UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
NEW ENGLAND - REGION I
ONE CONGRESS STREET, SUITE 1100
BOSTON, MASSACHUSETTS 02114-2023

FACT SHEET

DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES PURSUANT TO THE CLEAN WATER ACT (CWA)

NPDES PERMIT NUMBER: **MA0001350**

NAME AND MAILING ADDRESS OF APPLICANT:

L.S. Starrett Company
121 Crescent Street
Athol, Massachusetts 01331

NAME AND ADDRESS OF FACILITY WHERE DISCHARGE OCCURS:

L.S. Starrett Company
121 Crescent Street
Athol, Massachusetts 01331

RECEIVING WATER(S): **Millers River (MA35-04)**

RECEIVING WATER CLASSIFICATION(S): **B (warm water fishery)**

SIC CODE: **3545 Cutting Tools, Machine Tool Accessories, and Machinists' Precision Measuring Devices**

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I. Proposed Action, Type of Facility, and Discharge Location

The above applicant has applied to the U.S. Environmental Protection Agency (EPA) for re-issuance of a National Pollutant Discharge Elimination System (NPDES) permit to discharge wastewater and non-contact cooling water into the designated receiving water. The Existing Permit was signed February 10, 2004 and became effective on the date of signature. This permit expired September 30, 2007. EPA received a permit renewal application from L.S. Starrett dated June 25, 2007. Since the permit renewal application was deemed timely and complete by EPA, the permit has been administratively continued.

L.S. Starrett, which is located in Athol, Massachusetts (see Attachment A), is a manufacturer of precision instruments and hand measuring tools. The NPDES discharge consists of non-contact cooling water from Outfall 007 and treated electroplating process wastewater from Outfall 002. In addition, effluent from the cyanide destruction treatment process discharges through internal Outfall 003 to external Outfall 002. Emergency discharges of non-contact cooling water are also permitted through Outfalls 004 and 005 (see Attachment C.) Additional process wastewater from the facility is discharged to the local wastewater treatment plant (WWTP) and storm water discharges are covered separately under EPA's Multi-Sector General Permit (MSGP) for Stormwater Discharges Associated with Industrial Activity (MAR05B615).

II. Description of Discharge

A quantitative description of the effluent parameters based on recent discharge monitoring reports (DMRs) is shown on Attachment B of this fact sheet.

III. Receiving Water Description

Outfalls 002, 004, 005, and 007 discharge into the Millers River (MA35-04). The Millers River is classified as a Class B warm water fishery by the Massachusetts Department of Environmental Protection (MassDEP). The Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(4) (b) state that Class B waters have the following designated uses: *These waters are designated as habitat for fish, other aquatic life and wildlife and for primary and secondary contact recreation. In approved areas they shall be suitable as a source of public water supply with appropriate treatment ("Treated Water Supply"). These waters shall be suitable for irrigation and other agricultural uses and for compatible industrial cooling and process uses. These waters shall have consistently good aesthetic value.*

Section 303(d) of the Federal Clean Water Act (CWA) requires states to identify those waterbodies that are not expected to meet surface water quality standards after the implementation of technology-based controls and, as such require the development of total maximum daily loads (TMDL). The Massachusetts final 2006 and proposed 2008 303(d) reports state that the Millers River (MA35-04), from South Royalston USGS Gage, Royalston to Erving Center WWTP (formerly known as Erving Paper Company), Erving, is not attaining water quality standards due to priority organics, nutrients and pathogens. The discharge from L.S. Starrett is not expected to contribute to these impairments.

MassDEP is required under the CWA to develop a Total Maximum Daily Load (TMDL) for a water body once it is identified as impaired. A TMDL is essentially a pollution budget designed to restore the health of a water body. A TMDL first identifies the source(s) of the pollutant from direct and indirect discharges in order to next determine the maximum amount of pollutant (including a margin of safety) that can be discharged to a specific water body while maintaining water quality standards for designated uses. It then outlines a plan to meet the goal.

A TMDL has not yet been developed for the Millers River. In the interim, EPA is developing the conditions for this permit based on a combination of technology based standards, water quality based standards, and anti-degradation provisions. However, if a TMDL developed in the future identifies that the discharge from the facility is causing or contributing to the non-attainment of surface water quality criteria, the permit may be re-opened.

IV. Limitations and Conditions

The effluent limitations of the draft permit, the monitoring requirements, and any implementation schedule (if required) may be found in the draft permit.

V. Permit Basis: Statutory and Regulatory Authority

The Clean Water Act (CWA) prohibits the discharge of pollutants to waters of the United States without a NPDES permit unless such a discharge is otherwise authorized by the CWA. The NPDES permit is the mechanism used to implement technology and water quality-based effluent limitations and other requirements including monitoring and reporting. This Draft NPDES permit was developed in accordance with various statutory and regulatory requirements established pursuant to the CWA and applicable State regulations. During development, EPA considered the most recent technology-based treatment requirements, water quality-based requirements, and all limitations and requirements in the current/existing permit. The regulations governing the EPA NPDES permit program are generally found at 40 CFR Parts 122, 124, 125, and 136. The standard conditions of the Draft Permit are based on 40 CFR §122.41 and consist primarily of management requirements common to all permits. The effluent monitoring requirements have been established to yield data representative of the discharge under authority of Section 308(a) of the CWA in accordance with 40 CFR §122.41(j), §122.44(i) and §122.48.

A. Technology-Based Requirements

Subpart A of 40 CFR §125 establishes criteria and standards for the imposition of technology based treatment requirements in permits under Section 301(b) of the CWA, including the application of EPA promulgated effluent limitations and case-by-case determinations of effluent limitations under Section 402(a)(1) of the CWA.

Technology-based treatment requirements represent the minimum level of control that must be imposed under Sections 301(b) and 402 of the CWA (See 40 CFR §125 Subpart A) to meet best practicable control technology currently available (BPT) for conventional pollutants and some metals, best conventional control technology (BCT) for conventional pollutants, and best available technology economically achievable (BAT) for toxic and non-conventional pollutants.

In general, technology-based effluent guidelines for non-POTW facilities must be complied with as expeditiously as practicable but in no case later than three years after the date such limitations are established and in no case later than March 31, 1989 [See 40 CFR §125.3(a)(2)]. Compliance schedules and deadlines not in accordance with the statutory provisions of the CWA can not be authorized by a NPDES permit.

On July 15, 1983 EPA promulgated effluent limitation guidelines (ELGs) for the Metal Finishing Point Source Category at 40 CFR §433. L.S. Starrett is classified as a metal finisher and is therefore subject to the metal finishing industrial regulations. The promulgated ELGs contain numerical effluent limitations on the discharge of cadmium (a 30 day average of 0.26 mg/l and a maximum daily average of 0.69 mg/l), chromium (a 30 day average of 1.71 mg/l and a maximum daily average of 2.77 mg/l), copper (a 30 day average of 2.07 mg/l and a maximum daily average of 3.38 mg/l), lead (a 30 day average of 0.43 mg/l and a maximum daily average of 0.69 mg/l), nickel (a 30 day average of 2.38 mg/l and a maximum daily average of 3.98 mg/l), silver (a 30 day average of 0.24 mg/l and a maximum daily average of 0.43 mg/l), zinc (a 30 day average of 1.48 mg/l and a maximum daily average of 2.61 mg/l), cyanide (a 30 day average of 0.65 mg/l and a maximum daily average of 1.20 mg/l), total toxic organics (TTO – a 30 day average of 2.13 mg/l), oil & grease (a 30 day average of 26 mg/l and a maximum daily average of 52 mg/l), total suspended solids (TSS- a 30 day average of 31 mg/l and a maximum daily average of 60 mg/l) and pH (6-9 standard units). EPA has also promulgated pretreatment standards for the Electroplating Point Source Category at 40 CFR §413. However, because Outfall 002 discharges to a surface water and not a publicly owned treatment works (POTW), these pretreatment standards are not applicable to this facility.

There are no EPA promulgated effluent limitation guidelines for the discharge of non-contact cooling water. In the absence of applicable technology-based effluent guidelines, the permit writer is authorized under Section 402(a)(1)(B) of the CWA to establish effluent limitations on a case-by-case basis using Best Professional Judgement (BPJ).

B. Water Quality-Based Requirements

Water quality-based criteria are required in NPDES permits when EPA and the State determine that effluent limits more stringent than technology-based limits are necessary to maintain or achieve state or federal water-quality standards (See Section 301(b) (1)(C) of the CWA). Water quality-based criteria consist of three (3) parts: 1) beneficial designated uses for a water body or a segment of a water body; 2) numeric and/or narrative water quality criteria sufficient to protect the assigned designated use(s) of the water body; and 3) anti-degradation requirements to ensure that once a use is attained it will not be degraded. The Massachusetts State Water Quality Standards, found at 314 CMR 4.00, include these elements. The State Water Quality Regulations limit or prohibit discharges of pollutants to surface waters and thereby assure that the surface water quality standards of the receiving water are protected, maintained, and/or attained. These standards also include requirements for the regulation and control of toxic constituents and require that EPA criteria, established pursuant to Section 304(a) of the CWA, be used unless site-specific criteria are established. EPA regulations pertaining to permit limits based upon water quality standards and state requirements are contained in 40 CFR §122.44(d).

Section 101(a)(3) of the CWA specifically prohibits the discharge of toxic pollutants in toxic amounts. The State of Massachusetts has a similar narrative criteria in their water quality regulations that prohibits such discharges [See Massachusetts 314 CMR 4.05(5)(e)]. The effluent limits established in the Draft Permit assure that the surface water quality standards of the receiving water are protected, maintained, and/or attained.

C. Anti-Backsliding

EPA's anti-backsliding provision as identified in Section 402(o) of the Clean Water Act and at 40 CFR §122.44(l) prohibits the relaxation of permit limits, standards, and conditions unless the circumstances on which the previous permit was based have materially and substantially changed since the time the permit was issued. Anti-backsliding provisions apply to effluent limits based on technology, water quality, best professional judgment (BPJ) and State Certification requirements. Relief from anti-backsliding provisions can only be granted under one of the defined exceptions [See 40 CFR §122.44(l)(i)].

D. Anti-Degradation

Federal regulations found at 40 CFR Section 131.12 require states to develop and adopt a statewide antidegradation policy which maintains and protects existing instream water uses and the level of water quality necessary to protect the existing uses, and maintains the quality of waters which exceed levels necessary to support propagation of fish, shellfish, and wildlife and to support recreation in and on the water. The Massachusetts Antidegradation Regulations are found at 314 CMR 4.04.

The EPA anticipates that the MassDEP shall make a determination that there shall be no significant adverse impacts to the receiving waters and no loss of existing uses as a result of the discharge authorized by this permit. This Draft Permit is being reissued with allowable effluent limits as stringent as or more stringent than the Current Permit and accordingly will continue to protect the existing uses of the Millers River.

VI. Explanation of the Permit's Effluent Limitation(s)

A. Facility Information

L.S. Starrett is a manufacturer of precision measuring tools and instruments including micrometer calipers, steel rulers, depth gages, verniers, thickness gages, steel squares, levels and precision steel tapes. The facility consists of multiple buildings, located on both sides of the Millers River, which are used for manufacturing, offices, and storage. Discharges covered under this NPDES permit include non-contact cooling water (NCCW) overflow and process wastewater (see Attachment C.) The source of NCCW is industrial wells and municipal water. L.S. Starrett recycles a portion of this NCCW to be used as the source of process water. The processes employed at this facility include: material cutting, forming, milling, tool part coating and finishing, electroplating, heat treatment, and tool part assembly. Wastewater from the etching, penetrate, and tumbling processes receives treatment on-site before being discharged, along with sanitary waste, to the Athol POTW. Stormwater discharges are covered by EPA's

Multi-Sector General Permit (MAR05B615). According to the facility, all materials, final products, and processes are housed in the facility buildings and do not come into contact with stormwater on a regular basis.

B. Permitted Outfalls

1. Outfalls 002 and 003 – Treated Electroplating Process Wastewater

Outfall 002 discharges treated process wastewater from the electroplating processes (Attachment D). The source for all process water at the facility is recycled non-contact cooling water from the Outfall 007 holding tank, which is described below. Waste streams containing chromium or cyanide undergo chromium reduction treatment or cyanide destruction treatment, respectively, before joining other waste streams for additional treatment. Sampling for total cyanide occurs at internal Outfall 003, directly after cyanide destruct treatment and before dilution with other waste streams. After commingling, the waste streams receive additional treatment, including pH adjustment and sedimentation, before being discharged to the Millers River. Sludge that is removed during the treatment processes is regarded as class F006 RCRA waste. After the treatment processes, the treated process wastewater is discharged to the Millers River through Outfall 002 (Attachment C). Sampling occurs just prior to discharge.

2. Outfalls 004, 005, and 007 – Non-Contact Cooling Water

Outfalls 004, 005 and 007 discharge overflow non-contact cooling water (NCCW) to the Millers River (Attachment C). The source of the NCCW is industrial wells and municipal city water. NCCW is used for cooling degreasing activities and then is discharged into holding tanks for Outfalls 004 and 005 before being pumped into a larger, 20,000 gallon, holding tank for Outfall 007 (see Attachment D). The majority of the water from this tank is recycled, as stated above, for use as process water at the facility. Overflow from the 20,000 gallon tank is regularly discharged through Outfall 007. Outfalls 004 and 005 are permitted as emergency back-up outfalls for use during a system shut-down. In this scenario, overflow water would be directly discharged from Outfalls 004 and 005 and no NCCW would be pumped to the 20,000 gallon tank for Outfall 007. Outfall 004 also discharges water from the sprinkler system at L.S.Starrett. Sampling for Outfalls 005 and 007 occur in the holding tanks near the point of discharge. Sampling for Outfall 004 occurs end-of-pipe.

The Existing Permit lists a fourth NCCW outfall, Outfall 006. This outfall historically discharged emergency overflow NCCW from a holding tank, in a manner similar to Outfalls 004 and 005. Data from Discharge Monitoring Reports (DMRs) from January 2005 to February 2008 indicates that this outfall discharged only once, in May 2005, in the past three years. L. S. Starrett has communicated to EPA that the non-contact cooling water (NCCW) operations that once discharged through Outfall 006 have since been eliminated. In addition, the holding tank and piping system that held and transported the NCCW have also been eliminated. This is consistent with observations made by EPA on a site visit of the facility in June of 2008. Based on this information, Outfall 006 is not considered a point source discharge requiring an NPDES permit and has subsequently been removed from the Draft Permit.

C. Derivation of Effluent Limits under the Federal CWA and/or the Commonwealth of Massachusetts' Water Quality Standards

The Draft Permit for L.S. Starrett includes numeric effluent limitations and requires the development, implementation, and annual review of a SWPPP prepared for the facility. The effluent parameters in the Draft Permit are discussed in more detail below.

1. Outfall 002 – *Treated Electroplating Process Wastewater*

a. Flow

The Draft Permit contains a daily maximum flow limit of 30,000 gallons per day (gpd) and a monthly average flow limit of 25,000 gpd for Outfall 002. The Expired Permit had no daily maximum flow limit and a monthly average flow limit of 0.07 million gallons per day (MDG). The monthly average flow limit has been lowered from the Expired Permit limit based on the historical flow from this outfall, which is presented in Attachment B. The Draft Permit limit for daily maximum flow is based on flow readings collected by L.S. Starrett and presented in Attachment B.

The historical 7Q10 of the Millers River is 46.8 cubic feet per second[1] (cfs) (30,247,630.566 gpd). According to the following calculations, the dilution factor using this 7Q10 value and the maximum daily flow limit of 30,000 gpd is 1009.25.

$$\textbf{Dilution Factor} = \frac{(DailyMaxFlowLimit + 7Q10)}{DailyMaxFlowLimit}$$

$$\textbf{1009.25} = \frac{(30{,}000\,gpd + 30{,}247{,}630.566\,gpd)}{30{,}000\,gpd}$$

b. pH

Massachusetts State Surface Water Quality Standards require the pH of Class B waters to be within the range of 6.5 to 8.3 standard units (s.u.) and not more than 0.5 units outside of the natural background range. The pH permit limit range of 6.5 to 8.3 as identified in the Draft Permit, has been established in accordance with the State Surface Water Quality Standards. The discharge shall not exceed this pH range unless due to natural causes. In addition, there shall be no change from background conditions that would impair any uses assigned to the receiving water class. A summary of the discharge monitoring data submitted by the facility during the time period of January 2006 to July 2008 is included as Attachment B to this Fact Sheet.

c. Total Suspended Solids (TSS)

1 United States Geological Survey (USGS) StreamStats Program. Original Source: Wandle, S.W., Jr.,1984, Gazetteer of Hydrologic Characteristics of Streams in Massachusetts--Connecticut River Basin: U.S. Geological Survey Water-Resources Investigations Report 84-4282.

The Draft Permit contains a maximum daily limit of 30 mg/l and a monthly average limit of 20 mg/l for TSS at Outfall 002. These limits are continued from the Expired Permit, in accordance with anti-backsliding. These limits are more stringent than the Effluent Limit Guidelines (ELGs) for the Metal Finishing Point Source Category at 40 C.F.R. §433, which contains a maximum daily TSS limit of 60 mg/l and a monthly average TSS limit of 31 mg/l.

d. Oil and Grease

The Draft Permit contains a daily maximum limit and a monthly average limit of 15 mg/l for oil and grease. The EGLs at 40 C.F.R. §433 contain a maximum daily limit of 52 mg/l and a monthly average limit of 26 mg/l. However, the daily maximum oil and grease limit in the Draft Permit is based on the Massachusetts Surface Water Quality Standards, 314 Code of Massachusetts Regulations ("CMR") 4.05(3)(b)(7), which state: *These waters shall be free from oil, grease and petrochemicals that produce a visible film on the surface of the water, impart an oily taste to the water or an oily or other undesirable taste to the edible portions of aquatic life, coat the banks or bottom of the water course, or are deleterious or become toxic to aquatic life.* A concentration of 15 mg/l is recognized as the level at which many oils produce a visible sheen and/or cause and undesirable taste in fish (EPA Water Quality Criteria, 1972). A maximum daily and monthly average limit for oil and grease of 15 mg/l will ensure compliance with state water quality standards and has been included for similar facilities in Massachusetts.

e. Metals and Other Limits

In developing the Draft Permit limits for Outfall 002, EPA calculated water quality-based limitations using the National Recommended Water Quality Criteria and the dilution afforded by the Millers River and compared these limits to the Expired Permit limits and the ELGs for the Metal Finishing Point Source Category at 40 C.F.R. §433. Water quality-based limits for cadmium, copper, lead, nickel, silver, and zinc are dependent on the hardness of the receiving water and were calculated using a hardness of 15.25 mg/l, which was derived from the MassDEP Millers River Watershed 2000 Water Quality Assessment Report. As shown in Appendix E, excepting the monthly average limit for total cadmium, the effluent limits from the Expired Permit, which are based on best professional judgment, are the most stringent. Therefore, the Draft Permit numerical effluent limits for total cyanide, amenable cyanide, total chromium, hexavalent chromium, total copper, total nickel, total zinc, total lead, total silver, total aluminum, total residual chlorine, and the daily maximum limit for total cadmium are continued from the Expired Permit. The Draft Permit monthly average limit for total cadmium is the water quality-based effluent limitation, which is more stringent than either the limit in the Expired Permit or the applicable ELG.

A summary of the discharge monitoring data submitted by the facility during the time period of January 2006 to July 2008 is included as Attachment B to this Fact Sheet. Results indicate only one limit exceedence, which occurred for amenable cyanide (defined as amenable to alkaline chlorination at 40 CFR §433) in March 2006. The Draft Permit requires both total and amenable cyanide to be sampled at external Outfall 002 and total cyanide to be sampled at internal Outfall

003. Sampling for all metals at Outfall 002 occurs after treatment and before the discharge point to the Millers River.

The Draft Permit also contains a reporting requirement for trichloroethylene, as continued from the Expired Permit. L.S. Starrett uses trichloroethylene in the degreasing processes on-site. Historical data in Attachment B from June 2004 to June 2008 indicates a maximum concentration of 0.23 mg/l and an average concentration of 0.030 mg/l. When the dilution factor of 1009.25 is taken into account, these values are well below the human health criteria of 1.28 mg/l, which is derived from the National Recommended Water Quality Criteria. However, based on toxic nature of this pollutant and its potential to be a carcinogen, monitoring requirements are maintained in the Draft Permit.

f. Total Toxic Organics (TTO)

The Draft Permit contains a daily maximum limit for Total Toxic Organics of 2.13 mg/l. This limit is continued from the Expired Permit and is a technology-based limit derived from the ELGs at 40 C.F.R. §433. The maximum concentration for Total Toxic Organics recorded at the facility is 0.24 mg/l, as presented in Attachment B.

The ELGs at 40 C.F.R. §433.12 allow the permitting authority to accept a certification and solvent management plan in lieu of monitoring for TTO. Pursuant to 40 CFR 433.12(a), the certification to be made by the facility shall state: "Based on my inquiry of the person or persons directly responsible for managing compliance with the permit limitation [or pretreatment standard] for total toxic organics (TTO), I certify that, to the best of my knowledge and belief, no dumping of concentrated toxic organics into the wastewaters has occurred since filing of the last discharge monitoring report. I further certify that this facility is implementing the toxic organic management plan submitted to the permitting [or control] authority." The solvent management plan should specify, to the satisfaction of the permitting authority, "…the toxic organic compounds used; the method of disposal used instead of dumping, such as reclamation, contract hauling, or incineration; and procedures for ensuring that toxic organics do not routinely spill or leak into the wastewater." According to the ELGs, this plan shall be incorporated as a provision of the permit.

g. Whole Effluent Toxicity (WET) Testing

Whole Effluent Toxicity (WET) testing is conducted to determine whether certain effluents, often containing potentially toxic pollutants, are discharged in a combination which produces a toxic amount of pollutants in the receiving water. The toxicity of several constituents in a single effluent can only be accurately examined by whole effluent toxicity testing.
Two sources of legal authority explain how regulatory authorities have the legal basis for establishing toxicity testing requirements and toxicity-based permit limits in NPDES permits. Sections 402(a)(2) and 308(a) of the Clean Water Act provide EPA and States with the authority to require toxicity testing. Section 308 specifically describes biological monitoring methods as techniques which may be used to carry out objectives of the Act. Under certain State narrative water quality standards, and Sections 301, 303 and 402 of the Clean Water Act, EPA and the

States may establish toxicity-based limits to implement the narrative "no toxics in toxic amounts."

The regulations at 40 CFR Part 122.44(d)(ii) state, "When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and non-point sources of pollution...(including) the sensitivity of the species to toxicity testing...." The EPA and MassDEP believe that the complexity of this effluent is such that toxicity testing is required to evaluate and address any water quality impacts. The MassDEP in its "Implementation Policy for the Control of Toxic Pollutants in Surface Waters" (February 23, 1990) sets forth toxicity limits according to dilution factors based on perceived risk. Results of these toxicity tests will demonstrate compliance with the Massachusetts Water Quality Standards.

Attachment B shows the historical WET test results for L.S. Starrett from July 2004 through July 2008. There were no exceedences of the permit limit of >50% during this time period. Results for the fathead minnow, *pimephales promelas*, are >100% for all but one reported monitoring period. Results for the daphnid, *ceriodaphnia dubia*, are >100% for six of the nine reported monitoring periods. In the four instances in which results are not >100%, three are from samples taken in October.

The Draft Permit requires that the permittee conduct acute WET testing at Outfall 002, with a limit of 50%. Based on the results discussed above and reported in Attachment B, the reporting frequency has been reduced from twice per year to once per year. Samples will be taken during the month of October and results are to be submitted by the last day of November. In addition, WET tests will be conducted using the daphnid, *Ceriodaphnia dubia*, which is the more sensitive of the previously tested species. These tests will be conducted in accordance with EPA Region I protocol to be found in permit **Attachment A,** Freshwater Acute Toxicity Test Procedure and Protocol.

2. Outfall 003 – *Cyanide Destruction Effluent*

Total Cyanide

The Draft Permit establishes a new internal outfall, Outfall 003, which is located after the treatment for cyanide waste streams and prior to commingling with other waste streams. Outfall 003 contains a daily maximum limit of 1.2 mg/l and a monthly average limit of 0.65 mg/l for total cyanide. Sampling for total cyanide is required at this outfall pursuant to 40 C.F.R. Part 433.12(c), which states that "Self-monitoring for cyanide must be conducted after cyanide treatment and before dilution with other streams. Alternatively, samples may be taken of the final effluent, if the plant limitations are adjusted based on the dilution ratio of the cyanide waste stream flow to the effluent flow." The Draft Permit limits are technology-based and derived from the ELGs at 40 CFR Part 433.

3. Outfalls 004, 005, and 007 – *Non-contact cooling water (NCCW)*

a. Flow

The Draft Permit contains the following maximum daily flow limits for each NCCW outfall: Outfall 004 – 7,200 gpd; Outfall 005 – 20,000 gpd; and Outfall 007 – 98,200 gpd. These limits are continued from the Existing Permit and shall be measured at a frequency of once (1) per day when an outfall is in use. As described above in Part VI.B.2., Outfalls 004 and 005 are to be used only in the event of a breakdown of the reuse system, including the inability to discharge through Outfall 007. Historical data presented in Attachment B for January 2005 – July 2008 indicates that Outfalls 004 and 005 discharged only during the months of May 2005 and January and February of 2006. According the L.S. Starrett, Outfall 007 will discharge a maximum flow of 98,200 gpd only in the event of a breakdown of the reuse system. This flow limit was exceeded once, in June of 2007, as indicated in Attachment B. The Draft Permit prohibits the facility from discharging more than a total of 98,200 gpd of NCCW through any combination of outfalls.

b. Temperature

The Draft Permit contains a daily maximum temperature limit of 83°F for Outfalls 004, 005, and 007. These limits have been decreased from 85°F in the Existing Permit based on the Class B Massachusetts Surface Water Quality Standards. The instream temperature requirements in the Massachusetts Surface Water Quality Standards for Class B warm water fisheries require that the temperature shall not exceed 83°F in warm water fisheries, that the rise in temperature due to a discharge shall not exceed 5°F in rivers and streams designated as warm water fisheries (based on the minimum expected flow for the month); and that the natural seasonal and daily variation shall be maintained. There shall be no change from background conditions that would impair any use designated to this class [314 CMR 4.05 (3)(b)]. Taking into account the ambient receiving water conditions, the temperature limits for the NCCW outfalls will result in an estimated temperature increase of approximately 0.0097°F in the summer and 0.1392°F in the winter. Based on these calculations (included below), the temperature limits contained in the Draft Permit meet the Class B Massachusetts Surface Water Quality Standards.

Ambient River Conditions:
7Q10 = 30.24763 MGD
Average Summer Temp = 80°F
Average Winter Temp = 40°F

Proposed Permit Conditions:
Max Flow Limit = 0.0982 MGD
Max Temp Limit = 83°F

Estimated downstream temperatures after mixing:

$$\frac{(7Q10 \times \text{River Temp}) + (\text{Flow Limit} \times \text{Temp Limit})}{(7Q10 + \text{Flow Limit})} = \text{Final River Temp}$$

$$\text{Summer} = \frac{(30.24763 \times 80) + (0.0982 \times 83)}{(30.24763 + 0.0982)} = \mathbf{80.0097°F}$$

$$\text{Winter} = \frac{(30.24763 \times 40) + (0.0982 \times 83)}{(30.24763 + 0.0982)} = \mathbf{40.1392°F}$$

c. pH

Massachusetts State Surface Water Quality Standards require the pH of Class B waters to be within the range of 6.5 to 8.3 standard units (s.u.) and not more than 0.5 units outside of the natural background range. The pH permit limit range of 6.5 to 8.3 as identified for each NCCW outfall in the Draft Permit, has been established in accordance with the State Surface Water Quality Standards. The discharge shall not exceed this pH range unless due to natural causes. In addition, there shall be no change from background conditions that would impair any uses assigned to the receiving water class.

VII. Essential Fish Habitat

Under the 1996 Amendments (PL 104-267) to the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Sect. 1801 et seq. (1998)), EPA is required to consult with the National Marine Fisheries Service (NMFS) if EPA's action or proposed actions that it funds, permits or undertakes, "may adversely impact any essential fish habitat." 16 U.S.C. Sect. 1855(b). The Amendments broadly define "essential fish habitat" (EFH) as "waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity." 16 U.S.C. Sect. 1802(10). Adverse impact means any impact which reduces the quality and/or quantity of EFH. 50 CFR Sect. 600.910(a). Adverse effects may include direct (e.g., contamination or physical disruption), indirect (e.g., loss of prey, reduction in species' fecundity), site-specific or habitat-wide impacts, including individual, cumulative or synergistic consequences of actions. Essential Fish Habitat is only designated for fish species for which federal Fisheries Management Plans exist. 16 U.S.C. Sect. 1855(b)(1)(A). EFH designations for New England were approved by the U.S. Department of Commerce on March 3, 1999.

A review of the relevant essential fish habitat information provided by NMFS indicates that there are no essential fish habitat designations for the Millers River. Therefore, EPA has determined that the proposed discharge will not adversely impact EFH and that no consultation with NMFS is required. If adverse impacts are detected as a result of this permit action, NMFS will be notified and an EFH consultation will promptly be initiated. A copy of the Draft Permit has been provided to the NMFS for review and comment.

VIII. Endangered Species Act

Section 7(a) of the Endangered Species Act of 1973, as amended (ESA) grants authority to and imposes requirements upon Federal agencies regarding endangered or threatened species of fish, wildlife, or plants (“listed species”) and habitat of such species that has been designated as critical (a “critical habitat”). The ESA requires every Federal agency, in consultation with and with the assistance of the Secretary of Interior, to insure that any action it authorizes, funds, or carries out, in the United States or upon the high seas, is not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of critical

habitat. The United States Fish and Wildlife Service (USFWS) administers Section 7 consultations for freshwater species. The National Marine Fisheries Service (NMFS) administers Section 7 consultations for marine species and anadromous fish.

EPA has reviewed the July 31, 2008 listing of federal endangered or threatened species of fish and wildlife for Worcester County and neighboring Franklin County to see if any listed species might potentially be impacted by the re-issuance of this NPDES permit. Based on this review, no federal endangered or threatened species are located in the vicinity of the discharge. Therefore, consultation under Section 7 of the ESA with USFWS is not required. A copy of the Draft Permit and Fact Sheet has been provided to USFWS.

IX. Monitoring

The permittee is obligated to monitor and report sampling results to EPA and the MassDEP within the time specified within the permit. Timely reporting is essential for the regulatory agencies to expeditiously assess compliance with permit conditions.

X. State Certification Requirements

EPA may not issue a permit unless the Commonwealth of Massachusetts Department of Environmental Protection with jurisdiction over the receiving waters certifies that the effluent limitations contained in the permit are stringent enough to assure that the discharge will not cause the receiving water to violate State Water Quality Standards. The staff of the Commonwealth of Massachusetts Department of Environmental Protection has reviewed the draft permit, and advised EPA that the limitations are adequate to protect water quality. EPA has requested permit certification by the State pursuant to 40 CFR 124.53 and expects that the draft permit will be certified.

XI. Comment Period, Hearing Requests, and Procedures for Final Decisions

All persons, including applicants, who believe any condition of the Draft Permit is inappropriate must raise all issues and submit all available arguments and all supporting material for their arguments in full by the close of the public comment period, to Sara Green, U.S. EPA, Office of Ecosystem Protection**,** Industrial Permits Branch, 1 Congress Street, Suite 1100, Boston, Massachusetts 02114-2023. Any person, prior to such date, may submit a request in writing for a public hearing to consider the Draft Permit to EPA and the State Agency. Such requests shall state the nature of the issues proposed to be raised in the hearing. A public meeting may be held if the criteria stated in 40 C.F.R. § 124.12 are satisfied. In reaching a final decision on the Draft Permit, the EPA will respond to all significant comments and make these responses available to the public at EPA's Boston office.

Following the close of the comment period, and after any public hearings, if such hearings are held, the EPA will issue a Final Permit decision and forward a copy of the final decision to the applicant and each person who has submitted written comments or requested notice. Within 30 days following the notice of the Final Permit decision, any interested person may submit a petition for review of the permit to EPA’s Environmental Appeals Board consistent with 40

C.F.R. § 124.19.

XII. EPA and MassDEP Contacts

Additional information concerning the draft permit may be obtained between the hours of 9:00 a.m. and 5:00 p.m., Monday through Friday, excluding holidays from:

Sara Green, EPA New England – Region I
One Congress Street, Suite 1100 (CIP)
Boston, MA 02114-2023
Telephone: (617) 918-1574 FAX: (617) 918-0574
Email: green.sara@epa.gov

Paul Hogan, Massachusetts Department of Environmental Protection
Division of Watershed Management, Surface Water Permit Program
627 Main Street, Second Floor
Worcester, MA 01608
Telephone: (508) 767-2796
Email: paul.hogan@state.ma.us

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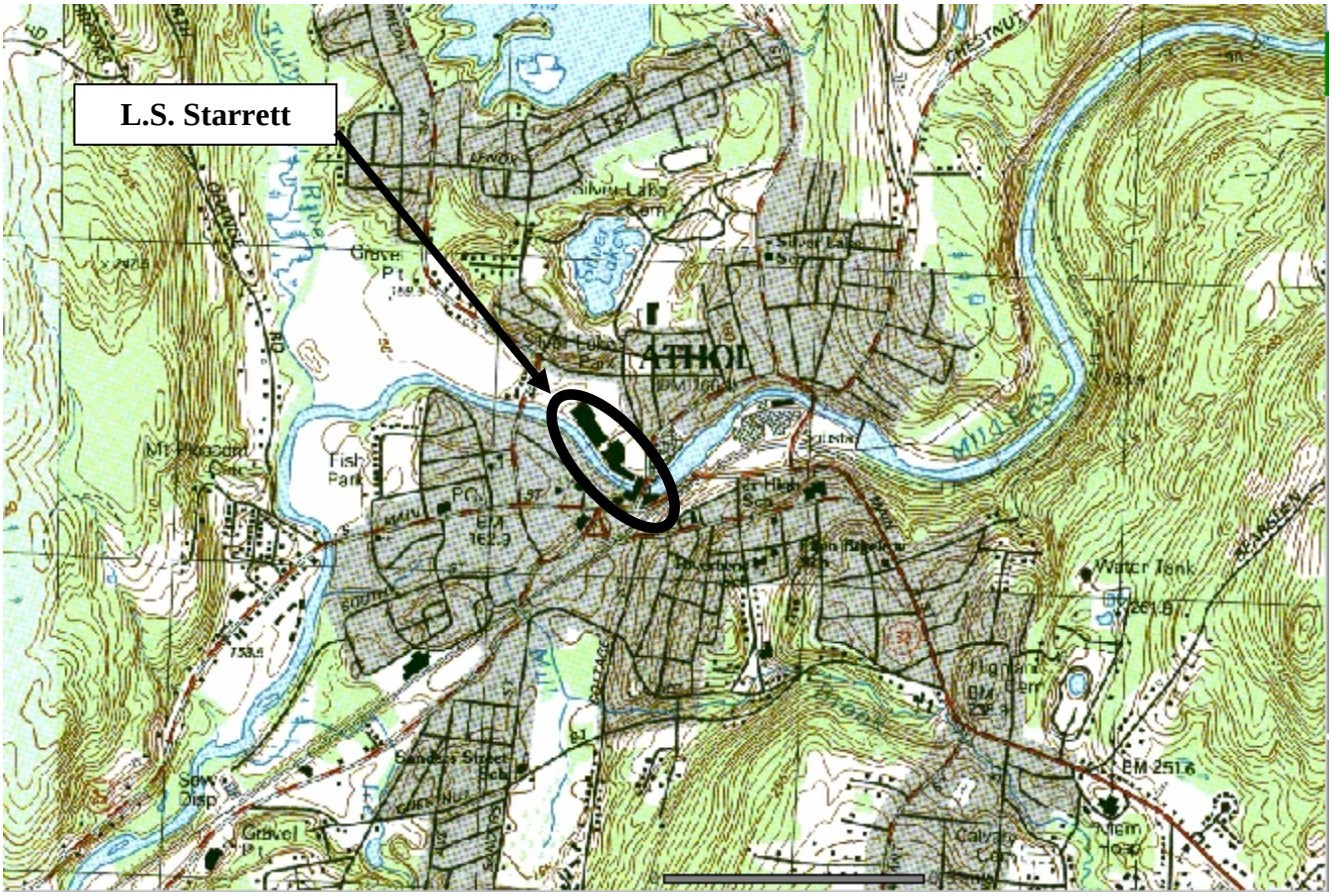
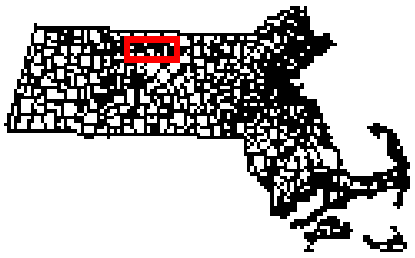
Stephen S. Perkins, Director
Office of Ecosystem Protection
U.S. Environmental Protection Agency

ATTACHMENT A
L.S. Starrett Company (MA0001350)
Site Locus Map





Source: MassGIS USGS Topographic Maps
United States December 1995

ATTACHMENT B
L.S. Starrett (MA0001350)
OUTFALL 002 – MONTHLY SAMPLING RESULTS
January 2006 THROUGH July 2008

MONITORING PERIOD END DATE	Flow (MGD)		pH (s.u.)		TSS (mg/l)		Total Zinc (mg/l)	
	Monthly Avg	Daily Max	Min	Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
1/31/2006	0.013	0.019	7	8	<4	<4	0.014	0.014
2/28/2006	0.012		7.2	8	<4	<4	<0.01	<0.01
3/31/2006	0.013		6.9	8	<4	<4	0.106	0.202
4/30/2006	0.017	0.022	7.1	8	<4	<4	0.025	0.031
5/31/2006	0.01		7	8.1	<4	<4	<0.01	<0.01
6/30/2006	0.01		7.1	8	<4	<4	<0.01	<0.01
7/31/2006	0.01		7	8	<4	<4	<0.01	<0.01
8/31/2006	0.01		6.7	8	<4	<4	<0.01	<0.01
9/30/2006	0.02	0.021	6.9	8	<4	<4	<0.01	<0.01
10/31/2006	0.01		6.9	8.1	<4	<4	0.01	0.02
11/30/2006	0.01		7	8.1	<4	<4	<0.01	<0.01
12/31/2006	0.01		7.1	8.1	<4	<4	0.01	0.02
1/31/2007	0.01		6.9	8.1	<4	<4	<0.01	<0.01
2/28/2007	0.01		7	8.1	<4	<4	<0.01	<0.01
3/31/2007	0.01		7	8.1	<4	<4	<0.01	<0.01
4/30/2007	0.02		7.1	8	<4	<4	0.03	0.05
5/31/2007	0.02	0.023	6.9	8	<4	<4	0.02	0.02
6/30/2007	0.02		7.2	8	11	8	0.02	0.02
7/31/2007	0.02	0.026	6.9	7.9	5.5	7	<0.01	<0.01
8/31/2007	0.01		6.6	8	<4	<4	0.02	0.02
9/30/2007	0.02		6.9	7.9	<4	<4	0.01	0.02
10/31/2007	0.02		7	7.9	4	5.5	0.02	0.02
11/30/2007	0.02		6.9	8.3	<4	<4	<0.01	<0.01
12/31/2007	0.01	0.02	6.7	8	<4	<4	<0.01	<0.01
1/31/2008	0.01		6.6	8.2	<4	<4	<0.01	<0.01
2/29/2008	0.01		6.9	8.1	5	5	<0.01	<0.01
3/31/2008	0.01		7	8.3	5	5	<0.01	<0.01
4/30/2008	0.01		7.3	8.3	<4	<4	<0.01	<0.01
5/31/2008	0.01	0.018	7.1	7.9	<4	<4	<0.01	<0.01
6/30/2008	0.01		6.8	7.9	<4	<4	<0.01	<0.01
7/31/2008	0.01		6.8	7.9	<4	<4	<0.01	<0.01

Permit Limits	0.07	-	6.5	8.3	20	30	1.48	2
Minimum	0.01	0.018	6.6	7.9	4	4	0.01	0.014
Maximum	0.02	0.026	7.3	8.3	11	8	0.106	0.202
Average	0.013	0.021	6.952	8.042	4.028	4.032	0.026	0.040
Standard Deviation	0.004	0.003	0.165	0.115	2.275	1.458	0.027	0.055
# Samples	31	8	31	31	31	31	31	31
Limit Exceedences	0		0	0	0	0	0	0

L.S. Starrett (MA0001350)
OUTFALL 002 – MONTHLY SAMPLING RESULTS
January 2006 THROUGH July 2008

MONITORING PERIOD END DATE	Total Cyanide as CN (mg/l)		Free Cyanide (amen to Chlorination)		Hexavalent Chromium (mg/l)		Total Chromium (mg/l)	
	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
1/31/2006	<0.02	<0.02	<0.02	<0.02	0.005	0.02	0.081	0.11
2/28/2006	<0.02	<0.02	<0.02	<0.02	0.004	0.02	0.034	0.046
3/31/2006	0.061	0.104	0.062	0.104	0.008	0.02	0.139	0.144
4/30/2006	<0.02	<0.02	<0.02	<0.02	0.007	0.02	0.123	0.13
5/31/2006	<0.02	<0.02	0.01	0.02	0.01	0.02	0.02	0.03
6/30/2006	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.05	0.06
7/31/2006	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.06	0.07
8/31/2006	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.49	0.69
9/30/2006	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.04	0.05
10/31/2006	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.05	0.07
11/30/2006	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.13	0.14
12/31/2006	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.21	0.36
1/31/2007	<0.02	<0.02	<0.02	<0.02	0.04	0.06	0.04	0.06
2/28/2007	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.13	0.17
3/31/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.03	0.03
4/30/2007	<0.02	<0.02	0.01	0.02	0.01	0.03	0.02	0.02
5/31/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.06	0.07
6/30/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.05	0.06
7/31/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.05	0.07
8/31/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.21	0.22
9/30/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.06	0.06
10/31/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.05	0.05
11/30/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.08	0.12
12/31/2007	<0.02	<0.02	<0.02	<0.02	0.01	0.02	0.06	0.12
1/31/2008	<0.02	<0.02	<0.02	<0.02	0.02	0.03	0.12	0.19
2/29/2008	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.2	0.35
3/31/2008	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.09	0.13
4/30/2008	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.06	0.06
5/31/2008	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.05	0.06
6/30/2008	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.04	0.06
7/31/2008	<0.02	<0.02	<0.02	<0.02	0.02	0.02	0.03	0.03

Permit Limits	0.5	1	0.05	0.1	0.05	0.1	0.5	1
Minimum	0.061	0.104	0.01	0.02	0.004	0.02	0.02	0.02
Maximum	0.061	0.104	0.062	0.104	0.04	0.06	0.49	0.69
Average	0.061	0.104	0.027	0.048	0.013	0.022	0.092	0.124
Standard Deviation	-	-	0.030	0.048	0.007	0.007	0.091	0.134
# Samples	31	31	31	31	31	31	31	31
Limit Exceedences	0	0	1	1	0	0	0	0

L.S. Starrett (MA0001350)
OUTFALL 002 – MONTHLY SAMPLING RESULTS
January 2006 THROUGH July 2008

MONITORING PERIOD END DATE	Total Copper (mg/l)		Total Nickel (mg/l)		Total Aluminum (mg/L)		TRC (mg/l)	
	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max
1/31/2006	0.16	0.27	0.07	0.088	<0.05	<0.05	0.051	0.2
2/28/2006	0.137	0.23	0.037	0.039	<0.05	<0.05	0.073	0.2
3/31/2006	0.13	0.19	0.121	0.132	0.307	0.564	0.09	0.2
4/30/2006	0.167	0.25	0.102	0.122	<0.05	<0.05	0.078	0.2
5/31/2006	0.06	0.13	0.03	0.03	<0.05	<0.05	0.07	0.07
6/30/2006	0.08	0.12	0.11	0.14	<0.05	<0.05	0.08	0.2
7/31/2006	0.04	0.08	0.06	0.06	<0.05	<0.05	0.08	0.2
8/31/2006	0.08	0.13	0.93	1.05	<0.05	<0.05	0.08	0.2
9/30/2006	0.06	0.11	0.07	0.09	<0.05	<0.05	0.08	0.2
10/31/2006	0.08	0.12	0.05	0.06	<0.05	<0.05	0.06	0.2
11/30/2006	0.07	0.11	0.14	0.19	<0.05	<0.05	0.09	0.2
12/31/2006	0.08	0.14	0.41	0.71	<0.05	<0.05	0.07	0.2
1/31/2007	0.07	0.13	0.05	0.07	0.16	0.26	0.07	0.2
2/28/2007	0.09	0.16	0.1	0.17	<0.05	<0.05	0.07	0.2
3/31/2007	0.09	0.16	0.03	0.03	<0.05	<0.05	0.08	0.2
4/30/2007	0.05	0.11	0.04	0.04	<0.05	<0.05	0.08	0.2
5/31/2007	0.08	0.11	0.1	0.1	<0.05	<0.05	0.07	0.2
6/30/2007	0.08	0.17	0.03	0.04	<0.05	<0.05	0.08	0.2
7/31/2007	0.07	0.12	0.09	0.15	<0.05	<0.05	0.09	0.2
8/31/2007	0.09	0.15	0.28	0.36	<0.05	<0.05	0.09	0.2
9/30/2007	0.07	0.12	0.07	0.07	<0.05	<0.05	0.08	0.2
10/31/2007	0.07	0.11	0.06	0.07	<0.05	<0.05	0.08	0.2
11/30/2007	0.04	0.09	0.04	0.04	<0.05	<0.05	0.11	0.2
12/31/2007	0.09	0.2	0.03	0.03	<0.05	<0.05	0.1	0.2
1/31/2008	0.09	0.18	0.07	0.1	<0.05	<0.05	0.07	0.2
2/29/2008	0.14	0.33	0.12	0.2	<0.05	<0.05	0.08	0.2
3/31/2008	0.09	0.18	0.06	0.07	<0.05	<0.05	0.08	0.2
4/30/2008	0.07	0.15	0.05	0.06	<0.05	<0.05	0.07	0.2
5/31/2008	0.09	0.14	0.06	0.06	<0.05	<0.05	0.08	0.2
6/30/2008	0.1	0.16	0.05	0.06	<0.05	<0.05	0.08	0.2
7/31/2008	0.1	0.18	0.03	0.04	<0.05	<0.05	0.1	0.2

Permit Limits	0.79	1	2.38	3	1	2	0.7	1
Minimum	0.04	0.08	0.03	0.03	0.16	0.26	0.051	0.07
Maximum	0.167	0.33	0.93	1.05	0.307	0.564	0.11	0.2
Average	0.088	0.156	0.113	0.144	0.234	0.412	0.079	0.196
Standard Deviation	0.031	0.055	0.170	0.213	0.104	0.215	0.012	0.023
# Samples	31	31	31	31	31	31	31	31
Limit Exceedences	0	0	0	0	0	0	0	0

L.S. Starrett (MA0001350)
OUTFALL 002 – QUARTERLY SAMPLING RESULTS
June 2004 THROUGH June 2008

MONITORING PERIOD END DATE	Total Cadmium (mg/l)		Total Lead (mg/L)		Total Silver (mg/l)		Trichloroethylene (mg/l)	Total Toxic Organics (mg/l)
	Monthly Avg	Daily Max	Monthly Avg	Daily Max	Monthly Avg	Daily Max		
6/30/2004	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0.005	0.012
9/30/2004	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0	0.003
12/31/2004	0.01	0.01	0.05	0.05	0.01	0.01	0.007	0.01
3/31/2005	0.01	0.01	0.05	0.05	0.01	0.01	0.005	0.014
6/30/2005	0.01	0.01	0.05	0.05	0.01	0.01	0.005	0.014
9/30/2005	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0	0.006
12/31/2005	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0.002	0.01
3/31/2006	<0.01	<0.01	<0.05	<0.05	<0.01	<0.01	0.003	0.011
6/30/2006	0.01	0.01	0.05	0.05	0.01	0.01	0.23	0.24
9/30/2006	0.01	0.01	0.05	0.05	0.01	0.01	0.23	0.24
12/31/2006	0.01	0.01	0.05	0.05	0.01	0.01	0	0.01
3/31/2007	0.01	0.01	0.05	0.05	0.01	0.01	0	0.01
6/30/2007	0.01	0.01	0.05	0.05	0.01	0.01	0	0.02
9/30/2007	0.01	0.01	0.05	0.05	0.01	0.01	0.01	0.01
12/31/2007	0.01	0.01	0.05	0.05	0.01	0.01	0.01	0.01
3/31/2008	0.01	0.01	0.05	0.05	0.01	0.01	0.01	0.06
6/30/2008	0.01	0.01	0.05	0.05	0.01	0.01	0	0.01

Permit Limits	0.083	0.178	0.119	0.69	0.026	0.082	-	2.13
Minimum	0.01	0.01	0.05	0.05	0.01	0.01	0	0.003
Maximum	0.01	0.01	0.05	0.05	0.01	0.01	0.23	0.24
Average	0.01	0.01	0.05	0.05	0.01	0.01	0.030	0.041
Standard Deviation	-	-	-	-	-	-	0.075	0.076
# Samples	17	18	19	20	21	22	23	24
Limit Exceedences	0	0	0	0	0	0	NA	0

L.S. Starrett (MA0001350)
OUTFALL 002 – Whole Effluent Toxicity (WET) Testing Results
July 2004 THROUGH July 2008

Monitoring Period End Date	daphnid, *Ceriodaphnia dubia*	fathead minnow, *Pimephales promelas*
Jul-04	>100	
Oct-04	>100	
Jul-05	>100	>100
Oct-05	70.7	73.2
Jul-06	>100	>100
Oct-06	85.7	>100
Jul-07	79.4	>100
Oct-07	>100	>100
Jul-08	>100	>100

Permit Limits	>50	>50
Minimum	70.7	73.2
Maximum	>100	>100
Average	92.87	96.17
Standard Deviation	11.34	10.13
# Samples	9	7
Limit Exceedences	0	0

L.S. Starrett (MA0001350)
OUTFALL 004 – MONTHLY SAMPLING RESULTS
January 2005 THROUGH July 2008

MONITORING PERIOD END DATE	Flow (gpd)	Temperature (ºF)
	Daily Maximum	Daily Maximum
5/31/2005	7000	72
1/31/2006	4100	68
2/28/2006	7000	67

Permit Limits	7200	85
Minimum	4100	67
Maximum	7000	72
Average	6033.33	69
Standard Deviation	1674.32	2.65
# Samples	3	3
Limit Exceedences	0	0

* No Discharge recorded each monitoring period for January 2005 – April 2005; June 2005 – December 2005; and March 2006 – July 2008

L.S. Starrett (MA0001350)
OUTFALL 005 – MONTHLY SAMPLING RESULTS
January 2005 THROUGH July 2008

MONITORING PERIOD END DATE	Flow (gpd)	Temperature (ºF)
	Daily Maximum	Daily Maximum
5/31/2005	17000	64
1/31/2006	20000	65
2/28/2006	20000	64

Permit Limits	20000	85
Minimum	17,000	64
Maximum	20,000	65
Average	19,000	64
Standard Deviation	1732.05	0.58
# Samples	3	3
Limit Exceedences	0	0

* No Discharge recorded each monitoring period for January 2005 – April 2005; June 2005 – December 2005; and March 2006 – July 2008

OUTFALL 007 – SAMPLING RESULTS for May 2005 THROUGH July 2008

MONITORING PERIOD END DATE	Flow (gpd)	Temperature (ºF)	pH (s.u.)	
	Daily Max	Daily Max	Min	Max
5/31/2005	13847	65	8.15	-
6/30/2005	30381	69	6.65	8.03
7/31/2005	41843	70	6.55	7.05
8/31/2005	40994	70	6.61	7.06
9/30/2005	29011	68	6.58	6.68
10/31/2005	27709	67	6.6	6.86
11/30/2005	31504	68	6.72	7.03
12/31/2005	34131	68	6.82	8.02
3/31/2006	37700	63	6.84	7.97
4/30/2006	68056	64.6	6.52	7.08
5/31/2006	31962	67.6	6.98	7.65
6/30/2006	31679	71.2	6.65	7.15
7/31/2006	22691	71.4	7.12	7.56
8/31/2006	23658	73	6.51	6.7
9/30/2006	19445	68.4	6.86	7.29
10/31/2006	19902	69.1	6.61	6.91
11/30/2006	22377	68.7	6.84	7.18
12/31/2006	23684	68.5	6.68	7.02
1/31/2007	19620	67.8	6.71	6.97
2/28/2007	28877	67.1	6.88	7.31
3/31/2007	30399	67.8	6.52	7.03
4/30/2007	13482	69.6	6.69	7.87
5/31/2007	11630	70.7	6.66	6.92
6/30/2007	188160	67.8	6.62	6.89
7/31/2007	15299	66	6.54	7.21
8/31/2007	27438	71.6	6.63	6.93
9/30/2007	12420	71.4	6.54	6.8
10/31/2007	18625	69.8	6.68	7.01
11/30/2007	10668	67.3	6.63	6.84
12/31/2007	5485	69.3	6.83	6.94
1/31/2008	11569	68.2	6.7	7.22
2/29/2008	7863	68.4	6.98	7.22
3/31/2008	10605	67.3	6.93	7.08
4/30/2008	16894	69.4	6.72	7.68
5/31/2008	19349	66.9	6.59	6.84
6/30/2008	18889	72	6.55	6.71
7/31/2008	12842	73.6	6.71	6.88

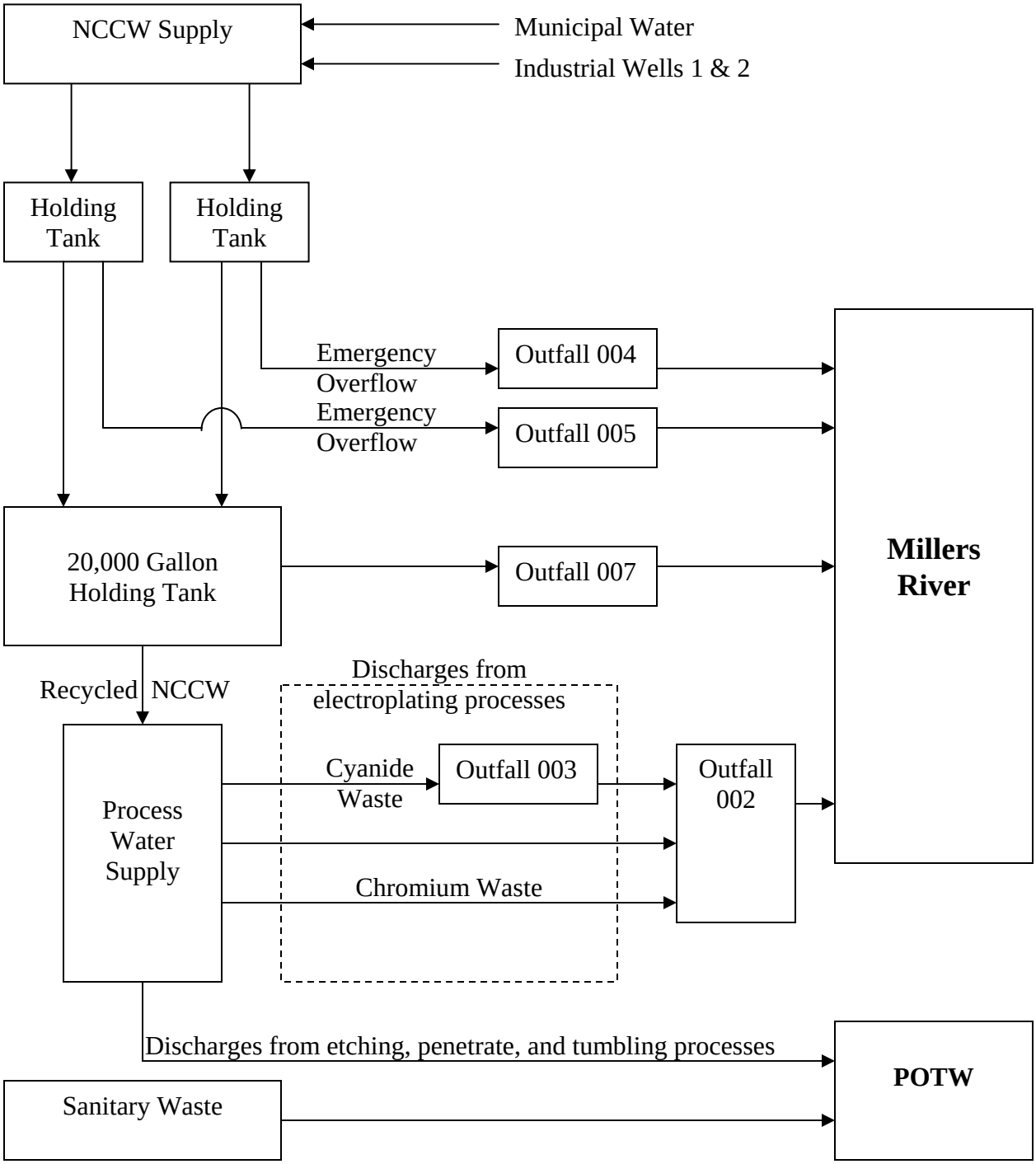
Permit Limits	98200	85	6.5	8.3
Minimum	5485	63	6.51	6.68
Maximum	188160	73.6	8.15	8.03
Average	27856.43	68.72	6.74	7.16
Standard Deviation	29615.99	2.25	0.28	0.38
# Samples	37	37	37	37
Limit Exceedences	1	0	0	0

*No discharge recorded for January and February 2005

ATTACHMENT C
L.S. Starrett Company (MA0001350)
Outfall Locations

Scale: One inch = One Hundred feet

ATTACHMENT D
L.S. Starrett Company (MA0001350)
Non-Contact Cooling Water (NCCW) Flow Diagram



ATTACHMENT E
L.S. Starrett Company (MA0001350)
Effluent Limit Comparison

Parameters	ELGS[1] (mg/l)		Water Quality Based Limits (mg/l)				Expired Permit Limits (mg/l)		Draft Permit Limits (mg/l)	
			Without Dilution[2]		With Dilution[3]					
	Monthly Avg	Daily Max	CCC	CMC	CCC	CMC	Monthly Avg	Daily Max	Monthly Avg	Daily Max
Total Cadmium	0.26	0.69	0.000067[4]	0.000315[4]	0.0680	0.318	0.083	0.178	0.068	0.178
Total Chromium	1.71	2.77	-	-	-	-	0.5	1	0.5	1
Hexavalent Chromium	-	-	0.0114	0.0163	11.5	16.4	0.05	0.1	0.05	0.1
Total Copper	2.07	3.38	0.00187[4]	0.00238[4]	1.89	2.40	0.79	1	0.79	1
Total Lead	0.43	0.69	0.00029[4]	0.00745[4]	0.293	7.52	0.119	0.69	0.119	0.69
Total Nickel	2.38	3.98	0.01062[4]	0.09558[4]	10.7	96.5	2.38	3	2.38	3
Total Silver	0.24	0.43	-	0.00015[4]	-	0.150	0.026	0.082	0.026	0.082
Total Zinc	1.48	2.61	0.02435[4]	0.02435[4]	24.6	24.6	1.48	2	1.48	2
Total Cyanide	0.65	1.2	0.0052	0.022	5.25	22.2	0.5	1	0.5	1
Amenable Cyanide	0.32	0.86	-	-	-	-	0.05	0.1	0.05	0.1
Total Toxic Organics[5]	-	2.13	-	-	-	-	-	2.13	-	2.13
Oil and Grease	26	52	-	15(3)	-	-	-	-	10	15
TSS	31	60	-	-	-	-	20	30	20	30
pH	6 to 9 SU		6.5 to 8.3 su		-		6.5 to 8.3 su		6.5 to 8.3 su	
Trichloroethylene	-	-	0.0025[6]	0.03[6]	2.52	30.28	-	Report	-	Report
Total Aluminum	-	-	0.087	0.75	87.8	757	1	2	1	2
Total Residual Chlorine	-	-	0.019	0.011	19.2	11.1	0.7	1	0.7	1

Footnotes:

1. Effluent limit guidelines from 40 C.F.R. §433.

2. Values are derived from the National Recommended Water Quality Criteria, 2006.

3. Dilution factor of 1009.25, which is calculated in Part VI.C.1.a of the Fact Sheet.

4. The freshwater criterion for this metal is expressed as a function of hardness (mg/L) of the receiving water. The value given here corresponds to a hardness of 15.25 mg/l, which is based on data presented in the Massachusetts Department of Environmental Protection Millers River Watershed 2000 Water Quality Assessment Report.

5. A solvent management plan and certification statement may be accepted in lieu of sampling for TTO (see Part VI.C.1.f. of Fact Sheet).

6. Human health criteria