CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 93-084

CITY OF SUNNYVALE
SUNNYVALE WATER POLLUTION CONTROL PLANT
SUNNYVALE
SANTA CLARA COUNTY

REQUIRING THE CITY OF SUNNYVALE TO CEASE AND DESIST DISCHARGING WASTE CONTRARY TO DISCHARGE PROHIBITIONS IN ORDER NO. 93-086 (NPDES PERMIT)

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board) finds that:

1. On July 21, 1993, the Board adopted Order No. 93-086 (NPDES Permit CA0037621) prescribing waste discharge requirements for the City of Sunnyvale (hereinafter the discharger).

2. The discharger currently (during a drought period) discharges an average dry weather flow of approximately 13.5 million gallons per day (mgd) from it advanced waste treatment facility at 1444 Borregas Ave., Sunnyvale. The historical long-term average plant flow during the period 1985 through 1992 (long-term drought period) is approximately 17.1 MGD. The plant has a treatment capacity of 29.5 mgd average dry weather flow. Treated wastewater effluent from the treatment plant flows into Sunnyvale West Channel via Moffett Channel and Guadalupe Slough, then into South San Francisco Bay.

3. Prior to adoption of Order No. 93-086, the discharger was subject to NPDES Permit CA0037621 (Order No. 88-176, adopted December 21, 1988, which was amended by the following orders: Order 90-035, adopted February 21, 1990; Order 90-070 adopted May 16, 1990; Order 91-067, adopted April 17, 1991; and Order No. 92-104).

4. Order 91-067, adopted on April 17, 1991, revised the discharger's NPDES permit to include water quality based effluent limits. Between May 1991 and November 1992, the discharger had significant violations of their NPDES permit for exceeding the 1-day average effluent limit for copper.

Constituent	Order 91-067 Effluent Limits,ug/l	# Violations
Copper	2.9	77 (95%)

5. Results of ambient monitoring conducted by the South Bay dischargers between 1989 and 1991 showed that both total and dissolved concentrations of mercury frequently exceeded the water quality objective of 0.025 ug/l. The exceedances occurred at all stations. The Santa Clara Valley Nonpoint Source Program has begun investigating

potential sources of mercury in runoff. The measurement of mercury concentrations in effluent at the levels of the effluent limitations and receiving water objectives requires advanced methods which are not routinely used making compliance determination difficult. However, the multiple potential sources of mercury in POTW waste streams, the low level of the effluent limitations, and the high rate of discharge by the dischargers into the South Bay, and the fact that the present water quality objective is frequently exceeded causes concern about the relationship between POTW discharges and potential water quality impacts. This concern necessitates the need to adequately define the levels of mercury discharged to San Francisco Bay.

6. Order No. 93-086, revised the discharger's existing effluent limits for copper and cyanide. On October 21, 1992, the Regional Board adopted a site-specific objective in San Francisco Bay and a shallow water marine effluent limit for copper of 4.9 ug/l. On September 16, 1992, the Regional Board adopted a shallow water marine effluent limit for cyanide of 5 ug/l.

7. If the 4.9 ug/l effluent limitation for copper had been in effect between January and November of 1992, the discharger would have violated the effluent limitation 44% of the time. Because the discharger's detection limit for cyanide, 10 ug/l, was greater than the new effluent limit of 5 ug/l, it is not known whether the discharger will violate the new cyanide limitation.

8. Based on the past data from January through November 1992, it is anticipated that the discharger will immediately be out of compliance with Provision B.4.1 (Limits for Toxic Pollutants) of Order 93-086 for copper. It is also anticipated that the Discharger may threaten to violate the effluent limitation for mercury.

9. On June 16, 1993, the Board adopted Resolution 93-61 specifying a waste load allocation for sources of copper which enter San Francisco Bay. Based on the waste load allocation, Provision B.5 of Order 93-086 requires the discharger to discharge no more than 200 lbs/year of copper. In addition, the discharger along with the two other South Bay POTWs and the Santa Clara Valley Nonpoint Source Pollution Control Program are required to reduce their combined discharge of copper into South Bay by an additional 950 pounds per year, to be accomplished by 1998. In 1992, the discharger discharged 169 lbs of copper. However, because 1992 was during a drought period, with associated lower flows to the treatment plant, it is anticipated that the discharger may threaten to violate Provision B.5 (mass limitation for copper) of Order 93-086.

10. In June 1989, EPA designated San Francisco Bay below the Dumbarton Bridge as an impaired water body under Section 304(l) of the Clean Water Act. There was evidence of water quality impacts in the South Bay associated with seven metals: cadmium, copper, lead, mercury, nickel, selenium, and silver. The three municipal plants and storm water discharges in the South Bay were designated as point sources contributing to this impairment. Section 304(l) requires States to adopt Individual Control Strategies for designated point source discharges that will result in attainment of objectives for toxic pollutants within three years. Exceedances of water quality objectives for copper, nickel, and mercury still occur.

11. Order No. 88-176, adopted December 21, 1988, required the discharger to identify all significant controllable sources of metals and to determine feasible measures to reduce

the metals loadings to the treatment plant. On September 30, 1989, the discharger submitted the Point Source Control Measures: Pretreatment Report. On December 1, 1989, the discharger submitted the Waste Minimization Study.

12. Order No. 90-070, adopted May 16, 1990, required the discharger to make pre-treatment program improvements, to implement a pilot waste minimization program, and to require targeted industries to submit waste minimization plans. The discharger submitted a progress report for the source reduction program on December 1, 1990 and a Status report for the Source Reduction Program on August 1, 1991.

13. The pre-treatment program improvements included expanding flow monitoring for targeted industries, regulating auto-repair and photoprocessing firms, and implementing more aggressive enforcement actions against violators. The discharger has initiated and continues to implement these pre-treatment program improvements. Statistical analysis of 1990-1991 influent data indicates that a 30% reduction in copper influent concentrations has been achieved.

14. The discharger's pilot waste minimization program included a public education program and was targeted at reducing nickel, copper, and lead discharges to the treatment plant. The pilot program was directed towards electroplaters and metal finishers.

15. The discharger has inspected all of the automotive (164) and photoprocessing (140) facilities and has distributed Best Management Practices (BMPs), conducted workshops, and continues to do follow-up inspections of these facilities to check for compliance with the BMPs.

16. The discharger has initiated a public education program which includes distribution of materials and presentations for the community, industries and schools. The discharger has also created an environmental award program for industries to acknowledge outstanding waste minimization achievements. A mentor program has also been established to facilitate information sharing between industries.

17. The discharger has incorporated aspects of the non-point source control program (public education and industrial discharges) into their pretreatment/waste minimization program in order to increase the effectiveness of the two programs. Inspection and education activities are to be coordinated to reduce pollutants discharged to storm drains as well as to the sanitary sewer.

18. The discharger submitted a report "Updated Copper and Nickel Mass Estimates: City of Sunnyvale Water Pollution Control Plant" on June 24, 1992. The discharger determined that the following sources of copper contribute to the influent: residential (14%), commercial (14%), permitted industrial (18%), corrosion (48%), and water supply (6%). In 1991 the total mass copper influent to the plant was 2,877 lbs.

19. The discharger's service area receives their water supply from sources managed by the San Francisco Water Department, the Santa Clara Valley Water District, and groundwater. These water suppliers use copper sulfate as an algicide in drinking water reservoirs and distribution channels.

20. On August 28, 1992, the Board issued a "Request for Information and a Proposed Strategy to Reduce Copper and Selenium in South Bay Drinking Water Sources" to the dischargers, water distributors and retailers in the South Bay. A steering committee representing the affected parties was formed and a joint monitoring proposal was submitted on November 2, 1992.

21. The discharger is presently implementing a water reclamation project that has a goal of reclaiming an annual average flow of 1.3 MGD by late 1995.

22. The discharger operates an approved pretreatment program with local discharge limits for non-domestic users of the collection system. The discharger received the 1991 National Pretreatment Award. The discharger adopted local limits for its users in 1982.

23. On February 17, 1993, the discharger signed an agreement with Clean South Bay, a coalition of environmental groups, concerning the source control program for the WPCP. The discharger has submitted this agreement to the Board to achieve compliance with their NPDES permit requirements. The agreement includes source control measures to reduce the concentration and mass of metals in their influent. The proposal addresses contributions from the industrial, residential, commercial and corrosion/water supply sources. The compliance proposal has been incorporated into this Order as Attachment 1.

24. Section 13301 of the California Water Code authorizes the Regional Board to issue a Cease and Desist Order when it finds that a waste discharge is taking place or threatening to take place in violation of the Board's prescribed requirements.

25. This action is an order to enforce waste discharge requirements adopted by the Board and is categorically exempt from CEQA pursuant to Section 15321 of the Resources Agency Guidelines.

26. The discharger and interested persons have been notified of the Board's intent to adopt the enforcement order, and have been provided with the opportunity for a public hearing and the opportunity to submit their written views and recommendations. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED THAT, the Discharger shall cease and desist from violating waste discharge requirements contained in Order No. 93-086 as follows:

1. Compliance with concentration effluent limitation B.4.1 of Order 93-086 for copper shall be achieved in accordance with the time schedules and interim measures described in Attachment I which is incorporated herein and made a part of this Order. Full Compliance with the copper concentration effluent limit shall be achieved by July 21, 1998. (1)(3)(4)

   The discharger shall comply immediately with the following interim limit. The interim limit is derived from the 95th percentile plant performance concentrations during the period between January 1992 and May 1993. (5)

Constituent	Interim Limit (ug/l)
Copper	9.0, 1-day average

2. Compliance with mass limit B.5.2 of Order 93-086 for copper shall be achieved in accordance with the time schedule below and implementation of interim measures described in Attachment 1. Full compliance with the copper mass effluent limit shall be achieved by July 21, 1996.(2)(3)(4)

Note:

(1) According to the Basin Plan, after a wasteload allocation (for copper) is implemented in permits and load reductions consistent with that allocation are occurring, the Board will reevaluate the effluent concentration limitation for copper.

(2) Mass loadings are to be calculated weekly using average weekly flow data. The discharger shall submit a cumulative total of mass loadings for the previous twelve months with each Self Monitoring Report. Compliance shall be determined based on the previous twelve months of monitoring and shall be calculated weekly.

(3) If in the process of attaining these limits, the discharger determines that measures required to attain these limits would result in substantial and widespread economic and social impact, the discharger may petition the Board to reevaluate these limits.

(4) If in the process of attaining these limits, additional information justifying a later compliance date becomes available, the discharger may petition the Board to reevaluate the compliance schedules.

(5) The discharger shall evaluate compliance with the 95th percentile limit monthly. The 95th percentile value is the highest concentration measured during a time period (two years maximum) after removing the top 5% of the results for that time period. After 5% of the measures for any parameter have exceeded the effluent limit, each additional exceedance shall constitute a violation for the measurement period of that parameter (e.g., for metals measurements that are measured weekly, each exceedance after the 5% allowed shall be counted as one week of violation).

I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on July 21, 1993.

STEVEN R. RITCHIE
Executive Officer

The following measures are designed to achieve compliance with the discharger's NPDES permit (Effluent concentration and mass limits B.4.1 and B.5). All measures are required to be continued until the discharger fully complies with those provisions. The Board will decide which measures should be continued beyond that date.

I. GENERAL (NON-SOURCE SPECIFIC) ACTIVITIES

A. Source Identification

1. Review all plans for non-residential building permits. Building permits can not be issued without industrial pretreatment program approval.

2. Review all utility hook up requests and inspection of all facilities requesting new utility hook ups. All new facilities shall be added to the data base.

3. Periodic review of Pacific Bell Yellow Pages, and San Jose Mercury News for potential sources.

4. Perform door to door inspections in the industrial/business parks within the City.

5. Coordinate with other City departments to determine potential sources.

6. Review utility billings for all non-residential users for high water usage and substantial changes in usage patterns.

7. Use of computer database searches to identify companies who are potential sources.

B. Other

1. Evaluate new waste minimization techniques as they become available.

2. Continue to enhance and upgrade the Pretreatment Program Database Management system.

3. Continue to investigate and evaluate WPCP operations as they impact the efficiency of WPCP metals removal. The 1993 focus will be on a refined polymer feed system, and optimization of AFT and filter operation.

II. POLLUTION PREVENTION STUDIES

A. Pollution Prevention Studies (Audits)

1. The discharger shall require permitted industrial dischargers to prepare and submit detailed technical reports containing information which, when added to the information already in the files of the WPCP, shall be equivalent to the information required by the "audit format".[1]

   Submittal of Audits to Discharger: December 1, 1993

2. The discharger shall review the audit information to assess the completeness and accuracy of all information supplied. If the discharger determines that the audit information is inadequate, the discharger shall obtain appropriate revisions. If unsuccessful with obtaining revisions, the discharger shall take appropriate formal enforcement action to obtain a complete report.

   The discharger shall identify Reasonable Source Control Measures (RSCMs). RSCMs are defined as those control technologies, best management practices, source control practices and waste minimization practices which will reduce the generation of copper and nickel in industrial discharges into the Sunnyvale treatment system to the maximum extent feasible and are cost effective.

   Cost effective measures are defined as measures that payback the capital and operating costs to implement the measure in five years or less at the prevailing interest rate. RSCMs are defined throughout this document by the above definition.

   The discharger shall submit a technical report, acceptable to the Executive Officer, including the results of the audits and the identification of reasonable source control measures. The information from these audits shall be used in the local limits development process.

   Report Due: February 28, 1994

B. Implementation of "Early Reasonable Source Control Measures" (Early RSCMs)

The discharger shall evaluate the audit information to determine whether there are technologies or practices (Early RSCMs) that could be implemented prior to final implementation of local limits. "Early RSCMs" shall be considered for implementation if it is unlikely that an Early RSCM would be superseded by a different RSCM following adoption of final local limits.

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1 "Audit format" refers to the document agreed upon by Clean South Bay and the discharger.

The discharger shall submit a technical report, acceptable to the Executive Officer, which evaluates Early RSCMs and proposes an expeditious timeline for implementation of Early RSCMs.

Report Due: February 28, 1994

III. LOCAL LIMITS

A. Local Limits Development

1. The discharger shall submit a report of the analysis of the pollutants which are of concern to treatment plant operations. The determination of pollutants of concern shall include screening of influent, effluent, and sludge data to determine pollutants levels which have the potential to cause problems based on worker health and safety requirements, sludge requirements inhibition and pass-through. The pollutants determined to be of concern must be compared to those pollutants which the discharger currently regulates. The report shall also include a plan for addressing the factors involved in the development of the local limits and shall provide details of additional sampling which will need to be performed. Instances where data may be needed in order to provide the technical basis for justifying local limits include: total vs. total recoverable effluent concentration limits; treatment plant efficiencies; data on commercial, industrial, residential, and water supply contribution.

   Report Due: September 1, 1993

2. The discharger shall submit a report of the maximum pollutant loadings to the treatment plant which will enable the treatment plant to meet NPDES effluent limitations. This analysis will consist of a calculation of treatment plant removal efficiencies. The report will provide sufficient documentation of the residential contribution to justify the amount of loading which is available to the industrial and commercial users. The report shall also describe any actions which will be taken to lower contributions from domestic or water supply sources. The calculation of the loading which remains for allocation to the non-domestic sources shall also be included in the report.

   Report Due: September 1, 1993

3. The discharger shall submit a report describing the method for determining loading allocation for each non-domestic user. The allocation shall include an analysis of methods such as industrial contributory limits, mass-based limits, concentration limits, and a required percentage reduction of pollutants. Data shall be provided on the industrial and commercial users to justify the methodology of required reductions.
   Report Due: September 1, 1993

4. The discharger shall submit a report, acceptable to the Executive Officer, proposing the final local limits for industrial and commercial users which will enable the discharger to meet the NPDES effluent limits.

   Report Due: June 1, 1994

5. The discharger shall adopt local limits, if approved by the Executive Officer, which enable the discharge to meet the NPDES effluent limits. At a minimum, the limits shall achieve maximum feasible reductions[2] for copper and nickel. The local limits shall be composed of at least two parts:

   (1) Concentration Limits
   (2) Reasonable Source Control Measures

   If any other municipal discharger within the San Francisco Bay Region requires companies within its jurisdiction to implement a cost effective measure that is applicable to industries in the discharger's area, the discharger shall present the measure for consideration as a reasonable source control measure.

   Adoption Date: November 30, 1994
   Effective Date of Ordinance: December 31, 1994

6. The discharger shall incorporate local limits in the individual control mechanisms for each industrial or commercial user. These limits shall be based on the process approved by the Regional Board.

   Incorporation Date: February 28, 1995

IV. INDUSTRIAL SECTOR

A. Waste Minimization Plans

1. Continue to review, approve and require the implementation of Waste Minimization plans for all major permitted industries.

2. Incorporate waste minimization plans into the permits for industrial users.

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2 Maximum feasible reduction is one which would be cost-effective for the industrial discharger, calculated at the prevailing interest rate and with an assumed payback of 5 years, and would result in the smallest pollutant discharge. Use of a different payback period may be required, based on information generated in the process of developing the Local Limits if agreed upon by the Executive Officer.

B. Discharge Information

1. Annually, analyze a composite sample for each permitted industry, for all metals of concern whether or not the metals are used by the industry or are expected to be present.

2. Conduct flow verification to accurately measure the volume of wastewater being discharged from industry.

3. Require all applicants for industrial discharges to provide accurate methods of process flow verification at the plan check stage prior to construction of the facility.

4. Collect and review Industrial User (IU) total and process flow monitoring and meter calibration records during inspections.

5. Utilize the Pretreatment Program Database to monitor changes in process, concentrations, and mass of metals discharged to the WPCP. Observed changes will be discussed with industry personnel and documented in Waste Minimization Plans.

C. Education, Enforcement, and Incentives for Pollutant Reduction

1. Provide education for industry concerning their discharge and both local and federal limits that apply to the discharge.

2. Formalize and expand the Mentor Program which encourages industries to help each other with technical problems.

3. Continue aggressive enforcement of federal categorical and local limits.

4. Maintain the existing level of compliance monitoring, inspection and enforcement of the IUs for all existing and new IUs.

5. Submit a report, acceptable to the Executive Officer, evaluating other methods for achieving reductions that represent substantial opportunities for source reductions, including financial incentives or changes in rate structures.

   Report Due: September 30, 1994

V. COMMERCIAL SECTOR

Permits and Best Management Practices (BMPs) issued in the commercial sector shall assure at a minimum the maximum extent practicable reduction of pollutant discharges, including where practical, requiring zero discharge for these pollutants, to the Water Pollution Control Plant, based on the information available. The discharger shall make it clear to affected persons that BMPs, although expressed as guidance or

recommendations, should be implemented by such persons, otherwise the discharger will bring such persons into a mandatory permit program.

A. General Activities

1. Continue to evaluate all commercial sources as potential dischargers.

B. Automotive Industries/Silver Generating Facilities

1. Continue inspection of automotive and silver generating facilities.

2. Continue to annually inspect the three radiator shops to verify that no discharge is occurring.

3. Continue to update automotive BMPs and distribute copies to all automotive facilities.

4. Continue to update BMPs for silver generating businesses and distribute copies to all such businesses.

5. Continue informational mailings to the auto/truck repair, steam cleaning and silver generating businesses.

6. Monitor implementation of pretreatment, waste minimization and non point source control BMPs within the automotive businesses and silver generating businesses through inspection.

7. Continue educational efforts for automotive and silver generating facilities including work shops, technical assistance, posters, and educational materials.

C. Evaluation of Best Management Practices (BMPs)

1. The discharger shall submit a report, acceptable to the Executive Officer, which evaluates the extent to which facilities subject to BMPs have implemented the BMPs which are applicable to them.

   Report Due: September 1, 1993

2. If the Executive Officer determines that there has been substantial noncompliance with above BMPs, the discharger shall bring such sources into a formal permit program which shall be designed to achieve a level of reduction from such sources which is at least as great a level of reduction in metals as full compliance with such BMPs would have attained.

   Compliance Date: February 1, 1994

D. Additional Commercial Categories

1. Continue to regulate existing and new companies in the commercial sector in the above categories and begin to regulate companies in any new categories of the commercial sector which are found to be significant contributors of copper and nickel.

2. The discharger shall consider adoption of BMPs for laboratories, machine shops, hospitals, cooling towers, and dry cleaners. The discharger shall evaluate BMP information from San Jose and Palo Alto.

VI. RESIDENTIAL SECTOR

A. General Public Education

1. Continue giving educational tours of the WPCP, writing educational articles for City publications, developing educational display exhibits, and giving presentations at community events and schools.

2. Continue presenting environmental awards to businesses and IUs and monitor public awareness at the annual City Earth Day event.

3. Investigate measures to assess the effectiveness of the public education program.

B. Other

1. Continue routine collection and analysis of residential composite samples for metals of concern.

2. Incorporate "Point-of-Sale" ordinance modifications into the City's Sewer Ordinance to regulate copper based products, such as root killers. The discharger shall include in the second quarterly report of 1993 a status report on the adoption of an ordinance to ban the sale of copper-based root killers.

3. Continue to research potential residential sources and augment existing and developing information.

VII. WATER SUPPLY

A. Pursuant to the "Request for Information and a Proposed Strategy to Reduce Copper and Selenium in South Bay Drinking Water Sources" submit a joint report generated from the steering committee, which includes monitoring results of drinking water sources and a proposal for immediate actions that can be taken to reduce copper inputs to the water supply. The proposal shall include an evaluation of reducing and/or eliminating the addition of copper sulfate into drinking water sources as an immediate action.
Report Due: January 15, 1994

B. Commence implementation of immediate actions, as approved by the Executive Officer.

Commencement Date: April 15, 1994

C. Submit a proposal for approval by the Executive Officer for long term actions and a proposed implementation schedule that can be taken to reduce copper inputs to the water supply. The proposal shall include an evaluation of the results of the Santa Clara Valley Water District corrosion inhibitor study.

Report Due: July 1, 1994

D. Submit a status report in Pretreatment Annual Report
Status Report Due: February 28, 1994

VIII. PILOT WASTE MINIMIZATION PROGRAM FOR MERCURY

1. If monitoring results submitted pursuant to Provision E.5.1 of Order 93-086, indicate that mercury effluent concentrations exceed the effluent limitation, the discharger shall develop a pilot waste minimization program for mercury for approval by the Executive Officer. The program should be done in coordination with Palo Alto, San Jose and the Bay Area Waste Minimization Group.

   Submit Proposal: October 1, 1993

2. Begin implementation of the pilot waste minimization program for mercury, if required, according to the proposal approved by the Executive Officer.

   Implementation Date: January 1, 1994

3. Complete pilot waste minimization program for mercury.

   Completion Date: January 1, 1995

X. COORDINATION WITH SANTA CLARA VALLEY NON-POINT SOURCE CONTROL PROGRAM

The discharger shall coordinate waste minimization/source control activities with the Santa Clara Valley Non Point Source Pollution Control Program in order to increase overall effectiveness of controlling heavy metal discharges to the South Bay. Coordination should include, but not be limited to the following areas: source identification, illicit connection elimination to stormwater drains, industrial discharge runoff identification and control programs, and public information and participation programs.

XI. MONITORING AND EVALUATION

1. The discharger shall provide on-going tracking of influent, sludge and effluent levels to determine the reduction of pollutants and show the effectiveness of the revised local limits and other waste minimization activities intended to reduce treatment plant loadings.

   The discharger shall include this summary of reductions to influent and effluent loadings and sludge metal concentrations and status of compliance with the mass and concentration effluent limits contained in this Order as part of the Annual Pretreatment Report.

2. Annually, recalculate copper and nickel pollutant contributions by the following sectors: residential, commercial, industrial, water supply. Include an evaluation of the effectiveness of the waste minimization measures at achieving reductions.

XII. REPORTING REQUIREMENTS

1. The discharger shall include in the pretreatment annual report, required by Order No. 89-179 (Pretreatment Amendments):

   - the status, progress, evaluation, results and any written products of all of the above program areas.
   - reasons for any delays or potential delays in completion of any of the tasks, together with proposed remedies for the delays shall be included.
   - a proposal for the following year's work program to achieve the mass and concentration limits including budget and staffing.
   - the previous year's budget and staffing to accomplish the pretreatment/waste minimization program.

2. The discharger shall include in the second quarterly report a status report on all of the above program areas.