

THE BUSINESS OPPORTUNITY AND STRATEGY

ENVIRONMENTAL PRESSURES

- Reflecting the ever-increasing public pressure, the Water Quality Control Act in the USA and similar recent legislations in Canada are imposing and strictly enforcing progressively lower limits on toxic discharges by industrial operations. Increasing environmental regulatory pressures have become critical to an increasing number of industrial operations.
- The compounding toxic effects of heavy metals in the environment are being recognized and their dangerous impacts better understood. The threat to the environment and human health from heavy metals has been well documented for many specific instances.
- The currently practiced technologies for removal of heavy metals from industrial effluents appear to be inadequate, creating often secondary problems with metal-bearing sludges which are extremely difficult to disposed of. Due to their classification as “*toxic substances*” they require special handling, discharge methods and sites. Their disposal is closely monitored by the governments.
- The currently available “best treatment technologies” for treating metal-bearing wastewaters are either not efficient enough or are prohibitively expensive and inadequate considering the vast wastewater quantities requiring effective treatment in order to meet the final, increasingly more stringent disposal criteria.
- Conventional wastewater treatment plants, industrial and municipal, are expensive to build and operate, and they provide no economic payback.
- Industries that discharge into a city sewer system are assessed their “fair share” of the capital costs to expand, modernize, or upgrade the system to meet the increased loads. Thereafter they must pay their “fair share” of operating costs. These surcharges are becoming prohibitive rendering this alternative unfeasible.
- In many instances concerning metal-bearing effluents, their toxicity is excluding them from municipal treatment and efficient pretreatment procedures are required to meet the low metal content limits.
- Strong economic incentives exist for efficient residual metal recovery that makes the wastewater treatment processes more economical through at least partial recovery of costs based on benefits from metal resource recycling or resale.

The combined environmental pressures and economic stimuli make the removal and recovery of residual heavy metals from industrial effluents an important and ever-increasing priority. Serious health hazards are in aquifers and drinking water sources contaminated with heavy metals.

Both types of water remediation represent extraordinary business opportunities.

BV SORBEX Inc. believes that the above market characteristics have the following -

IMPLICATIONS

- 1) New efficient and considerably cheaper technology is the only answer to the problems inherent in meeting the current mandatory treatment standards and especially those being currently enacted to be enforced in the near future.
- 2) Lower capital and operating costs must be concomitants of the new technology; neither industry nor local government can afford to pay the capital and operating costs required by conventional technology, or to neglect the consequences of prolong discharges of toxic heavy metals into the environment.
- 3) Recovery of wasted metals and their recycle into the process offers a dramatic possibility for reducing costs. As such, it promises to be the spearhead of the new technology which is both environmentally and economically driven.
- 4) In-house pretreatment processes will be the most cost-effective solution for many industrial processors who would otherwise be heavily penalized for their waste “loading” into municipal systems.
- 5) In-house pretreatment systems will also be most effective for many industries with different scattered wastewater “point-sources” and for those which will be expanding their production.
- 6) Increasing demands are for those treatment technologies that do not generate “toxic sludges” (progressively more difficult and expensive to dispose of).
- 7) An increased awareness of the cost of acquiring, handling, and treating water and the shortages thereof will increase the demand for recycling and reuse of waste water.
- 8) Upgraded technology will make present standards of resource utilization, toxicity control, and sludge disposal patently obsolete.
- 9) Environmental and inflationary trends are bringing the pressure on industry and government to find better ways to treat waste water more efficiently and at lower operating costs.

The current conventional wastewater purification technologies have served the industry well under relatively lower pressures of the environmental regulations. However there has always been a problem particularly with metal-bearing wastewaters which are difficult to treat effectively and *economically*.

Toxic metals escaping into the environment have been confirmed to get concentrated in the food chain endangering the population and its food sources in an unprecedented manner.

The contamination of drinking water sources and underground water table by toxic metals poisons large populations. Stricter water-quality regulations mandate new water purification processes that remove toxic metals from (waste)water.

The metal-removal process must be effective, reliable and affordable.

WATER DETOXIFICATION – METAL REMOVAL

The first objective of B.V. SORBEX, Inc. is to penetrate quickly the special water purification market with its new technology and to establish biosorption technology as an effective and economical alternative to detoxification of industrial wastewaters by removing the dissolved heavy metals. With its first family of new (bio)sorbent products the Company will exploit the opening need (created by conditions described above) for cheap and reliable heavy metal removal/recovery from industrial effluents and/or drinking water sources. The initial technology focus is on wastewater detoxification which is today the single most important environmental issue representing an enormous market potential for low-cost system applications which make the wastewater purification schemes a feasible proposition for the target client industries.

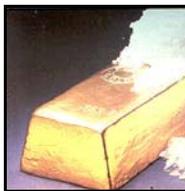
SUPERIOR TECHNOLOGY

BV SORBEX, Inc. has the unique know how and expertise in the new and cost-effective biosorption technology for heavy metal removal. That makes the Company a *leading force* in the field of water detoxification.



Marketing and sales efforts are concentrated upon developing the application schemes for the new family of biosorbent materials. This will be done in close collaboration with carefully selected client industries representing typical metal-related wastewater disposal problems. The current metal removal technologies practiced either do not meet the new regulatory criteria, e.g. metal precipitation which leads also to serious and costly problems with sludge disposal, or they are prohibitively costly and unsuitable for treating large volumes of waste streams usually generated (membrane processes, ion exchange).

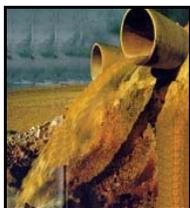
US\$ BILLION POTENTIAL



The current world-wide market for ion exchange limited to heavy metal applications is in the order of 5 billion US dollars per year with more than - 2 billion dollars in North America alone.

The ion exchange process for water treatment purposes is considered a “cadillac” of the treatment for the high costs of ion exchange resins. Biosorbents can be marketed for a fraction of the ionex costs establishing themselves thus as extremely *competitive products* capable of opening whole new markets unavailable to high-priced conventional technologies.

SELECTED CLIENTS



All biosorbent products will be tested first by several leading customers with whom B.V. SORBEX, Inc. has already established close relationships. The Company has already encountered strong market reaction to the announcement of performance and potential of newly discovered biosorbents which has been released in the form of technical results published in scientific literature and reported at international meetings. There are over a dozen client industrial enterprises anxious to test the materials which are not marketed as yet in sufficient quantities. Their commercialization is the goal of BV SORBEX, Inc.