certain projects because not all necessary work at the DEP facilities could possibly have been envisioned and incorporated into the JOC books. As a result, reasonable procedures were established for the use of non-prepriced work (e.g., the solicitation of three independent bids) and, in the newer contracts, a separate adjustment factor is independently bid for non-prepriced work.

Recommendation: 9. **Cease its practice of using JOC for work that is not based on any established unit prices in the construction task catalog.**

DEP Response: BWT - As new JOC contract books are developed, more and more unit price items are being added to supplement the already voluminous list of pre-priced tasks in order to reduce the use of non-prepriced tasks.

However, the diversified nature of the projects at DEP may never lend itself to the possibility of completely eliminating the use of the non-prepriced method of work. This is particularly true for BWS. Some tasks are so unique in the upstate watershed the work items do not appear in the catalog. This contract provision allows us to perform work not included in the construction task catalog but which is extremely important to be rapidly completed and which otherwise could not be completed in the timeframe required under other normal procurement methods. BWS has and will continue to solicit a minimum of three bids as allowed by the contract terms.

Finding (p.14): **Lack of Required Price Quotations**

DEP Response: The use of non-prepriced procedures to perform certain work under a JOC project is essential in instances where no pre-priced tasks exist for the work. A minimum of three quotes is called for in the procedures but, in limited circumstances, it is not always possible. Similar to when DEP has to solicit proprietary contracts or has limited bids on solicitations, some contract work can only be performed by one company or parts/materials supplied by one vendor. In such circumstances, proper justification is required in the project files to document that the pricing is fair, reasonable and in the best interest of the City.

Footnote: three job orders were issued by Water Supply (07-WOH-VOLGW-024, 07-EOH-GEOGE-004.01, 07-EOH-GEOGE-004.02)

BWS - Some tasks are so unique in the upstate watershed the work items do not appear in the catalog. In a specific example, the Lowes Corners Bridge 07-WOH-VOLGW-024, was an emergency engineered repair designed by a BEDC consultant. This will not appear in the task catalogs because of the detailed specific type of work items and materials, and to exclude this type of work from the JOC program would be counterproductive. BWS solicited bids from 12 firms; of 12 solicitations, two (2) bids were received by reputable firms. The Non-Pre-Priced provision of the JOC program allowed us to quickly and effectively remediate and repair a direct threat to public safety in the case of Lowes Corners Bridge

Regarding 07-EOH-GEOGE-004.01 and 07-EOH-GEOGE-004.02 these two particular Job Orders, while based entirely on Non Pre-priced items, were based on 3 (three) solicited quotes as required by the JOC contract articles. We therefore believe that the Comptroller's audit report needs to be corrected regarding these jobs under this list.

Recommendation: **10. For items whose price cannot be determined by established unit prices in the construction task catalogs, ensure that contractors obtain a minimum of three bids. Alternatively, ensure that Department officials who deem the lack of price solicitations to be warranted provide written justification for the decision in project documentation.**

DEP Response: A minimum of three bids will be obtained and when not possible, proper justification will be on file with the appropriate authority to warrant such decision.

Recommendation: **11. Review and ascertain the reasons project files lacked required price quotations or written justification letters for the cases cited in this report.**

DEP Response: The cited project files will be investigated and appropriate measures will be taken with regard to any missing documentation.

Footnote: In addition, non pre-priced items in two of the nine job orders (one being 07-WOH-VOLGW-024) discussed in the previous section lacked the required price quotation or justification.

BWS - All solicitations are documented. BWS far exceeded the required minimum of three solicitations - twelve solicitations were issued to various qualified local contractors in the case of the Lowes Corners Bridge 07-WOH-VOLGW-024. The list was obtained from the approved NYSDOT contractors list, but only 2 of the 12 contractors submitted bids. BWS does not believe the lack of bids is a deficiency within the JOC program. It is also common within the standard capital construction program.

Recommendation: 12. **Instruct contractors to contact additional sources to obtain multiple competitive bids for non-prepriced items.**

DEP Response: Contractors will be reminded of non-prepriced procedures to obtain multiple bids for this type of work.

Finding (p. 15): **Job Order Overpriced by \$86,680**

DEP Response: The project that was cited necessitated a type of concrete barrier that was not in the JOC book. There was, however, other work (concrete work, rebar, etc.) that was in the book. The decision to non-preprice the entire project was made because it was believed that a "package" bid would be received from the various bidders that would be more cost effective than breaking out the largest component of the project and receiving bids on only that part.

Recommendation: **13. Calculate job order work on the basis of established unit prices in the construction task catalog.**

DEP Response: DEP will endeavor to utilize unit price book items on Job Order projects to the maximum extent possible.

Recommendation: **14. Review and revise the cost of the job order listed in this report and recoup from the contractor any excess payments.**

DEP Response: DEP will investigate whether it is feasible for monies to be recouped from the contractor on this project.

18. **Implement an effective system of administration to record, collect, file, and properly maintain all required documentation in Departmental files.**
19. **Ensure that all inspections of job order work are adequately conducted and documented.**
20. **Review the four cases mentioned in this report to ensure that all appropriate materials and equipment were installed**

DEP Response (items 16-20): BWT - There is a continued effort to meet the goal of "complete" project notebooks. The same-type project binder is being transitioned into the program to maintain uniformity in project files. A "JOC Handbook" is being prepared to consolidate all past procedures that have been instituted and it will include checklists to ensure that work does not proceed and payments are not processed unless all documentation is in place.

Over the past six months BWS has become more stringent in collecting samples, catalog cuts, submittals, etc. and has aggressively addressed these issues. In addition, BWS has developed a project manager checklist which lists the various required contractor submittals that must be collected. BWS project files have greatly improved since the implementation of the JOC program. This was the bureau's first experience with building a project file of this nature, and it is improving with continued practice and experience. In addition, BWS has recently initiated a Project Management checklist for all JOC project management personnel to improve its project management controls and supervisory oversight. Regarding the specific cases mentioned in Recommendation 20, please see comment to footnote below.

Footnote: No. 06-WOH-VOLGW-001.1 for fencing, concrete and excavating at Tannersville Pump Station.

All appropriate materials and equipment were installed per the project specifications and this is documented in the project file. There was a BWS approved change from a barbed wire and chain-link fence to a stockade fence to better suit the residential neighborhood. Otherwise the concrete foundation is in place and the excavation for that foundation was performed.

Finding (p.18): Problems with PROGEN Database

DEP Response: DEP acknowledges the importance for entering and maintaining accurate and up-to-date information in the Progen database and will continually strive to meet that goal.

Recommendation: 21. **Implement adequate controls to ensure that the data contained in the PROGEN database is complete, current, and accurate.**

DEP Response: The Progen database will be monitored to ensure that it is accurate and up-to-date at all times. Monthly progress meetings with all contractors, engineers and immediate supervisors will continue and will aid in the effort to maintain an accurate database.

Finding (p.19): **Deficient Conditions**

DEP Response: BWT - Field inspections of contract work by the engineers and the on-site monitoring of the work by facility personnel are the key means of ensuring that the work is performed in strict accordance with the detailed scope of work and that, upon completion, certification can be signed-off that all work is satisfactorily completed. The procedures necessary to ensure complete and satisfactory contract work will be reinforced with all engineers.

BWSO - The auditors comments that a mini-blind and specified light fixture was not being installed at the Jerome machine shop is inaccurate and misleading. The light fixture was certainly installed and of the type specified in the scope of work. Due to a very large variety of light fixtures available, the exact model and make installed was not listed in the pre-priced JOCs book. An equivalent power rated commercial grade light fixture was specified from the pre-priced catalog, since it included the hardware and labor for installation at a lower price than for the exact model which was installed and electricians labor utilized for its installation. It should be noted that the installed pre-priced cost for the light was \$161.43, and a better value for BWSO over non pre-priced light fixtures. The cost was checked by BWSO, and therefore, an equivalent pre-priced light fixture was chosen.

Regarding the statement that mini blinds were not installed at the machine shop, the auditors fail to state that the blinds were in fact delivered to DEP, at DEP's request, to be installed by the shop personnel at their convenience. The contractor did not install the blinds because the window moldings were painted and needed to dry before the blind mount brackets were attached with screws. This machine shop is not routinely open and manned. It would, therefore, require that BWSO send someone to the shop when the paint was dry to open the door for the contractor and watch the installation of four wood screws attaching the brackets for the blinds. This is a simple task which BWSO shop personnel preferred to do by themselves while they performed routine maintenance tasks at the machine shop. They are well equipped to attach two plastic brackets with four wood screws. The auditors were informed of this, and a picture of the blinds was sent by e-mail.

The auditors comment about poor roofing installation at the Staten Island Repair Yard, specifically Job Order Nos. 05-RY-OME2G-029.00 and 05-RY-OME2G-029.01, is inaccurate and misleading. The contractor repaired the existing roof as required in the scope of work. At the conclusion of the work, there were still leaks at the building in question during heavy rain events. To determine if the JOC contractor had correctly repaired the roof, a test was conducted. The roof was flooded in dry weather. No leaks from the area of the roof repaired by the JOC contractor were found. It was determined that the leaks were caused by various cracks and a damaged window, and were outside the scope of work given to the JOC contractor. Therefore, the auditors' statement about deficient work is inaccurate: There was no deficient work.

Recommendation: 22. **Compel the contractors mentioned in this report to perform necessary work to correct the noted deficiencies.**

DEP Response: Contractors will be directed to complete all work in accordance with the detailed scopes of work and correct any deficiencies that are discovered.

Four of eight trees not planted at Gooseberry Creek (Volmar Construction Job Order No. 06-VOLGW-001.001)

BWS - Post-Audit: Contractor was notified to plant four (4) more trees as specified. This has not been completed, so we have requested a credit on an upcoming job order for the four trees. After further review of the completed project, the additional four trees will not provide significant tangible benefit, nor enhance the function of the project, and a credit for the missing trees is in our best interests.

In addition, we identified the following deficiencies that are more serious:

Collapsed streambank stabilization wall and dislodged plantings at Gooseberry Sewer Crossing (Volmar Construction Job Order No. 06-WOH-VOLGW-001). Our cost estimate for the deficient work is \$19,174.00

BWS - The job is functioning as originally designed to protect the sanitary collection system. Since its completion there has been no encroachment due to erosion of the stream bank, and no exposure of the concrete pipe sewer crossing in the stream. It is true that due to scouring, the wing on one rock vane, settled into the scour pool, and new plantings were dislodged by flood waters, however, the project continues to meet all of its goals and objectives. The project was installed according to the design. BWS cannot hold contractor accountable for natural flood damage after the job was accepted.

Recommendation: 23. **Ensure that procedures for inspecting and certifying job order work are adequate.**

DEP Response: Field inspection reports and final certificates of inspection have been developed to ensure uniform reporting and documentation. Procedures will be reinforced to ensure field inspections and certification of work complete are accurate and all-inclusive to ensure that work is complete on time, there are no deficiencies, and it is in accordance with the project's detailed scope of work.

As stated earlier, **BWS** has recently initiated a Project Management checklist for all JOC project management personnel to improve our project management controls and supervisory oversight