

INSPECTION REPORT

Date: November 10, 2004
To: The File
From: Giles Steele-Perkins, BWP/DEP/CERO
Cc: John F. Kronopolus, Section Chief, BWP/DEP/CERO
Enf: Yes: Notice of Enforcement Conference
Re: Novotech, Inc. (978) 929-9458
916 Main Street
Acton, MA 01720

FMF Facility# 320600

MAR000013722; SQG HW, VSQG W/O; N/A
HWM Identification #, Classification, Last Inspection
N/A
AQC Identification #, Classification, Last Inspection
N/A
IWW Permit #(s), Classification, Last Inspection
N/A
POTW #, Classification (category)
N/A
TURA: Status, Filer Y/N, #Form-R's, #Form-S's

No. Employees: 6
SIC Code: Primary metal products, not elsewhere classified

On November 10, 2004, this inspector conducted an unannounced, multimedia inspection of Novotech, Inc. located at 916 Main Street in Acton, Massachusetts. The Company has been at this location for 5 years.

The objective of the inspection was to verify the Company's compliance with the Department's regulations governing hazardous waste, air emissions, industrial wastewater and toxic chemical usage.

On the day of the inspection, Mr. Michael S. Hulen, President, conducted a tour of the facility.

VIOLATION SUMMARY

There were violations associated with waste oil container labeling and management, area marking, failure to characterize waste and with discharging industrial wastewater (metal cutting and cleaning solutions) to a septic system.

SOURCE REDUCTION SUMMARY

I observed an opportunity for source reduction in the operations. The Company could recirculate the filtered discharge water for re-use in the cutting and/or rinsing operations instead of disposing it.

MANUFACTURING PROCESSES

The Company is a small outfit that primarily manufactures germanium metal disks used in the lens manufacturing industry. They also are a re-seller of gallium arsenide chips and are beginning a silicon wafer polishing operation.

UNIT OPERATION/WASTE MANAGEMENT SUMMARY

There was one (1) unit operation and one (1) waste management operation identified at this facility.

UO#1 – Germanium processing

SO#1 – Compressor

WMO#1 – Hazardous Waste and Waste Oil Accumulation Area

UO#1 – GERMANIUM PROCESSING

Ingots of 100% pure germanium are cut, drilled and ground on various stationary saws and grinding machines in a single room behind the front offices. The Company processes 50 pounds per month and sells the finished disks to lens manufacturers specializing in night vision cameras and solar cells. Cutting fluids consisting of water and coolant are collected in tubs near the machines and are recirculated back through the machines.

Up until 2002, the Company's operation consisted of extracting germanium metal from coal ash in a three-step reaction, distillation and neutralization process. This lasted for a year until the Indiana source plant of ash was sold and switched to a different fuel. The Company therefore began to import raw ingots for processing and sale instead. The equipment for the old operation still resides in the building but is expected to be removed. There is a vertical reaction vessel, two scrubbing columns made from plastic drums and filled with marble-like media, and associated duct work for emissions and plumbing for recirculated cooling water. The Department determined in a letter dated July 23, 1999 that an air plan approval was not required at that time.

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As mentioned in Manufacturing Processes above, supplemental activity includes reselling gallium-arsenide wafer chips and starting up a silicon wafer polishing station. The Company buys the GaAs chips from semi-conductor manufacturers, removes the whole wafers for potential future processing, and re-sells the chips for gallium reclamation. The Company performs no chemical processing on the chips but does crush them for packaging purposes. Precious metals such as gold, silver and platinum are recovered.

Waste Streams

Air – No air emissions are associated with the current operations. The wafer polishing will possibly require a dust control before venting outside.

Hazardous Waste – Small amounts of waste hydraulic oil are generated from the cutting and grinding machines. It is collected in an unlabeled, 2-gallon plastic container next to one of the machines.

VIOLATION – The waste oil satellite container was not labeled.

Industrial Wastewater – Dirty coolant is boiled down in two small ovens located in the rear of the production room and the germanium solids are reclaimed.

Wastewater is also generated from cleaning and rinsing disks and other items with Simple Green solution in a sink in the room. Dilute coolants may also be emptied into the sink. The sink drains through multiple particulate filters, the last two being 20u and 1u in size, so that all possible germanium is captured. The final discharge goes to the building's septic system. Twenty gallons per week are estimated to be discharged.

Another sink located next to the polishing/old distillation room drains to a 55-gallon drum.

VIOLATION – The Company is discharging industrial wastewater to a septic system.

SO#1 – COMPRESSOR

One vertical air compressor is located on the shipping/receiving dock. An open bucket of waste oil was observed next to it. The dock also had four drums of GaAs chips waiting for shipment and numerous empty cans and drums.

VIOLATION – Waste oil was collected in an open container.

WMO#1 – HAZARDOUS WASTE AND WASTE OIL ACCUMULATION AREA

Near the new polishing stations is a hazardous waste accumulation area marked with tape on the floor and two signs on the wall. The area contained numerous, different-sized containers of several wastes, including: two 55-gallon drums and two 5-gallon buckets of gallium arsenide chips; six 5-gallon jugs of semi-conductor slurry waste; two 1-gallon jugs of waste oil; and a 55-gallon and 5-gallon container of Uniclear solvent/cutting fluid. The GaAs containers and slurry waste were dated "6/7/01" and "3-01", respectively. Mr. Hulen explained that the liquid slurry waste was brought into the plant in that form and not generated here. There were also empty containers in the area.

VIOLATIONS – The containers of waste oil were not properly labeled. Non-hazardous wastes were located in the accumulation area.

Mr. Hulen provided after the inspection on November 11, 2004, a list of containers and their contents found throughout the facility and their new storage locations. New hazardous wastes include kerosene and Uniclear, both degreasing agents. Other materials, such as GaAs semisolid slurry, germanium polishing slurry, and a container of GaAs waste water, which resulted from rinsing the GaAs wafers, are listed as hazardous, but it is not known if they are listed hazardous wastes or are hazardous by their characteristics. The Company will send some out for reclamation and some for disposal. Franklin Environmental has been contacted to characterize all their wastes.

VIOLATION – The Company has not characterized their wastes as hazardous or non-hazardous.

The Company applied for a permit to recycle GaAs in 2000 but was issued a technical deficiency letter. The Department determined that the Company would be processing the wafers and not reusing them. The letter also states that processing the wafers without a permit would be illegal, which they are presently doing by the fact they are rinsing and crushing them. Mr. Hulen provided, however, in another submittal after the inspection that the GaAs scrap metal is not hazardous waste for arsenic, as determined by their reclamation company, because the bond between Ga and As is so strong. It remains to be seen whether the GaAs slurries are also non-hazardous.

The Company is no longer accumulating hazardous acid wastes or spent ash. The last shipment of such materials was conducted in 2002. They have not acted as a Small Quantity Generator since then and could therefore downgrade their status to Very Small Quantity Generator of hazardous waste.