

**NATIONAL BIOSOLIDS PARTNERSHIP AUDIT REPORT**

**City of Albany Wastewater Treatment Plant  
Albany, Oregon**

**Audit conducted by**

**NSF-International Strategic Registrations**

**William R. Hancuff, Lead Auditor**

**References:**

**National Biosolids Partnership (NBP) *EMS Elements – May 1, 2002*  
*NBP Third Part Verification Auditor Guidance – November 2001*  
*(Latest Revision March 2006)*  
*NBP Code of Good Practice*  
*City of Fort Worth Environmental Management System for Biosolids*  
*Environmental Management System Manual*  
*(Latest Revisions – May 2006)***

Draft Report – April 28, 2007

## **INTRODUCTION**

The purpose of the Biosolids Environmental Management System (EMS) interim audits is to verify through regular reviews the system's health and effectiveness between verification audits. The third party on-site interim audits provide independent reviews, and supports credibility between re-verification audits. The goal of the third party interim audit is to collect and evaluate objective evidence related to a portion of the EMS such that over the course of the four interim audits conducted between verification audits all 17 elements are covered. The audits determine whether the City of Albany Environmental Management System for Biosolids is functioning as intended, that practices and procedures are conducted as documented, and that the EMS as implemented conforms to the NBP's Code of Good Practice and EMS program objectives.

## **RECOMMENDATION**

The results of the interim audit of the City of Albany Environmental Management System for Biosolids are positive and it is the decision of NSF that the Albany Wastewater Treatment Plant EMS maintain its "Certification" status.

## **AUDIT SCOPE**

The NSF- International Strategic Registrations, Ltd. (NSF-ISR) conducted a third party interim audit of the City of Albany Environmental Management System for Biosolids from April 25, 2007 through April 26, 2007. The on-site interim audit team consisted of Dr. William R. Hancuff, Lead Auditor.

The scope of the third party interim audit included review of the following core element requirements:

- The organization's progress toward goals and objectives,
- EMS outcomes (environmental performance, regulatory compliance, interested party relations, and quality practices),
- Actions taken to correct minor nonconformances,
- Management review process, and
- Corrective and preventive action requests and responses.

In addition the audit included:

- Element 3 – Critical Control Points
- Element 4 – Legal and Other Requirements (partial)
- Element 6 – Public Participation Planning (partial)

- Element 9 – Communications (partial)
- Element 10 – Operational Controls of Critical Control Points
- Element 12 – Documentation, Document Control and Record Keeping (partial)
- Element 13 – Monitoring and Measurements

The physical biosolids related facilities included in the audit and visited during the on-site audit were the wastewater treatment plant; the solids stabilization, conditioning, and handling operations; the solids storage bins, and the biosolids truck and loading operations.

The following individuals were interviewed as part of the interim audit process:

- Diane Taniguchi-Dennis, Public Works Director,
- Scott White, EMS Coordinator and Biosolids Manager,
- Chris Bailey, Water Quality Supervisor (Alternate EMS coordinator)
- Herb Hoffer, Environmental Services Supervisor,
- Ben Phelps, Wastewater Treatment Plant Supervisor,
- Paul Kennedy – Natural Resources Specialist – Water Quality and Regional Biosolids Coordinator – Western Region DEQ – Roseburg, OR, and
- John Marble – Biosolids user, landowner and pasture operator.

## **INTERIM AUDIT FINDINGS**

The interim audit found no major non-conformances, 7 minor non-conformances, 5 opportunities for improvement and 8 positive commendations.

The following is a review of the positive observations made during the interim audit. Minor nonconformances and opportunities for improvement follow and are listed by item number in the sequence of the NBP standard element auditor guidance.

### **Positive Observations**

- EMS and wastewater treatment plant personnel have an excellent working relationship with State regulators, ensuring good communications with this sector of interested persons.
- City of Albany personnel continue to actively participate in biosolids related organizations. In addition to the Northwest Biosolids Management Association’s Continuous Improvement Systems Committee and the Statewide Association of Clean Water Agencies’ Biosolids Committee and Pretreatment Committee, personnel from environmental services volunteered to attend the Annual Oregon Dental Association Convention to discuss the latest Best Management Practices that affect dental offices and clinics. Staffed informational booth.
- The City of Albany has improved its already extremely well organized EMS Manual, by simplifying tables, improving procedure formats and expanding its

identification system. This manual is the key to having a successful environmental management system.

- The City is to be commended for its public outreach program that involves youth education. The River Rangers program provides water, wastewater, storm water and biosolids educational material to young students in grades three through five.
- The pretreatment program continues to evolve and is an excellent example of management of this critical control point. The recognition of dentist offices and clinics through a “Certificate of Excellence” issued to facilities which implement Best Management Practices for Mercury and amalgam controls provides positive reinforcement for pretreatment achievements; and recognition of industries that have zero permit violations in the City’s semiannual pretreatment newsletter develops pride in this accomplishment.
- The City continues its strong pro-active and aggressive public participation program despite the limited interest of the general public in biosolids. Examples of this program include presentation of a biosolids video at the City’s booth at the Linn County Fair and distributing home grease kit containers for use in reducing grease at the plant, and distributing the biosolids newsletter at a local Gardening Center Nursery;
- The farmers report showing each farmer who uses biosolids how much money is saved through land application is a first and has received strong support from the state regulators.
- The EMS team updated an innovative method of EMS awareness through placing a shortened version of the EMS policy statement on the small card and distributed this to wastewater plant employees and supervisors of wastewater construction contractors.

### **Minor Nonconformances**

Item 3.4 – Not all of the Operational Controls (SOPs) are linked to the Critical Control points listed in Table 3.1.

Item 5.3 – Input from interested parties though sparse was not considered in developing program goals and objectives.

Item 5.5 – Goal 5 – Maintain biosolids quality throughout construction of WWTP improvements does not adequately address the specific, measurable and time-bound criteria of the SMART requirements.

Item 10.2 – The specific legal requirement for metals analyses in soils is not provided in the Nutrient and Metal Monitoring procedure (BS-008).

Item 10.2 – The specific legal requirement for pathogen reduction through the digesters is not provided in the primary digester procedure (OPS-014). (Note: other SOPs may also be lacking identification of legal requirements.)

Item 12.2 – Albany’s EMS Element 12 procedures do not adequately establish document control procedures and practices for its Biosolids Management program relative to logs, worksheets, forms, and associated reports.

Item 17.1 – The EMS does not clearly identify upper management’s role in review and approval of the goals and objectives established each year.

### **Opportunities for Improvement**

Element 5 - It appears that some of the carry forward goals and objectives were not developed keeping continual improvement in mind.

Element 5 – The current goals and objectives do not take credit for the public outreach program entitled “River Rangers”

Element 8 and Element 11 – The training described in procedure 10 of EMS Element 8 and procedure 5 of EMS Element 11 are not clear.

Several Elements – It appears that emergency use of a contractor for hauling biosolids is a potential future need, but no provisions have been made to address all required contractor impacted EMS elements.

Element 11 – Unable to identify unlabeled emergency spill clean-up chemical in bucket on biosolids application truck.

### **CITY OF ALBANY WASTEWATER BIOSOLIDS OPERATIONS COMMENTS**

The City of Albany Biosolids EMS Team believes the EMS program continues to offer the City benefits including increasingly positive relationships with state regulators and local growers. As with the verification audit, the Year One Interim Audit provided the Team with a timely check of the EMS program and adds value to our biosolids management process. The Team expects to have all nonconformances addressed within 30 days.

### **OUTCOMES MATTER**

The City of Albany Wastewater Biosolids Program established four major groups of biosolids EMS goals and objectives for 2006/2007 consisting of 4 goals and 9 individual objectives. These goals were developed through input from the internal EMS Workgroup

as well as requested input from staff among the biosolids value chain. The City's Wastewater Biosolids goals for its EMS were established cognizant of each of the four outcome focal points of the NBP program as identified below:

1. Environmental Performance,
2. Regulatory Compliance,
3. Relations with Interested Parties, and
4. Quality Biosolids Management Practices.

While it is not a requirement to attain all objectives established, it is a critical part of the system to make progress towards the overall goals. The City's performance relative to each of the above groups is addressed below.

In the Environmental Performance area, the City established one primary goal with two objectives for 2006 – 2007. The primary goal was to optimize the stabilized biosolids storage bin capacity so that during the wet season (1 November to 1 May) the bin storage did not exceed 75% of capacity, and during the remainder of the storage season (1 May to start of application) the bin storage did not exceed the additional 25% of capacity. This was to be accomplished through meeting two objectives. The first was by optimizing the dewatering capability and reliability of the belt filter press operations by focusing on maintaining the availability of the filter presses through routine and preventive maintenance measures. This objective included:

- Optimize belt filter press operation to maintain a monthly average of 16% to 18% solids.
- Track biosolids storage bin utilization weekly to forecast levels during and after the wet season, with adjustments of the belt filter press operations as necessary.
- Maintain 90 percent availability of belt filter presses.

The second objective was to take advantage of opportunities to land apply. This objective included contacting at least three growers regarding the availability of fields for wet-weather or spring/fall applications.

The City made progress in the above goal and objectives. As of the end of the week of April 26 the bin capacity utilized was 73% and it was projected that by 1 May the overall bin capacity would not exceed the 75% objective. The remainder of the storage season was not predictable because it was totally weather dependent. The biosolids manager contacted more than three growers regarding early season availability of fields and had one commitment for that activity. The biosolids' operational personnel maintained 100% availability of belt filter presses throughout 2006 and the first quarter of 2007.

In addition to these specific environmental performance goals and objectives outcomes the City improved its protection of biosolids from metals contamination

through an enhanced industrial waste pretreatment program with focus on controlling mercury from dental offices. Additionally the City improved the accuracy of biosolids land application through the purchase and use of a GPS.

The City has continued its efforts to improve its environmental performance by establishing new goals for 2007 – 2008, which include the same goal and objective as described above supplemented by improving the level of background data through analyzing at least one biosolids sample per quarter (per regulatory BMP) and analyzing soil at sites applied two out of three consecutive years.

In the Regulatory Compliance area, the City established goals and objectives to meet or exceed applicable regulatory compliance requirements associated with biosolids products. The primary goal was to meet or surpass applicable regulatory compliance requirements, while the basic objectives were as follows:

- To maintain or improve pretreatment compliance as measured by the following steps:
  - Having zero industries in significant non-compliance
  - Initiating and distributing a Pretreatment Newsletter to all permitted industries.
  - Completing all NPDES permit Schedule E requirements.
- To have zero notices of permit violations from DEQ related to biosolids management by implementing the following:
  - Revising daily hauling forms and implementing their use for 2006 hauling records.
  - Analyzing at least one biosolids sample quarterly per Best Management Practices guidelines.
- To maintain heavy metals 20% or more below the federal clean biosolids limits by implementing the following steps:
  - Inspecting one complete non-permitted industrial group (dentists).
  - Increasing educational outreach to at least one non-permitted industrial group (dentists).

The City has had only one industry in significant noncompliance and reduced the number of violations by industrial waste dischargers from 51 in 2005 to 32 in 2006. Personnel initiated and distributed a Pretreatment Newsletter to all industrial dischargers twice per year. They conducted on-site inspection of all significant industrial users (SIUs) and 30 dental offices. Personnel also participated in the Oregon Dental Association

Annual Convention. The plant attained zero notices of violation related to management of biosolids since 2004, and has consistently operated more than 20% below the heavy metal concentrations required in the 503 regulations.

As part of its continual improvement in this outcome area the City has supplemented the above goals and objectives with additional initiatives for 2007 – 2008 including modifying the City’s Pretreatment Ordinance, preparing a new enforcement response plan, developing a template for the new State Pretreatment Streamlining requirements, expanding the educational outreach by at least one targeted industrial group, improving BMP compliance by dental offices and increasing the number of SIUs.

In the Relations with Interested Parties area, the City established goals and objectives to improve land owners and farmers understanding of the value of biosolids and increase the community’s awareness and acceptance of quality biosolids. The goals and objectives related to these goals include:

- Improve client’s understanding and management of nutrients in land application.
  - Research the cost of commercial fertilizers (N, P, K)
  - Calculate the value of applied nutrients per field in 2006.
  - Provide each grower a statement on the fiscal savings of using biosolids.
- Improve outreach to increase public awareness of Albany’s biosolids management program
  - Provide biosolids information from vendor booth at Linn County Fair
  - Provide information from vendor booth at Willamette Valley Agriculture Expo
  - Improve biosolids EMS web page.
  - Add quarterly newsletter to web page.
  - Add photos and slide show of biosolids operations to web page

The City attained most of its goals and objectives in this area. The biosolids manager prepared a “Farmer’s Report” for each grower whose land utilized biosolids land application. The report contained vital information on nutrients, in addition to how low the metals concentrations were. The financial savings to the farmer included the dollar values of the fertilizer, labor and fuel; with a total savings for the crop year.

The biosolids web page has been improved and the number of hits has increased to over 4700 since June 2006. The quarterly newsletter has been added to the web page; however the new photos and biosolids slide show deadline was extended into next year.

City representatives attended a booth at the Linn County Fair, however the application for a booth exhibit at the annual Willamette Valley Ag Expo was too late and the goal was re-established for next year.

In addition to these goals and objectives the City increased its public awareness through distributing a semi-annual pretreatment newsletter to all permitted industrial dischargers. It increased its educational outreach program by contacting and inspecting the presently non-regulated dental clinic industry and participated in the annual Oregon Dental Association Convention to distribute information on metals control from dental offices and clinics. The City has improved its overall wastewater education of youth through participating in the “River Rangers” program, a third through fifth grade water quality orientation project.

As part of its continual improvement in this outcome area the City has re-established some of the former goals and objectives as those for 2007 – 2008 including: newsletters, Farm Reports, web site improvements, and fair/expo booths. They also intend to expand their regulatory control and communication with industrial waste dischargers to their system.

In the Quality Biosolids Management Practices area, the City established a goal of increasing the accuracy of biosolids application rates for all fields receiving biosolids in 2006. The objectives established to the accuracy included:

- Implementing a wheel and pin flag system for all application fields.
- Incorporating GPS monitoring into application on at least one field in the 2006 growing season.

Additional objectives contained in other goals that affect biosolids quality management included improving hauling records, adding means of verifying setbacks for each field, checking uniformity of spreader, and additional weather checks for runoff prevention. Also, surpassing the regulatory requirements for metals control is another quality measure in biosolids management.

The biosolids manager has improved the accuracy of land application considerably by implementing the GPS monitoring system and using a wheel and pin measuring system for application fields. All other field quality control measures were implemented and the heavy metals concentrations in biosolids were all well below the regulatory requirements. In addition, for newly approved land application fields piezometers are being installed as application is projected to ensure that the free surface groundwater level is below four feet.

As part of its continual improvement in this outcome area the City has focused its quality biosolids management goals in two areas the first is improving biosolids quality through construction of a new and improved wastewater treatment facility; and the second is increasing the clarity and ease of instruction in biosolids Standard Operating

Procedures (SOPs). The first is a long term goal with interim objectives established for 2007 – 2008 including:

- Establishing and maintaining communication with consultants and contractors to ensure timely progress.
- Maintaining 100% wastewater treatment plant functionality during construction/transition.

The second goal will be accomplished through preparation and implementation of a video SOP training pilot program.

## **CONCLUSIONS AND RECOMMENDATIONS**

The results of the first interim audit are positive. The review and approval of the corrective action plans for each of the non-conformances identified during the audit will soon be completed, and it is the recommendation of the audit team that the City of Albany Wastewater Biosolid's EMS maintain its "Verification" status.

As was mentioned previously, an EMS is a continuous improvement process, and the results of this and future audits will provide value added to the system and should be viewed as an overall opportunity to improve. Every audit is a snapshot in time, and does not, or cannot, identify each and every area for improvement. And yet, while no single audit identifies all of the areas for improvement the results of each audit provide an additional incremental step in the overall system's improvement.

On completion of the verification audit it was determined that in addition to the following core element requirements:

- The organization's progress toward goals and objectives,
- EMS outcomes (environmental performance, regulatory compliance, interested party relations, and quality practices),
- Actions taken to correct minor nonconformances,
- Management review process, and
- Corrective and preventive action requests and responses;

the following elements would be addressed during each interim audit:

Year 1 – 3, 10, 13 (external);

Year 2 – 7, 8, 11, 12 (internal);

Year 3 – 6, 9, 2, 4 (external);

Year 4 – 1, 15, 16 (internal).

Because the majority of the critical control points will be modified as a result of the current wastewater treatment plant upgrade scheduled for completion and startup in July 2009 the elements to be audited will have to be revised before the year 2 and year 3 interim audits to more clearly define the audit scope.

## **Attachment 1**

### **Documents and Other Object Evidence Reviewed During the Initial Interim Audit**

#### *Element 3. Critical Control Points*

- Reviewed EMS Element 3 – Critical Control Points.
- EMS Table 3.1 Biosolids Critical Control Points - Operations
- Interviews with Chris Bailey, Scott White, Ben Phelps, and Herb Hoffer.
- Comparison of City of Albany Critical Control Points with those contained in Appendix F.
- Reviewed new Biosolids Management Plan – April 2007.
- Field review of wastewater treatment plant facilities.
- Spot check operations controls in SOPs.

#### *Element 4. Legal and Other Requirements*

- EMS Element 4: Legal and Other Requirements
- EMS Table 3.1 Biosolids Critical Control Points – Operations (legal requirements)
- Interviews with Herb Hoffer, Ben Phelps, Chris Bailey, and Scott White.
- Comparison of City of Albany’s Critical Control Points with those contained in Appendix F.
- Appendix 4-A List of legal and other requirements.
- NPDES required Biosolids Management Plan – January 2006 (date stamped March 22, 2006).
- Pretreatment Program – Annual Report 2006.
- Albany’s Plan to Meet EPA Streamlining Regulations.
- Interview with Paul Kennedy – Natural Resources Specialist – Water Quality and Regional Biosolids Coordinator – Western Region DEQ – Roseburg, OR

#### *Element 5. Goals and Objectives for Continual Improvement*

- EMS Element 5: Goals and Objectives for Continuous Improvement.
- Table 5.1 – Biosolids EMS Goals and Objectives
- Biosolids EMS – Goal and Objectives Action Plan Table – 2006-2007.
- Biosolids EMS – Goal and Objectives Action plan Table – 2007-2008.
- Complete evaluation of progress on Goals and Objectives for 2006-2007.
- Assessment of outcomes in the four critical areas.
- Interviews with Chris Bailey, Scott White, Ben Phelps, and Herb Hoffer.

#### *Element 6. Public Participation in Planning*

- EMS Element 6: Public Participation in Planning.

- Appendix 6-A – City of Albany Biosolids Public Participation and Outreach Plan (updated February 2006)
- Interviews with Chris Bailey, Scott White, and Herb Hoffer.
- Interview with Paul Kennedy – Natural Resources Specialist – Water Quality and Regional Biosolids Coordinator – Western Region DEQ – Roseburg, OR.
- Albany Biosolids Website <http://www.cityofalbany.net/publicworks/biosolids>) over 4700 hits.
- The City of Albany’s Biosolids Quarterly – Spring 2007 edition (newsletter)
- Active participation in outside organizations such as the Northwest Biosolids Management Association’s Continuous Improvement Systems Committee and the Statewide Association of Clean Water Agencies’ Biosolids Committee and Pretreatment Committee.

*Element 9. Communications*

- EMS Element 9: Communication and Outreach.
- The City of Albany’s Biosolids Quarterly – Spring 2007 edition (newsletter).
- Reviewed “pretreatment news” Fall 2006 edition.
- Interviews with Chris Bailey, Scott White, Ben Phelps and Herb Hoffer.
- Interview with Paul Kennedy – Natural Resources Specialist – Water Quality and Regional Biosolids Coordinator – Western Region DEQ – Roseburg, OR.
- Albany Biosolids Website <http://www.cityofalbany.net/publicworks/biosolids>) over 4700 hits.
- Farmers Report for Don Wirth and Dave Goracke – November 28, 2006.

*Element 10. Operational Control of Critical Control Points*

- EMS Element 10: Operational Control of Critical Control Points.
- Spot checked plant operations manual (Standard Operating Procedure for critical control points)
- Spot checked biosolids procedures for metal sampling and monitoring, and biosolids hauling and field applications (BS-003 and BS-008.)
- Interviews with Operations staff – Ben Phelps
- Interview biosolids transportation and land applications manager – Scott White.
- Interviews related to farm operations – Paul Kennedy – Natural Resources Specialist – Water Quality and Regional Biosolids Coordinator – Western Region DEQ – Roseburg, OR.
- Telephone interview with John Marble, land owner and farm operator.
- Field checked belt filter presses, biosolids storage bins, biosolids application equipment, and new treatment plant construction activities.
- Reviewed various documents related to the operating parameters, operation and maintenance and trouble shooting methods for controlling digester operations.
- Discussed Hansen maintenance management system.

*Element 13. Monitoring and Measurement*

- EMS Element 13: Monitoring and Measurement.
- Interviews with Chris Bailey, Scott White, and Herb Hoffer.
- Interviews with Operations staff – Ben Phelps,
- Reviewed Goals Action Plan used for tracking goals and objectives 2006-2007 and 2007-2008.
- Biosolids Management Plan – January 2006 (date stamped March 22, 2006).
- Land application system for controlling biosolids application rates.
- Records contained in annual reports.

*Element 14. Nonconformances: Preventive and Corrective Action*

- EMS Element 14: Nonconformance: Preventive and Corrective Action.
- Appendix 14-A: Sample Corrective Action Form.
- Interviews with Chris Bailey, Scott White, Ben Phelps and Herb Hoffer.
- Biosolids EMS Audit Documents Binder.
- Reviewed Corrective Action Forms – Appendix 14-A.
- Reviewed “Corrective Action Tracker.”
- Reviewed the required corrective action forms those findings identified during the EMS verification audit.
- Reviewed signoff sheets for corrective actions completed.

*Element 15. Periodic Biosolids Program and EMS Performance Report*

- EMS Element 15: Performance Report.
- Interviews with Chris Bailey, Scott White, Ben Phelps and Herb Hoffer.
- Biosolids Management Program Annual Report – January 2007.

*Element 17. Periodic Management Review of Performance*

- EMS Element 17: Periodic Management Review of Performance.
- Interviews with Diane Taniguchi-Dennis, Public Works Director.
- Management Review meeting of July 21, 2006 held with Diane Taniguchi-Dennis, Michael Wolski, and Chris Bailey.
- Reviewed outcomes and action items contained in memo “Biosolids EMS Management Review Results” dated July 26, 2006.

## Attachment 2

### National Biosolids Partnership Appeals Process

Biosolids organizations that participate in the National Biosolids Partnership (NBP) Environmental Management System (EMS) Program are required to undergo an EMS verification audit by an independent, third party auditor assigned by the NBP and yearly interim audits. The purpose of the EMS audit is to determine whether or not the organization's EMS conforms with -- that is, meets the requirements of -- the NBP program, as defined in the EMS Elements<sup>1</sup>. The spirit of these requirements includes a well-documented program and meaningful opportunities for interested party involvement.

The NBP provides an appeals process for biosolids organizations and interested parties that disagree with the findings of a third party EMS audit. The verification appeals process involves an Appeals Board; representing a balance of biosolids management interested parties, including an environmental advocacy group, and wastewater industry professionals. An appeal must be submitted within 30 days of the audit company's official verification decision or interim audit decision.

To submit an appeal before the Appeals Board, the petitioner must set forth the specific EMS element(s) and requirements that is believed to have not been evaluated and/or implemented consistent with NBP requirements as reflected in the EMS Elements, along with the objective evidence to support that claim. For example, a petitioner may believe that a major nonconformance exists but was not found by the auditor. In this case, the petitioner would need to identify in the petition the specific EMS element believed to be out of conformance and why.

To submit an appeal, petitioners must fill out and submit the standardized appeals petition form that is available on the NBP website at <http://www.biosolids.org>. A formal appeal must be submitted within 30 days of the verification decision or interim audit decision by the audit company.

The Board's Administrative Officer receives all appeals petitions on behalf of the Board and conducts a basic completeness check. Upon completion of this check, the petition is either forwarded to Appeals Board members or back to the petitioner with incomplete areas documented. Petitions should be sent via certified, return receipt requested mail to:

The NBP EMS Appeals Board, Attention: Board Administrative Officer, c/o  
Water Environment Federation, 601 Wythe Street, Alexandria, VA 22314

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<sup>1</sup> The *EMS Elements* and other program materials are available on the NBP website at <http://www.biosolids.org>.

The Appeals Board will examine the facts, interview parties involved, deliberate the case, and then make a determination as to whether a major nonconformance does or does not exist. Appeals cases vary in complexity. As a result, the time required for the Board to evaluate a case and make a decision might vary. However, the overall Board target for processing an appeal is approximately four months.