UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

May 29, 2008

In Reply Refer To: WTR-7

Barry Hollis, EHS Manager
General Electric Energy
1631 Bently Parkway South
Minden, Nevada 89423

Re: November 27, 2007 Clean Water Act Inspection

Dear Mr. Hollis:

Enclosed is the report for our November 27, 2007 inspection of General Electric Energy. Please submit a short response to the findings in Sections 2 through 5 of this report, to EPA, the Minden Gardnerville Sanitation District ("MGSD"), and the Nevada DEP, by **July 30, 2008**.

The main findings are summarized below:

1 General Electric Energy qualifies as a new source metal finisher subject to the Federal metal finishing standards. The NDEP permit correctly applied the Federal standards but it did not advance any other limits to protect the MGSD wastewater treatment plant and underlying groundwater. MGSD has not yet derived its own local limits enacted in its sewer use ordinance nor has it issued its own permit.

2 General Electric Energy can continue to comply with the Federal standards without providing treatment beyond pH adjustment.

3 Past sample results are usable to determine compliance. Self-monitoring needs to account for spents and increase in frequency for zinc and copper and in coverage for nitrates. Self-reporting also should document the off-hauling of spents and residuals.

EPA may follow-up this report with an Administrative Order that establishes the interim requirements under the Clean Water Act in effect until the sanitation district can issue its own permit. I appreciate your helpfulness. I remain available to assist in any way. Please do not hesitate to call me at (415) 972-3504 or e-mail at arthur.greg@epa.gov.

Sincerely,

Original signed by:
Greg V. Arthur
CWA Compliance Office

Enclosure

cc: Frank Johnson, Minden Gardnerville SD
Joe Maez, Nevada DEP

U.S. ENVIRONMENTAL PROTECTION AGENCY

REGION 9

CLEAN WATER ACT COMPLIANCE OFFICE

NPDES COMPLIANCE EVALUATION INSPECTION REPORT

Industrial User:	General Electric Energy formerly dba Bently Nevada LLC 1631 Bently Parkway South, Minden, Nevada 89423 40 CFR 433 - New Source Metal Finishing Nevada Permit NEV20005
Treatment Works:	Minden Gardnerville Sanitation District MGSD Wastewater Treatment Plant Nevada Permit NEV40027
Pretreatment Program:	None
Date of Inspection:	November 27, 2007

Inspection Participants:

US EPA:	Greg V. Arthur, Region 9, CWA Compliance Office, (415) 972-3504 Anna Yen, Region 9, CWA Compliance Office, (415) 972-3976
State of Nevada:	Joe Maez, Division of Environmental Protection, (775) 687-9431
Minden Gardnerville:	Frank Johnson, District Manager, (775) 782-3546
General Electric Energy:	Barry Hollis, EHS Manager, (775) 215-1489 Chuck Tuggle, Facilities Services, (775) 215-1676 Chad Morrison, EHS Tech, (775) 215-1489

Report Prepared By:	Greg V. Arthur, Environmental Engineer May 29, 2008

1.0 Scope and Purpose

On November 27, 2007, EPA, the Nevada Division of Environmental Protection ("Nevada NDEP"), and the Minden Gardnerville Sanitation District ("MGSD") conducted a compliance evaluation inspection of General Electric Energy in Minden, Nevada ("GE Energy"). The purpose was to ensure compliance with the Federal regulations covering the discharge of non-domestic wastewaters into the sewers. In particular, it was to ensure:

- Classification in the proper Federal categories;
- Application of the correct standards at the correct sampling points;
- Consistent compliance with the standards; and
- Fulfillment of Federal self-monitoring requirements.

GE Energy is a significant industrial user ("SIU") within sewer service areas administered by MGSD whose compliance was assessed as part of an on-going EPA evaluation of industrial users in EPA Region 9 by sector. The inspection participants are listed on the title page. Arthur conducted the inspection on November 27, 2007.

1.1 Process Description

GE Energy manufactures machinery vibration monitoring equipment. GE Energy purchases printed circuit boards and electronic components. Fabrication at GE Energy involve machining, anodizing, and component assembly. Operations began as Bently Nevada LLC in 1961 at another location in Douglas County. The operations moved to 1631 Bently Parkway South in Minden, Nevada in 2000. GE Energy obtained Bently Nevada in 2002.

Machining - The machining operations involve screw tapping, lathing, and CNC milling of stock stainless steel, steel, and aluminum. Parts also undergo vibratory deburring, alkaline parts washing, graining (aluminum appearance sanding), and ultrasonic cleaning.

Anodizing - The aluminum parts anodizing line involves the following tanks.

Anodizing Tank Inventory and Volume (*rinses in italics*)					
gals	**Anodizing Line**		gals	**Anodizing Line**	
400	A1	alkaline soap cleaning	1000	A8	sulfuric-acid anodizing
300	A2	*1°on-demand ovrflow for A1/3*	300	A9	*1 °static on-demand for A8/10*
300	A3	caustic etch	1000	A10	sulfuric-acid anodizing
300	A4	*1 °on-demand overflow for A5*	300	A11	*2 °on-demand ovrflow for A10*
300	A5	nitric-acid desmut	300	A12	*3 °countercurrent for A10*
300	A6	*2 °on-demand overflow for A8*	500	A13	*4 °static hot rinse for A10*
300	A7	*3 °countercurrent for A8*			

Assembly - The component assembly operations involve probe cell fabrication (cable sheath sawing and ends etching), potting (hard epoxy coating of components), surface mounting (solder paste, oven reflow, solder stencil cleaning), wave soldering, and board washing.

1.2 Facility SIC Code

GE Energy is assigned the SIC codes for the manufacturing of measuring and controlling devices (SIC 3829) and for anodizing (SIC 3471).

1.3 Facility Wastewater Sources

GE Energy discharges non-domestic wastewaters to the MGSD domestic sewers through two sewer connection designated in this report by Nevada permit number as IWD-20005A and IWD-20005B. Domestic sewage discharges through separate connections downstream of the industrial wastewater connection. The anodizing line generates spents and rinses. The machining lines generate spent coolants, various tail waters, spent filters, and metal chips and powder to reclaim. The assembly lines generate solder residuals and wave solder wash. The facility support utilities generate cooling tower bleeds, spent DI columns, and air compressor condensate. There is a single non-domestic connection to the sewers fed by a number of sources from a sump through pH adjustment.

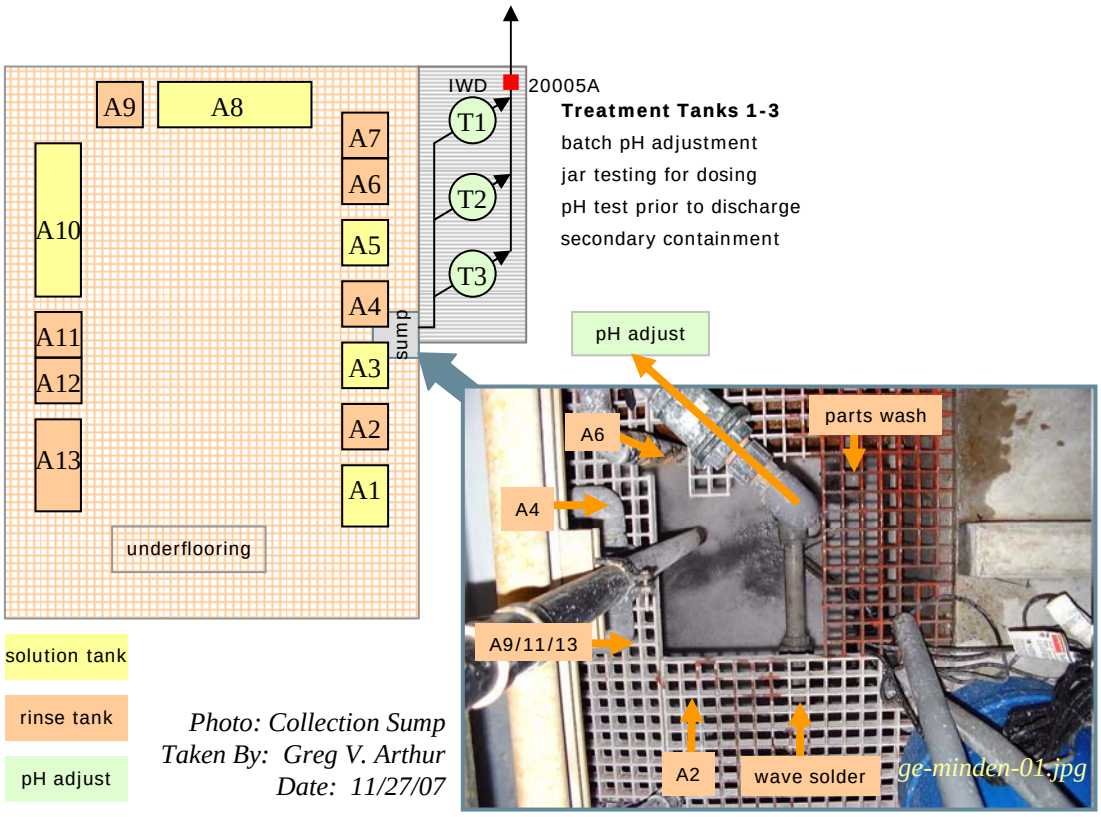
Spent Anodizing Solutions – The imparted contamination from the processing of parts and the progressive drop in solution strength results in the generation of spent solutions. The generation rate of spents depends on plating bath usage, effectiveness of bath contamination control, and the amount of drag-out lost into the rinses. GE Energy delivers caustic cleaning spents to the sewers through a portable pump and hose. GE Energy delivers all other spent solutions to drums for off-hauling by Safety-Kleen as hazardous. The list of baths follows below. ***See*** Figure 1.3 on the next page for a layout of the anodizing line.

Baths Generating Spents	Spent Volume	Baths Generating Spents	Spent Volume
A3 - caustic etch A5 - HNO_3-acid desmut A8 - H_2SO_4-acid anodize A10 - H_2SO_4-acid anodize	500 gal / 6mo 400 gal / 6mo 200 gal / 6mo 400 gal / 6mo	A1 - caustic cleaning	500 gal / 6mo
Off-Hauled for Disposal		Pumped to the Sewer @ IWD-20005A	

Anodizing Rinses - All rinses are delivered to the sewers. GE energy employs on-demand two-stage countercurrent overflows following the anodizing steps and single-stage on-demand overflows for the preparation steps. There are also a common first-stage static drag-out and a final-stage hot static rinse for anodizing. The list of rinses follows below.

Anodizing Line Rinses	Spent Vol	Anodizing Line Rinses	Flowrate
A9 - 1°static drag-out for A8/10 A13 - 4°static hot dip for A8/10	300 gal / ? 500 gal / ?	A2 - 1°on-demand ovrflw for A1/3 A4 - 1°on-demand ovrflow for A5 A6 - 2°on-demand ovrflow for A8 A11 - 2°on-demand ovrflw for A10	?
Pumped to the Sewer @ IWD-20005A		Discharged to the Sewers @ IWD-20005A	

Figure 1.3
GE Energy - Anodizing Line, Collection Sump, and Treatment Layout



Assembly - Surface mounting involves the incorporation and soldering of electronic components onto vendor-purchased printed circuit boards. Solder paste is applied by knife and oven reflowed. GE Energy employs different soldering lines for lead-based and tin-based non-lead soldering. Stencil cleaning generates a wash down which is evaporated to a lead residuals. Wave soldering involves the application of an alcohol flux, wave soldering, and DI board washing. Probe cell fabrication involves the sawing of cable sheaths and the etching of the sheath ends, both of which generate tail waters. There were no floor drains observed in the assembly and fabrication areas.

Machining - GE Energy performs a number of machining steps on stock stainless steel, steel, and aluminum. These steps include screw tapping, lathing, CNC milling, graining, and the follow-up steps of vibratory deburring, alkaline parts washing, and ultrasonic cleaning. The machining steps use a vegetable oil based coolant that is reclaimed in place through a circulating portable filter unit. There are no floor drains in the machine shop. Machining chips are held in metal bins with the drainage collected underneath in pans. Vibratory deburring generate tail waters that circulate through fiber filtering for reuse. Graining, which involves the sanding of aluminum parts for appearance, generates tail waters that circulate through filtering paper for reuse. Alkaline parts washing and ultrasonic cleaning generate wash waters.

Machining, Assembly, and Fabrication Wastes and Wastewaters			
spent vibratory deburring wash water parts washing wash down wave solder board washing bleed		spent machining coolant spent deburring filtering spent graining wash water aluminum graining filter solids spent ultrasonic cleaning wash water chip reclaim drainage chip reclaim cable sheath sawing tail water cable sheath end etching tail water stencil cleaning wash down residuals ✓ off-hauled to off-site reclaim	 ✓ ✓ ✓
Discharged to the Sewer @ IWD-20005A		Off-Hauled for Disposal	

Utilities - Air compressor condensate, cooling tower non-contact chiller bleeds, and utility room floor drainage discharge to the sewers through a second sewer connection, identified in this inspection report as IWD-20005B.

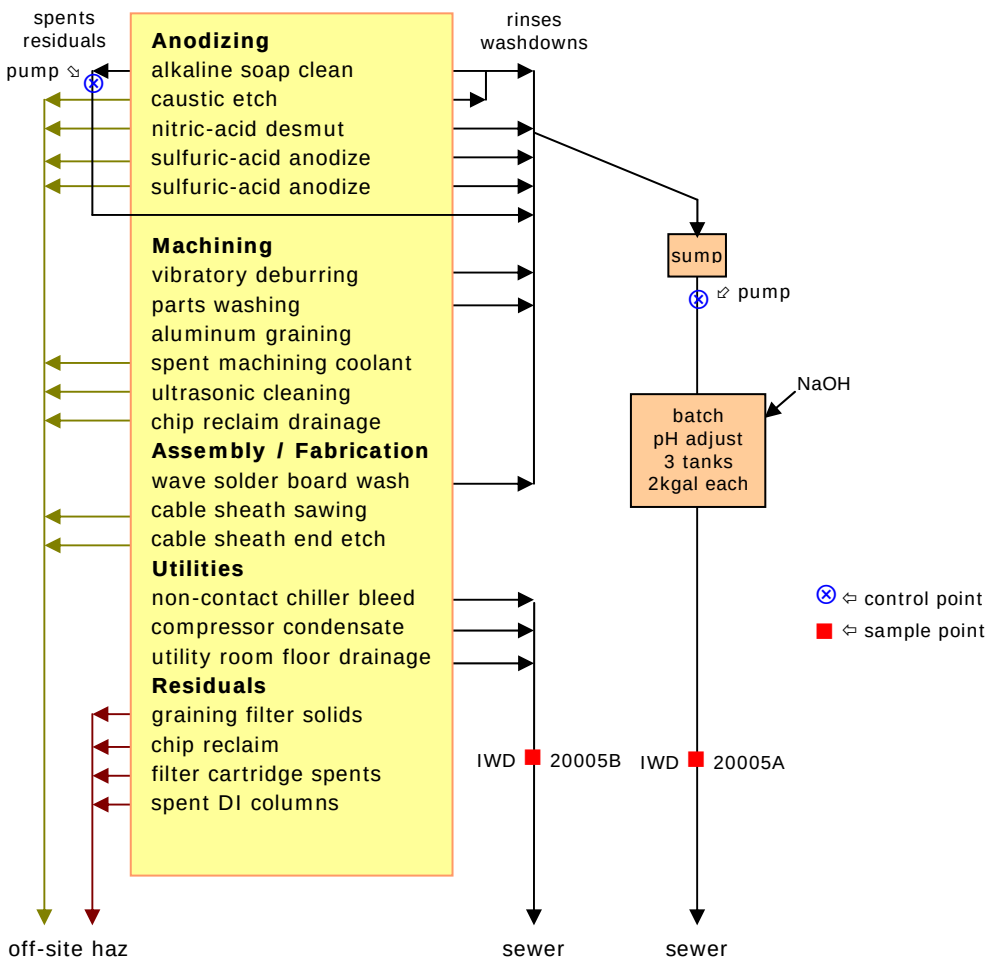
Utilities Wastes and Wastewaters			
non-contact chiller bleed air compressor condensate utility room floor drainage		spent DI columns	
Discharged to the Sewer @ IWD-20005B		Off-Hauled for Reclaim	

1.4 Facility Process Wastewater Handling

Discharge - Process-related wastewaters discharge through a batch pH treatment unit to the sewers through a single connection designated in this report after the Nevada NEV permit number as IWD-20005A. Non-contact non-domestic wastewaters from the plant utilities discharge untreated to the sewers through a second connection designated in this report at IWD-20005B. ***See*** Figure 1.4 on the next page.

Composition - The process-related wastewaters discharged through IWD-20005A listed in section 1.3 above would be expected to contain copper, chromium, lead, nickel, zinc, nitrates, and acidity, as well as oil & grease, salts, surfactants, paint grime, and other pollutants in the surface grime cleaned off of parts, as well as the minerals entrained in the water supply. The non-contact wastewaters discharged through IWD-20005B listed in section 1.3 above would be expected to contain the minerals entrained in the water supply, and could contain the cooling water additives used in corrosion inhibition (molybdenum, azoles) and algae control (bromides).

Figure 1.4
General Electric Energy - Configuration and Layout



Delivery - The anodizing line overflow rinses, parts washer wash waters, and wave solder PC board wash waters are delivered by hardpiping to a collection sump under the flooring in the anodizing room. Spent anodizing line solutions, spent anodizing line drag-out rinses, and vibratory deburring wash water spents are delivered by portable pump and hosing to the collection sump. The collection sump contents are pumped by dedicated line to the pH adjustment treatment unit. ***See*** the photos in Section 1.7 of this report. ***Also*** see Section 3.2 of this report.

Treatment - GE Energy provides batch pH adjustment. The tank contents in three separate treatment tanks are jar tested for reagent dosing and discharged after pH testing. The treatment does not provide the removal of pollutants such as metals, and oils. GE Energy also provides ultrafiltration of the wave solder board wash waters prior to delivery to the collection sump for discharge through pH adjustment unit.

Hazardous Waste Handing - GE Energy contracts with Safety-Kleen to haul off-site the spent anodizing solutions, spent desmut solution, spent machine shop coolants, spent filtering paper, spent ultrasonic cleaning, stencil cleaning residuals, and metals chips and powders.

1.5 POTW Wastewater Treatment

POTW Configuration – The MGSD secondary wastewater treatment plant consists of trickling filters followed by activated contact and secondary clarification, and effluent storage ponds. MGSD treats 2.0 million gallons per day on average of domestic and non-domestic wastewaters, including the wastewaters generated by General Electric Energy, for disposal through irrigation. Treated effluent from the MGSD wastewater treatment plant is used to irrigate fields publicly-owned by MGSD and privately-owned by Bently Agrowdynamics, the Galeppi Land and Livestock Company, and the Park Cattle Company.

State and Federal Legal Authorities – MGSD operates its wastewater treatment plant under the authority of NDEP permit NEV40027 for the discharge of treated wastewater for reclaim and to the ground water. MGSD does not possess a Federal NPDES permit issued under the Clean Water Act because the treated wastewaters do not discharge to surface waters. Nevertheless, MGSD does qualify as a publicly-owned treatment works ("POTW") under the Federal definition in 40 CFR 403.3(o) because the wastewater treatment plant treats mixed domestic and non-domestic wastewaters and the generated sludges are regulated under the Clean Water Act by the Federal regulations in 40 CFR 503.

1.6 Legal Authorities

NDEP Permit for MGSD - Permit NEV40027 does not require MGSD to obtain an approved pretreatment program nor does it impose any specific pretreatment provisions. This is in keeping with the Federal regulations in 40 CFR 403.8(a) that allow for, but do not mandate, States or EPA to require small publicly-owned treatment works ("POTWs") with design capacities under 5.0 mgd to obtain approved pretreatment programs. As a result, there is no local permit for the discharge from General Electric Energy to the sewers. Nevertheless, MGSD has enacted a sewer use ordinance that contains general prohibitions against discharges contributing to interference, pass-through, explosive conditions, public nuisance, radioactivity, cyanide over 2.0 mg/l, and pH outside 5.5 and 9.0 s.u. The ordinance does not establish any other specific numerical local limits to protect the sewer systems from the adverse effect of non-domestic wastewaters. It has not been reviewed by EPA as part of an approved pretreatment program.

NDEP Permit for General Electric Energy - The State of Nevada does not have delegation of the pretreatment program for non-domestic discharges into POTWs. Without delegation, NDEP cannot cause POTWs to obtain and operated pretreatment programs as required by 40 CFR 403, nor assume for the POTWs some or all of the pretreatment functions under 40 CFR 403.10(e,f). Nevertheless, NDEP issued permit NEV20005 to establish self-monitoring requirements and effluent limits for the discharges from General Electric Energy to the MGSD treatment works and on into the ground water. This permit sets effluent limits for the

metals, cyanide, and toxic organics that are not based on specific ground water protection standards or specific protection of the POTW from the adverse effects from non-domestic wastewaters. Instead the permit sets limits taken from the Federal metal finishing regulations in 40 CFR 433 and sets pH and discharge flow rate limits. This permit states that it "conforms to US EPA regulations governing discharges to publicly-owned treatment works". It also provides as its rationale that "the pretreatment regulations developed by the U.S. EPA provide a well established method for regulating industrial discharges, and their application is required by the Nevada Administrative Code". Chapters 445A.254 and 257 allow the State to issue permits with Federal standards to industrial users of sewer systems in Nevada without approved pretreatment programs.

- **NAC 445A.254(1)** *Any person who discharges a pollutant into any waters of this State or into a publicly owned treatment works shall comply with the appropriate standards for pretreatment and the limitations and prohibitions applicable to the type of pollutant discharged which are contained in 40 C.F.R. §§ 401.10 to 469.26, inclusive.*

- **NAC 445A.257(1)** *Any industrial user who discharges into a publicly owned treatment works that does not have a state approved pretreatment program may be granted a permit by the State. The Division may administer the program of pretreatment for any publicly owned treatment works that does not have a pretreatment program and ensure the compliance of each user of the program with the requirements of 33 U.S.C. §§ 1284(b), 1317 and 1318 and 40 C.F.R. §§ 401.10 et seq.*

1.7 Sampling Record

General Electric Energy self-monitors twice per year for metals and cyanide, once per year for toxic organics, and upon tank batch discharge for pH as required by the NDEP permit.

1.8 Photo Documentation

Six of the nine photographs taken during this inspection are depicted below, on the next page, and on page 4. The photographs are saved as *ge-energy-1.jpg through -9.jpg.*

Photo: Vibratory Deburring Tail Water Filtering
Taken By: Greg V. Arthur
Date: 11/27/07

Photo: Parts Washer
Taken By: Greg V. Arthur
Date: 11/27/07

Photo: Aluminum Graining Tail Water Filtering
Taken By: Greg V. Arthur
Date: 11/27/07

Photo: Chip Reclaim Drainage Pans
Taken By: Greg V. Arthur
Date: 11/27/07

Photo: Anodizing Room - Portable Pumps / Hoses
Taken By: Greg V. Arthur
Date: 11/27/07

Photo: Final pH Adjustment and Sample Point
Taken By: Greg V. Arthur
Date: 11/27/07

2.0 Sewer Discharge Standards and Limits

Federal categorical pretreatment standards (where they exist), national prohibitions, State groundwater, and the local limits (where they exist) must be applied to the sewered discharges from industrial users. (40 CFR 403.5 and 403.6).

Summary

The Federal standards in 40 CFR 433 for new source metal finishers apply to all process wastewater discharges from General Electric Energy through IWD-20005A. MGSD has not and cannot yet issue its own permit for the discharges through IWD-20005A and 20005B. A Nevada ground water protection permit correctly applies the Federal standards but does not establish any technically-based local limits. The application of Federal standards, national prohibitions, and local limits were determined through visual inspection. ***See*** Appendix 1.

Requirements

- None.

Recommendations

- MGSD should derive technically-based local limits protective of the sewage treatment plant, receiving waters and sludge, and then issue a permit to General Electric Energy.

2.1 Classification by Federal Point Source Category

General Electric Energy qualifies as a metal finisher subject to the Federal metal finishing standards for new sources in 40 CFR 433.17. The NDEP permit applied the correct Federal standards without giving an explicit regulatory citation. The State permit correctly cited 40 CFR 433.12 to allow replacement of toxic organics self-monitoring with a certification to an approved toxic organics management plan. However, the State permit is not Federally enforceable under the provisions of the Clean Water Act that pertain to POTWs, nor is it specifically protective of the MGSD treatment works.

New or Existing Sources – General Electric Energy is subject solely to the Federal standards for new sources because the facility was constructed in 2000. Under the definitions in 40 CFR 403.3(k), processes constructed after August 31, 1982 is a new source.

2.2 Local Limits and National Prohibitions

Local limits, the national prohibitions, and the State ground water protection limits, are meant to express the limitations on non-domestic discharges necessary to protect the sewers, treatment plants, treatment plant sludges, and their receiving waters from adverse impacts. Generally, technically-based numerical local limits supplant narrative national prohibitions.

National Prohibitions – For POTWs to surface waters, the national prohibitions in 40 CFR 403.5 prohibit discharges that can cause the pass-through of pollutants into the receiving waters, the operational interference of the treatment works, the contamination of the sewage sludge, sewer worker health and safety risks, fire or explosive risks, and corrosive damage to the sewers. However, pass-through and interference as defined in the Federal pretreatment regulations only occur when NPDES permit limits are violated. So in this case, without an NPDES permit for MGSD, the national prohibitions cannot prohibit discharges that result in violations of the NDEP ground water permit either through the pass-through of pollutants or through an operational interference. They do however prohibit discharges that cause interferences resulting in unpermitted discharges or bypasses to surface waters.

Local Limits – Local limits derived from 40 CFR 403.6 are meant to protect the specific POTW from adverse impacts including violations of all Federal and State permits. So far, however, while there are narrative prohibitions essentially equivalent to the national prohibitions in the MGSD sewer use ordinance, there are no numerical local limits in the ordinance beyond 2.0 mg/l cyanide and pH measurements outside of 5.5 to 9.0. MGSD has to derive and adopt local limits based on the performance of the wastewater treatment plants and the current regulatory requirements as expressed in the NDEP permit and the Federal sludge regulations. Once adopted they would apply to all non-domestic discharges in its service area and properly replace the direct application of the State ground water limits in the NDEP permit to General Electric Energy. ***See*** Appendix 2 for the national prohibitions, State, and local limits that apply.

2.3 Federal Categorical Pretreatment Standards
New Source Metal Finishing - 40 CFR 433.17

40 CFR 433.17	Cd	Cr	Cu	Pb	Ni	Ag	Zn	CNt	CNa	TTO
daily-maximum (mg/l)	0.11	2.77	3.38	0.69	3.98	0.43	2.61	1.20	0.86	2.13
month-average (mg/l)	0.07	1.71	2.07	0.43	2.38	0.24	1.48	0.65	0.32	-

Applicability - Under 40 CFR 433.10(a), the metal finishing standards apply to the process wastewaters from General Electric Energy because the facility's operations involve anodizing and chemical etching. The metal finishing standards "... apply to plants that perform ..." the core operations of electroplating, electroless plating, etching, anodizing, chemical coating, or printed circuit board manufacturing and they extend to other on-site operations, such as cleaning, deburring, painting, machining, and assembly associated with metal finishing and specifically listed in 40 CFR 433.10(a). If any of the core operations are performed, the new source metal finishing standards apply to discharges from any of the core or associated operations. The metal finishing standards apply to IWD-20005A but not to IWD-20005B.

Basis of the Standards - The new source metal finishing standards were based on a model pretreatment unit that comprises metals precipitation, settling, sludge removal, source control of toxic organics, no discharge of cadmium-bearing wastewaters, and if necessary, cyanide destruction and chromium reduction. The best-available-technology standards were set where metal finishers with model treatment operated at a long-term average and variability that achieved a compliance rate of 99% (1 in 100 chance of violation).

Adjustments – Under 40 CFR 433.12(c), the cyanide standards as applied to metal finishing wastewater discharges must be adjusted to account for dilution from non-cyanide bearing waste streams (Federally-regulated and unregulated). For General Electric Energy, un-adjusted cyanide standards apply by default since there are no cyanide-bearing wastewaters are generated on-site.

Compliance Deadline - New sources were required to comply on the first day of discharge.

2.4 Federal Prohibitions

The Federal standards in 40 CFR 403.6(d) and 403.17(d) prohibit dilution as a substitute for treatment, and the bypassing of any on-site treatment necessary to comply with standards, respectively. The NDEP permit does not include a provision against the bypassing treatment necessary to comply but require notification of changes.

2.5 Point(s) of Compliance

The NDEP permit does not specifically identify either sample points for process-related discharges through IWD-20005A or for utility non-domestic discharges through IWD-20005B. The sample point for process-related discharges through IWD-20005A is identified as the sewer clean-out on connection immediately downstream of the last batch pH adjustment tank. The sample point for the utility-related discharges has not been identified as of yet. See Section 1.8 for a photograph of IWD-20005A.

Local Limits - Local limits and the national prohibitions apply end-of-pipe to all non-domestic flows from General Electric Energy. The sample points designated in this report as IWD-20005A and IWD-20005B are suitable end-of-pipe sample point representative of the day-to-day non-domestic wastewater discharges.

Federal Standards - Federal categorical pretreatment standards apply end-of-process-after-treatment to all Federally-regulated discharges to the sewers. The sample point IWD-20005A is also a suitable end-of-process-after-treatment sample point representative of the day-to-day discharge of Federally-regulated wastewaters as long as the sampling also accounts for the discharge of the alkaline cleaner spents.

2.6 Compliance Sampling

Local limits and the national prohibitions are instantaneous-maximums and are comparable to samples of any length including single grab samples. Federal categorical pretreatment standards are daily-maximums comparable to 24-hour composite samples. The 24-hour composite samples can be supplanted with single grabs or manually-composited grabs that are representative of the sampling day’s discharge.

3.0 Compliance with Federal Standards

Industrial users must comply with the Federal categorical pretreatment standards that apply to their process wastewater discharges. 40 CFR 403.6(b).

Categorical industrial users must comply with the prohibition against dilution of the Federally-regulated waste streams as a substitute for treatment. 40 CFR 403.6(d).

Industrial users must comply with the provision restricting the bypass of treatment necessary to comply with any pretreatment standard or requirement. 40 CFR 403.17(d).

General Electric Energy does not employ wastewater treatment equivalent to the models used in originally setting the Federal standards. Nevertheless without treatment, General Electric Energy still may be able to achieve the consistent compliance expected of metal finishers because of operations limited to non-chromic acid anodizing and the preparatory etching and cleaning steps. However, the sampling results may not be entirely useable for determining compliance if they do not account for the intermittent discharge of spent alkaline solutions. ***See*** Appendix 2.

Requirements

- None.

Recommendations

- The sampling should account for discharges to the sewers of spent alkaline cleaners.

3.1 Sampling Results

The 2004 -2007 sample records for General Electric Energy collected from anodizing and wave soldering line consists of semi-annual self-monitoring. All metals samples were grabs collected during batch discharge from the pH adjustment tanks. Grab samples are considered representative of the sampling day since each of the three 2,000 gallon batch treatment tanks holds more than the average wastewater flow rate generated from all facility sources per day. However, the sample results may not account for the discharge of spent alkaline cleaners to the sewers. ***See*** items 3.3 and 5.0 of this report

3.2 Best-Available-Technology Treatment

The sampling results indicate that General Electric Energy, as currently designed and operated without treatment for metals, nevertheless complies with its Federal standards for cadmium, chromium, copper, lead, nickel, silver, zinc, cyanide, and toxic organics. All samples met all Federal standards at IWD-20005A, with average and calculated 99th% peak concentrations, of 0.066 and 0.159 mg/l copper, 0.421 and 1.060 mg/l zinc, and below the

detection limits of 0.050 mg/l for cadmium, chromium, lead, nickel, and silver, and 0.020 mg/l for total cyanide. The sampling reports also include self-certifications by General Electric Energy to follow a toxic organics management plan which consists of the absence of toxic organics on-site and annual sample results below the 0.050 mg/l detection limit for volatile and semi-volatile organics. ***See*** section 4.3 of this report.

The sample record does not indicate whether discharges of alkaline cleaning spents would comply with the Federal standards. Violations would not be expected since the spents should entrain only trace amounts of metals, cyanide, and toxic organics.

3.3 Dilution as a Substitute for Treatment

The Federal standards in 40 CFR 403.6(d) prohibit "dilution as a substitute for treatment" in order to prevent compromising BAT model treatment with dilute waste streams. In particular, this prohibition applies when sample results for a diluted waste stream are below the Federal standards and the apparent compliance is used to justify discharge without treatment. There are two conditions that need to be established in order to make a determination of non-compliance with this prohibition. First, some or all of the Federally-regulated wastewaters must discharge without undergoing BAT model treatment or its equivalent. Second, there must be some form of excess water usage within a Federally-regulated process.

General Electric Energy meets the first but not second condition of non-compliance since all Federally-regulated waters discharge untreated but the rinses overflow strictly on-demand.

3.4 Bypass Provision

The Federal standards in 40 CFR 403.17 prohibit the bypassing of any on-site treatment necessary to comply with standards unless the bypass was unavoidable to prevent the loss of life, injury, or property damage, and there were no feasible alternatives. This provision explicitly prohibits bypasses that are the result of a short-sighted lack of back-up equipment for normal downtimes or preventive maintenance. It also explicitly prohibits bypasses that could be prevented through wastewater retention or the procurement of auxiliary equipment. It specifically allows bypasses that do not result in violations of the standards as long as there is prior notice and approval from the sewerage agency or State.

There cannot be bypassing at General Electric Energy since the Federally-regulated wastewaters do not undergo treatment that exceeds or is equivalent to the BAT model treatment.

4.0 Compliance with Local Limits and National Prohibitions

All non-domestic wastewater discharges to the sewers must comply with local limits and the national prohibitions. 40 CFR 403.5(a,b,d).

Industrial users must comply with the provision restricting the bypass of treatment necessary to comply with any pretreatment standard or requirement. 40 CFR 403.17(d).

The sample record indicates that General Electric Energy complies with the only local limit in the NDEP permit for pH. ***See*** Appendix 2 and Sections 3.0 and 5.0 of this report.

Requirements

- None.

Recommendations

- Alkaline cleaner spents should be pH adjusted in-tank prior to discharge to the sewers.
- Alkaline cleaner spents should not be drained, but rather metered to the sump.
- Possession on-site of any long hoses useable for the transfer of solutions and spents should be eliminated throughout the facility. Instead hard piping should be installed that lead from the sources to the sump.

4.1 National Objectives

The general pretreatment regulations were promulgated in order to fulfill the national objectives to prevent the introduction of pollutants that:

(1) cause operational interference with sewage treatment or sludge disposal,
(2) pass-through sewage treatment into the receiving waters or sludge,
(3) are in any way incompatible with the sewerage works, or
(4) do not improve the opportunities to recycle municipal wastewaters and sludge.

This inspection did not include an evaluation of whether achievement of the national objectives in 40 CFR 403.2 have been demonstrated by the MGSD wastewater treatment plant through consistent compliance with its sludge and discharge limits.

4.2 Local Limits for Oxygen Demanding Pollutants and The National Prohibition Against Interference

The process-related wastewaters discharged to the sewers are not expected to be high enough in organics strength to pose a risk of interference, with its strength expected to be signifi-cantly less than domestic sewage.

4.3 Local Limits for Metals, Cyanide, and The National Prohibition Against Pass-Through

Metals and Cyanide - There are no local limits for metals or cyanide and if fact, no potential for pass-through since the NDEP permit for the MGSD wastewater treatment plant does not contain any limitations for metals or other toxics.

Toxic Organics - There are no local limits for toxic organics.

Oil and Grease - There are no local limits for oil and grease.

Nutrients - There are no local limits for nitrates, nitrites, or ammonia, although there is the potential for pass-through since the NDEP permit for the MGSD wastewater treatment plant establishes limits that trigger the implementation of pollutant reduction plans.

4.4 Local Limits for pH and Sulfides, Flammability and The National Prohibitions Against Safety Hazards and Corrosive Structural Damage

Sewer collection system interferences related to the formation of hydrogen sulfide and the resulting acidic disintegration of the sewers are not expected because the wastewaters discharged to the sewers are not high-strength in biodegradable organics. The discharge does successfully undergo final pH adjustment to ensure neutral conditions in the sewers. All pH results for every batch discharge were registered between 6.3 and 8.7 s.u. Flammability would not be expected because sampling shows that the discharges entrain negligible amounts of volatile organics.

4.5 The Prohibition Against Bypassing

General Electric Energy has a portable pumps and hose extensions which can be stationed anywhere in the shop to delivery any solution to the outlet box. Maintaining only short hose lengths prevents the improper delivery to the sewers of the numerous other sources of wastewater which are hauled off-site for disposal.

5.0 Compliance with Federal Monitoring Requirements

Significant industrial users must self-monitor for all regulated parameters at least twice per year unless the sewerage agency monitors in place of self-monitoring. 40 CFR 403.12(e) & 403.12(g).

Each sample must be representative of the sampling day's operations. Sampling must be representative of the conditions occurring during the reporting period. 40 CFR 403.12(g) and 403.12(h).

The sample record for General Electric Energy is representative of the continuous discharge of the rinses and tail waters to the sewers over the sampling day. However, it is not clear that sampling captures the intermittent batch discharge of untreated spent alkaline cleaner. As a result, either separate sampling requirements must be extended to both the rinses and the alkaline cleaner spents, or some form of combined discharge and sampling must be instituted. Finally, as long as the discharges are uncontrolled, copper, zinc, pH, and flow need to be sampled more often for the sampling record to be representative over the six-month reporting period. The rest of the pollutants do not need to be sampled as frequently because they are present at concentrations well below the Federal standards and local limits.

Requirements

- The outlet at IWD-20005A must be sampled when the tank contents (1) include the untreated alkaline cleaner spents, and (2) do not include the alkaline spents.

- See Appendix 2 for the expected self-monitoring requirements defined for the outlet at IWD-20005A. Self-monitoring over and above the requirements established in the NDEP permit are listed in red.

Recommendations

- Semi-annual reporting should include copies of the hazardous waste manifests documenting the off-hauling of spents, spent static rinses, and residuals.

- General Electric Energy should submit to USEPA its solvent management plan as defined in 40 CFR 433.12 of the Federal metal finishing standards that reiterates at least (1) all sources of toxic organics and (2) procedures to physically prevent all toxic organics from reaching the sewers.

Appendix 1
Sewer Discharge Standards and Limits
General Electric Energy @ IWD-20005A

pollutants of concern (mg/l)	Federal standards (d-max)	Federal standards (mo-avg)	nat'l pro-hibitions (instant)	State / loc limits (d-max)	recommended monitoring frequency outlet box	alk spents
arsenic	-	-	-	-	③	③
cadmium	0.11	0.07	-	-	1/six-mos	1/six-mos
chromium	2.77	1.71	-	-	1/six-mos	1/six-mos
copper	3.38	2.07	-	-	1/month	1/six-mos
lead	0.69	0.43	-	-	1/six-mos	1/six-mos
nickel	3.98	2.38	-	-	1/six-mos	1/six-mos
silver	0.43	0.24	-	-	1/six-mos	1/six-mos
tin	-	-	-	-	③	③
zinc	2.61	1.48	-	-	1/month	1/six-mos
total cyanide	1.20	0.65	-	-	1/six-mos	1/six-mos
total toxic organics ②	2.13	-	-	-	1/six-mos	1/six-mos
nitrates+nitrites as N	-	-	-	④	1/six-mos	-
ammonia as N	-	-	-	④	1/six-mos	-
oil and grease (total)	-	-	-	-	1/six-mos	-
flow (gpd)	-	-	-	-	daily total	-
pH (s.u.)	-	-	<5.0	5.5 - 9.0	1/batch	1/batch
explosivity	-	-	<140°F ①	-	-	-

① Closed-cup flashpoint
② The Federal metal finishing standards in 40 CFR 433 allow self-certifications to an approved toxic organics management plan in lieu of self-monitoring.
③ As part of periodic priority pollutant scans in order to identify changes in discharge quality
④ Elevated nitrate levels at the MGSD WWTP triggers pollution reduction work.