

SCHERING INDUSTRIAL DEVELOPMENT CORP.

POST OFFICE BOX 486



MANATI, P.R. 00701-0486

39861

TELEX 325-2580
325-2581

TELEPHONE 809-854-2700

February 12, 1988

José C. Font
Project Manager
U.S. Environmental Protection Agency
Caribbean Field Office
1413 Fernández Juncos Ave.
Santurce, P.R. 00909

Re: Response to Second Request for Information pursuant to Section 3007 of the Resource Conservation and Recovery Act, and Section 104 of the Comprehensive Environmental Response Compensation and Liability Act, pertaining to the Barceloneta Landfill, Barceloneta, Puerto Rico

Dear Mr. Font:

In response to the above referred request, we are enclosing as an attachment to this letter, a detailed analysis of each question, with pertinent supporting documents.

As indicated in our previous communication, the task of going back for records generated over seventeen years has taken considerable time and effort. Twenty eight (28) persons employed in virtually all areas of the plant, were employed in a document search that would allow us to gather a comprehensive picture of what took place from our first production days, back in 1970, up to this day. We believe we have made as thorough an investigation as can be reasonably expected.

The result of our search, the interviews held with the truck drivers and persons who have worked at Schering, Manatí, site for a long time, and documents consulted do not reveal that Schering has at any time discharged or engaged others to discharge materials or waste which

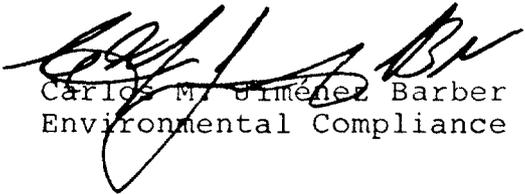
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could be considered hazardous, under today's standards and definitions, at the Barceloneta Municipal Landfill. The documents we enclose, therefore, are not related to hazardous waste, but to the non-hazardous industrial and domestic type waste which did go to the Barceloneta Municipal Landfill up to 1987.

Feel free to contact us for any additional help you may need in this matter.

Cordially yours,



Carlos M. Jiménez Barber
Environmental Compliance Manager

/mv

Enclosure

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QUESTION NO. 1

Identify the person(s) responding to these information requests.

RESPONSE

The Environmental Compliance Manager for Schering's operations in Manatí, has been responsible for gathering required materials and coordinating the response to this Information Request. In the process, he has consulted and obtained valuable assistance from other Schering personnel who have responsibilities in production, purchasing, administration, etc., as indicated in the response to Question No. 2.

As such, the required identification is as follows:

Name: Carlos M. Jiménez Barber

Businesss Address: Schering Manatí, Inc.
P.O. Box 486 Manatí, PR 00701-0486

Residential Address: Urb. La Vista
Vía Las Alturas, K-13
Río Piedras, Puerto Rico 00924

Employer: Schering Manatí, Inc.
P.O. Box 486
Manatí, Puerto Rico 00701-0486

Position Held: Environmental Compliance Manager

- Responsibilities:
- Direct the Environmental Department.
 - Coordinate environmental activities at Schering, Manatí.
 - Insure compliance with environmental laws and regulations.
 - Act as environmental liaison with government agencies and other groups with interests in such matters.
 - Recommend environmental response actions to management.

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- Coordinate evaluation of emission sources at plant site for compliance.
- Evaluate procedures for disposal of waste streams generated on site.
- Act as environmental advisor during incident controls.
- Request and maintain environmental permits and respond to related conditions.
- Whichever other responsibilities as may be assigned by upper management.

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QUESTION NO. 2

Identify all persons consulted in the preparation of the answers to these requests.

RESPONSE

In the preparation of the response to this questionnaire, the below indicated Schering, Manatí, employees have been consulted. Each person has been identified as defined in the term, "identify" included as part of "Attachment 1" of the questionnaire. For each person, six information elements are provided, as follows:

1. Full Name
2. Present business address
3. Present home address
4. Employer
5. Position or positions held with that employer
6. Description of responsibilities

List of Contributors

1.
 - 1) Jorge Villaverde Ruiz
 - 2) P.O. Box 486, Manatí, PR 00701-0486
 - 3) Camino de Begonis No. E.-26 Enramada Bayamón, PR 00619
 - 4) Schering Manatí
 - 5) Present: Antibiotic Plant Manager
Past: Netilmicin Process Manager
Process Validation Engineer
Compounding Supervisor
 - 6) Currently responsible for all activities concerning the three Antibiotic Manufacturing facilities.

2.
 - 1) Mercedes Argüelles
 - 2) P.O. Box 486, Manatí, PR 00701-0486
 - 3) Honduras C No. 5
Oasis Gardens
Guaynabo, PR 00657
 - 4) Schering Manatí
 - 5) Present: Fermentation Plant Manager
Past: Bulk Antibiotic Microbiology Lab.
Steroids Netilmicin Process Control Labs. Spvr.
Steroids Fermentation Microbiology Lab. Spvr.
 - 6) In charge of the operation and supervision of the Fermentation Plant, compliance of GMP, safety and environmental regulations.

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3.
 - 1) Rubén A. García Candelario
 - 2) P.O. Box 486, Manatí, PR 00701-0486
 - 3) Villas de Playa II
Dorado del Mar
Dorado, PR 00646
 - 4) Schering Manatí
 - 5) Present: Chemical Plant Manager
Past: Steroids Mfg. Manager
Steroids Process Finishing Manager
Steroids Fermentation Manager
Fermentation Plant Manager
 - 6) Responsible for the operations and supervision of the plant, compliance of GMP, safety and environmental regulations.

4.
 - 1) Oscar E. González
 - 2) P.O. Box 486, Manatí, PR 00701-0486
 - 3) Urb. Los Rosales, 5ta Avenida
Manatí, PR 00701
 - 4) Schering Manatí
 - 5) Present: Technical Assistant
Past: Chemical Manufacturing Day Supervisor
 - 6) Process control, operation optimization, troubleshooting and safety coordinator.

5.
 - 1) Juan Otero Rodríguez
 - 2) P.O. Box 486, Manatí, PR 00701-0486
 - 3) Parcelas Amadeo
Avenida Sandín No. 29
Vega Baja, PR 00763
 - 4) Schering Manatí
 - 5) Present: Shift Supervisor, Fermentation Plant
Past: Chemical Operator
Senior Operator
 - 6) Monitoring of all the production data, data entry of raw material, publication of production graphics.

6.
 - 1) Jorge E. Torres
 - 2) P.O. Box 486, Manatí, PR 00701-0486
 - 3) Box 99, Morovis, PR 00717
Carr. 155, Km. 55.0
Bo. Barahona, Morovis
 - 4) Schering Manatí
 - 5) Present: Maintenance Sprv., Chemical Plant
Past: Production Sprv., GMP Coordinator, Sr. Lab.
Technician, Chemical Operator
 - 6) In charge of maintenance, housekeeping and process laboratory.

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7. 1) Benjamín Sierra
2) P.O. Box 486, Manatí, PR 00701-0486
3) Taft Towers No. 55 Apt. 5-C
Calle Taft
Condado, PR
4) Schering Manatí, Inc.
5) Present: Purchasing Manager
Past: Senior Buyer
Buyer
6) Plans and manages all operations related to the procurement of raw materials and packaging supplies, as well as production support and non-production related goods and services. Develops and administers company's procurement policies, objectives, and programs.
8. 1) Luiz F. De Cerqueira Leite
2) P.O. Box 486, Manatí, PR 00701-0486
3) Garfield St. B-7 Parkville
Guaynabo, PR 00657
4) Schering Manati
5) Present: Materials Manager
Past: Antibiotics Plant Manager
6) Full managerial responsibility for the Materials Management Department operations, equipment and personnel, including: Planning, Inventory Control, Purchasing, Customer Service, Central Weighing, Warehouse, Stockroom and Traffic. Provide technical/managerial support in Gentamicin manufacturing/antibiotic production in other units (or related to other units) of the division.
9. 1) Zezette McCoy
2) P.O. Box 486, Manatí, PR 00701-0486
3) 141 Eufrates St. El Paraíso
Río Piedras, PR 00926
4) Schering Manatí
5) Present: Materials Services Manager
Past: Sterile Operations Mgr.
Mfg. Process Mgr.
Finishing Operations Mgr.
Sterile Mfg. Supervisor
Sterile Mfg. Chemist II
6) Manage Traffic, Warehouse, Central Weighing, Customer Services, and Stockroom activities, develop complete control of materials transportation in and out of Manati, storage and recovery of raw/packaging materials/spare parts to the plants and responsibility of Customer Service activities.

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10.
 - 1) Luis R. Santiago Mitchell
 - 2) P.O. Box 486, Manatí, PR 00701-0486
 - 3) Urb. Villa Los Pescadores C-2
Vega Baja, PR
 - 4) Schering Manatí, Inc.
 - 5) Present: Supervisor Central Weigh Area
Past: Netilmicin Supervisor, Q.A. Chemist Lab
 - 6) Supervise weighing and recording of material, used in batches by manufacturing units, supervise the picking, packing and weighing of customer orders.

11.
 - 1) Generoso Marrero
 - 2) Schering Manatí, Inc.
P.O. Box 486, Manatí, PR 00701
 - 3) Box 929
Hatillo, PR 00659
 - 4) Schering Manatí, Inc.
 - 5) Present: Warehouse Supervisor
Past: Warehouse Foreperson
Motor Pool Foreperson
 - 6) 1980-81: As motor pool foreperson, he coordinated the assignment of drivers for Schering's trucks. 1982 to date: As Warehouse Foreperson or Supervisor, he disposes of spoiled soy flour, glass, printed matter, damaged pallets, torn empty drums and other non-hazardous miscellaneous solid waste.

12.
 - 1) Juan Luis Rodríguez
 - 2) P.O. Box 486, Manatí, PR 00701
 - 3) Vista Azul 12-M9
Arecibo, PR 00612
 - 4) Schering Manatí, PR
 - 5) Present: Cash & Property Coordinator
 - 6) Control daily cash balance and coordinate available money for investment.

13.
 - 1) Carlos M. Jiménez Barber
 - 2) Schering Manatí, Inc.
P.O. Box 486, Manatí, PR 00701
 - 3) Urb. La Vista
Vías Las Alturas, K-13
Río Piedras, PR 00924
 - 4) Schering, Manatí, Inc
 - 5) Present: Environmental Compliance Manager
 - 6) Aid the company at compliance with environmental regulatory requirements; serves as environmental contact with government agencies; aid in solving environmental problems; see to it that plant operations affect the environment in the least possible manner.

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14.
 - 1) Modesto Centeno Rivera
 - 2) P.O. Box 486, Manatí, PR 00701
 - 3) Carr. 633, Km. 115
Bo. Barahona
Morovis, PR 00717
 - 4) Schering Manatí, Inc.
 - 5) Present: Steroid Plant Manager
 - 6) Responsible for all operations related with Steroids
Fermentation and Process Plants.

15.
 - 1) Nelson Cruz Feliciano
 - 2) P.O. Box 486, Manatí, PR 00701
 - 3) P.O. Box 68, Manatí
 - 4) Schering Manatí, Inc.
 - 5) Present: Steroids Plant Manager
Past: Technical Assistant & Supervisor
 - 6) Responsible for all the personnel and operations concerning
Steroids Manufacturing within Schering Manatí (Process Plant).

16.
 - 1) Carmelo Alvarado Rivera
 - 2) P.O. Box 486, Manatí, PR 00701
 - 3) Ninfa del Mar A-28
Dorado del Mar
Dorado, PR 00646
 - 4) Schering Manatí, PR
 - 5) Present: Steroid Fermentation Plant Supv.
 - 6) In charge of Steroids Fermentation and extraction areas.
Also in charge of tank farm area including above ground
ammonia and chloridric acid tanks.

17.
 - 1) Benjamín Tapia Ríos
 - 2) P.O. Box 486, Manatí, PR 00701
 - 3) Urb. Santa Ana
Calle 8-A-20
Vega Alta, PR 00762
 - 4) Schering Manatí
 - 5) Present: Steroids Shift Supervisor
 - 6) Responsible for all the personnel and operations concerning
production scheduling.

18.
 - 1) Francisco Montañez Figueroa
 - 2) P.O. Box 486, Manatí, PR
 - 3) Almirante Norte
K-2 H-4, Carr. No. 160 Vega Baja, PR 00763
 - 4) Schering Manatí
 - 5) Present: Shift Supervisor, Steroids Plant
 - 6) Responsible for all the personal and operations concerning
production during shifts.

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19. 1) José Del Prado
2) P.O. Box 486, Manatí, PR 00701
3) P.O. Box 4277
Vega Baja, PR 00764
4) Schering, Manatí
5) Present: Maintenance & Engineering Manager
1978-79 Project Engineer
1979-80 Senior Project Engineer
1980-83 Engineering Department Manager
1983-Present Maintenance & Engineering Manager
6) Manage and supervise all Maintenance and Engineering Services, which includes trash removal contracts and contract negotiations.
20. 1) Teresita Garrido
2) P.O. Box 486, Manatí, PR 00701
3) Calle 16, W-11
Urb. San Demetrio
Vega Baja, PR 00763
4) Schering Manatí
5) Present: Director, Quality Assurance
6) Direct the Quality Assurance/Quality Control activities at the Schering Manatí facility. Involves the testing, inspection and release of materials, components and products; administration and computer systems; FDA liaison and GMP compliance, etc.
21. 1) Marisol Miranda
2) P.O. Box 486, Manatí, PR 00701
3) Calle 3, No. 35
Jardines de Toa Alta
Toa Alta, PR 00758
4) Schering, Manatí
5) Present: Supervisor, Analytical Laboratory
6) Coordinate and supervise activities of the Steroids, Bulk Antibiotics and Polymer laboratories, and assure that proper techniques are employed in all laboratory activities.
22. 1) Néstor L. Caraballo Caraballo
2) P.O. Box 486, Manatí, PR 00701
3) R.F.D. 01; Buzón 2132, Manatí, PR
4) Schering Manatí
5) Present: Manager, Pharmaceutical Plant
6) Direct the manufacture of pharmaceutical dosage forms.
23. 1) Andrew John Browning
2) P.O. Box 486, Manatí, PR 00701-486
3) Calle Hamilton C-21, Urb. Parkville,
Guaynabo, PR 00657
4) Schering Manatí, Inc.
5) Director of Finance
6) Responsible for accounting, treasury and management information systems within the Manatí site.

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24. 1) Joaquín Maldonado Maldonado
2) P.O. Box 486, Manatí, P.R. 00701
3) Calle 1, J-1, Urb. Jardines de Mónaco
Manatí, P.R. 00701
4) Schering, Manatí Inc.
5) Present: Warehouse Worker
Past: Formely truck driver for Schering up to 1982.
6) Perform general work within the warehouse pertaining to cargo movements.
25. 1) Wilfredo Soto Colón
2) P.O. Box 486, Manatí, P.R. 00701
3) HC-01 Box 6321
Barceloneta, P.R. 00617
4) Schering, Manatí Inc.
5) Present: Driver
6) Drive trucks and other vehicles for Schering.
26. 1) Ramón Freytes Sánchez
2) P.O. Box 486, Manatí, P.R. 00701
3) Calle AD-7, Urb. Jardines de Vega Baja
Vega Baja, P.R. 00763
4) Schering Manatí, Inc.
5) Present: Driver
6) Drive trucks and other vehicles for Schering.
27. 1) José Linares Reyes
2) P.O. Box 486, Manatí, P.R. 00701
3) Bo. Cantito, Carre. C-16, Buzón 73
Manatí, P.R. 00701
4) Present: Warehouse Worker
Past: Formely truck driver up to 1981
5) Perform tasks pertaining to the movement of materials within the warehouse.
28. 1) Aladino Morales Pérez
2) P.O. Box 486, Manatí, P.R. 00701
3) Bo. Hato Arriba, Calle A Buzón 100
Arecibo, P.R. 00612
4) Schering Manatí, Inc.
5) Present: Stock Room Foreperson
Past: Formerly truck driver for Chase International,
under contract.
6) Carry out records keeping of materials handled by the Warehouse.

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QUESTION NO. 3

Identify all documents consulted, examined, or referred to in the preparation of answers to these requests and provide copies of all such documents.

RESPONSE

Each document used as a reference has been identified as an "Exhibit No. _____" within the text, and has a cover page including the above requested information.

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QUESTION NO. 4

Describe the nature of your business and furnish EPA with a list of all products manufactured, generated and/or produced by your company.

RESPONSE

Schering's Manatí facilities is an industrial complex dedicated to the synthesis of antibiotic and steroids based on pharmaceutical products for bulk sale as finished or intermediate stages, as well as, in the form needed for distribution to actual consumers. The Manati facility also produces the "bonnet", which is the initial rough cutting needed for the production of contact lenses.

As of January, 1988, the list of products manufactured at the Schering Manati facilities are the following:

<u>Product Name</u>	<u>Packout</u>
Cisoxynol	bulk
Enosaminol	bulk
Gentamicin Sulfate	bulk
Sisomicin	bulk
Sisomicin Sulfate	bulk
Aminicyclitol	bulk
Aminoglycoside-T	bulk
Glycositol	bulk
Netilmicin Sulfate	bulk
Netromycin Inj.	various dosages
Seglycitol-40	bulk
Tetrainositol	bulk
Aclomethasone Dipropionate	bulk
Alpha Epoxide	bulk
Beclomethasone Dipropionate	bulk
Bemesolate	bulk
Betamethasone acetate	bulk
Betamethasone Micro	bulk
Betamethasone Phosphate	bulk
Betamethasone Sodium Posphate	bulk
Betamethasone Valerate Micro	bulk
Bethamethasone 17-Alpha-Propionate	bulk
Bet-diene-mesylate	bulk
Beta-methyl Epi-F-diene	bulk
Beta-triene "K" grade	bulk
Beta-triene-cathylate	bulk

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<u>Product Name</u>	<u>Packout</u>
Dexamethasone	bulk
Meprednisone	bulk
Azium Inj. Sol	various dosages
Benamine Inj. Susp.	various dosages
Betasone Inj. Susp.	various dosages
Betavet Soluspan Inj. Susp.	various dosages
Celestone Phosphate Inj. Sol.	various dosages
Celestone Soluspan Inj. Susp.	various dosages
Chlor-Trimeton Inj.	various dosages
Garacin Pig Inj. Sol.	various dosages
Garamycin Inj.	bulk & various forms & dosages
Garasol Chick Inj.	various dosages
Garasol Turkey Inj.	various dosages
Gentamycin Sulfate	bulk
Gentamycin	bulk
Gentocin Pig Inj.	various dosages
Hyperstat Inj. Sol.	various dosages
Intron A. Diluent	vial
Meticorten Ag.	various dosages
Normodyne Inj.	various dosages
Otobiotic Otic. Sol.	bottle
Solganal Susp.	various dosages
Trilafon Inj.	ampules
Banamine Paste syr.	30 gm/unit
Bonnets	bag
Celestone cream	tube
Diprolene cream	tube
Diprolene ointment	tube
Diprosone cream	tube
Diprosone ointment	tube
Elocon cream	tube
Elocon ointment	tube
Garamycin cream	tube
Garamycin Ophthalmic oint.	tube
Gentocyn Durafilm Sol.	bottle
Gentocyn Ophthalmic Oint.	tube
Gentocyn Ophthalmic Sol.	bottle
Gentocyn Otic	bottle
Gyne-Lotrimin cream	tube
Lotrimin cream	tube
Lotrisone cream	tube
Metimyd Ophthalmic Sol.	bottle
Metreton Ophthalmic	bottle
Metimyd Ophthalmic Oint.	tube
Ocuclear drops	tube
Optimyd	bottle
Sodium Sulamyd Opth.Oint.	tube
Sodium Sulamyd Opth. Sol.	bottle
Sodium Sulphate Sterile Powder	bulk
Tetrainositol	bulk
Valisone cream	tube
Valisone ointment	tube

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Note: For each product, there may be more than one dosage, container size or form, as specified by purchaser.

QUESTION NO. 5

Describe the nature of your activities at your facility, with respect to purchasing, receiving, processing, storing, treating, disposing, or otherwise handling hazardous substances/or materials at your facility.

RESPONSE

Since this question aims at finding out the respondents activities at his facility and being the respondent the Environmental Compliance Manager, the answer is presented from the respondents point of view, as alternative one (1). If the question was meant to be in terms of the "the activities at your facility", then the scope would be more general in nature, and we will answer that as alternative two (2).

Alternative 1:

The Environmental Compliance Manager at Schering, is responsible for seeing to it that all the activities within the site are conducted in conformance with environmental laws and regulations, and for providing advice to management on upcoming requirements that may have an effect on production or economic planning.

Pertaining to indicated areas of interest, the Environmental Compliance Manager's responsibilities are as follows:

- A. Purchasing: There are no responsibilities assigned in this area of concern.
- B. Receiving: This office coordinates the request for tank trucks and cargo vehicles used for disposal of hazardous and non-hazardous industrial waste.
- C. Processing: This office sees to it that hazardous waste and non-hazardous industrial wastes are processed properly, in compliance with environmental requirements, by whoever is contracted for such purpose. Within the facility, it sees to it that such materials are handled properly, stored, transported, and shipped off-site for disposal in an environmentally sound manner and within time constraints applicable to a generator.
- D. Storing: This office acts as an internal consultant for guidance on proper storage of hazardous and non-hazardous industrial waste. It also acts to verify compliance with applicable rulings from regulatory agencies, and see to it that compliance is achieved within a reasonable time.

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- E. Treating: Hazardous and non-hazardous industrial wastes are not treated within Schering, these are being temporarily stored while waiting for pickup and delivery to an authorized TSD facility for destruction. The only waste receiving treatment is the non-hazardous aqueous waste, which is adjusted for pH prior to piping it to the Barceloneta Regional Wastewater Treatment Plant.
- F. Disposing: This office coordinates truck pickups which deliver hazardous and non-hazardous industrial wastes to authorized TSD facilities contracted for disposal of such materials. No disposal is done in-house of such materials.
- G. Handling: Above responses cover this element. In addition, this office carries out analysis for compatibility of waste materials; record-keeping as required; filling out and processing manifests and maintaining contacts with regulatory agencies having jurisdiction over these matters.

Alternative 2:

Schering, Manatí, consists of a pharmaceutical complex whose products have been summarized in the response to Question No. 4. From that point of view, the activities carried out at the facility in your areas of interest, are as follows:

- A. Purchasing: Schering will purchase whichever materials are needed for the manufacture of its various pharmaceutical products. This facility is well equipped to manage hazardous materials in all aspects of operations, such as receiving them, storing, transporting, using, and disposing of waste products.
- B. Receiving: Materials may arrive at the site in tank trucks, drums, or on pallets. If in tank trucks, these may be unloaded in specially designated areas provided with segregated spill control sewers which are designed to prevent possible discharges to the environment. Well protected drum storage areas are available at the site, as well as warehouse space where materials are kept under strict control.
- C. Processing: All hazardous materials are processed taking into account existing inventories and uses given, as a function of time. In this way, we maintain adequate inventories needed for production requirements. Personnel are well trained for handling such materials and equipped with up-to-date personal protection technology in order to perform, even under emergency conditions.

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- D. Storing: (See "Receiving")
- E. Treating: No treatment facilities exist at the Schering, Manati, site for hazardous materials. As may be seen in response to Question No. 6, all hazardous materials coming out as waste products are processed and disposed under contracts with entities with proper permits and authorized to carry out such activities.
- F. Disposing: Hazardous waste products are disposed of as indicated above. Non-hazardous wastes are treated for pH and discharged to the Barceloneta Wastewater Treatment Plant operated by PRASA, (if liquid); incinerated by an authorized agent, (in case of cartons, labels, and other paper products bearing Schering's information) or taken out to an authorized municipal landfill, (for the case of domestic type trash and similar materials).
- G. Handling: All hazardous waste products generated in any of the production areas must get a proper authorization from the Safety Department and the Environmental Department before its disposal is permitted. Procedures have been written for the disposal of all materials generated on site. If a given material is not covered by a procedure, the Environmental Department will investigate and make a suitable recommendation, which will give course to a new procedure. To date, the management structure for handling hazardous materials have proven to be more than adequate to cover our needs, so that no incidents have resulted, despite the continuous use of such materials and the generation of hazardous wastes.

QUESTION NO. 6

Please provide an annual summary detailing the types and quantities of wastes that you or your company disposed of or arranged for disposal at the Barceloneta Landfill during the years 1970 through the present.

RESPONSEPart A:

Steroids Plant

The Steroids Plant began operations in 1981, so no waste was produced prior to that time.

The waste generated at this production facility that could have gone to the Barceloneta Municipal Landfill, consists mostly of domestic trash, garbage from local cafeterias; empty drums, which are cleaned out and crushed prior to their disposal; and the DARCO and Super-cel, which are filtering medias used and disposed thereafter. The Super-cel filter media is fully described as response to your question No. 8. DARCO is a form of carbon employed to remove color bodies from the active portion of the product. More details on the nature of the DARCO media may be seen in Exhibit 1, (DARCO bulletin No. 5525), and 2 (Memo from Ivonne Lasalle, dated 12/22/87). Material disposed in the dumpster is sent to a Municipal Dump for disposal.

Hazardous waste produced at the Steroids Plant is Manifested and sent to Safety-Kleen, (formely McKesson), for reprocessing into synthetic fuel used and destroyed by San Juan Cement.

The amounts of DARCO and Super-Cel generated from 1981 to 1987, are shown in Table 6.1.A. below:

Table 6.1.A
Amount of DARCO and Super-Cel Disposed (Kg)

<u>YEAR</u>	<u>DARCO</u>	<u>SUPER-CEL</u>
1981	32	28
1982	509	406
1983	384	312
1984	470	350
1985	580	452
1986	488	390
1987	376	309

Present contract with Andrés Reyes Burgos requires that disposal be at the Toa Baja Municipal Landfill.

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PART B:

Fermentation and Chemical Plants for Bulk Sisomicin/Gentamicin:

The above Plants are the oldest production centers at Schering, Manatí, dating back to 1971.

The types of solid wastes generated by these plants are as follows:

- a). Mycelia: Consists of the mass of cell bodies which generated the antibiotic. In order to filter them out, filtering aids, such as Super-Cel, are employed. Although we refer to the individual solid wastes by their specific nature, actually the mycelia and the other materials used to filter it out come out as a single stream of solid waste material.
- Mycelia and associated filter media have been disposed in municipal landfills, since it is not classified as a hazardous waste, as may be seen in Exhibit 3. Its possible use as a fertilizer is suggested in Exhibit 4. The ultimate destination of this stream has changed as a function of time, since the Barceloneta North, Barceloneta (La Florida), and the Arecibo Landfills have been used at one time or another for its disposal.
- b) Super-Cel: As indicated above, the Super-Cel, Filter-Aid and other similar products are used to provide a filtering media which will retain the mycelia. It is not classified as a hazardous waste.
- c) Calcium Oxalate: Calcium Oxalate is produced as a waste product during the regeneration of the resins, where Oxalic Acid is used to remove the Calcium adhered to the resin. It is not classified as a hazardous waste.
- d) DARCO: This activated carbon is mainly used for removing color bodies and is discarded once used. It is not classified as hazardous waste.
- e) Resins: Once resins are used to the point where they are no longer capable of performing their functions, they are discharged with the regular solid waste. They are not classified as hazardous wastes.

In addition to the above materials, a varied number of empty containers are produced at the Fermentation Plant, as indicated in Exhibit 5. Empty drums are cleaned out, crushed and then disposed at an authorized landfill.

Tables 6.1.B contains a summary of the various types and the amounts of solid wastes generated by these Plants, which may have gone to the Barceloneta Municipal Landfill, none of which is classified as hazardous.

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Table 6.1.BWaste Products from Sisomicin and Gentamicin Production

<u>Waste Type</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>1977</u>
Mycelia	1,132,000 kg	1,368,000 kg	1,240,800 kg	1,344,200 kg
Super-Cel	1,494,000 kg	1,804,000 kg	1,629,000 kg	1,766,600 kg
Calcium Oxalate	313,000 kg	378,000 kg	343,200 kg	371,800 kg
Resins	219 kg	265 kg	240 kg	260 kg
Filter Aid	121 kg	146 kg	194 kg	193 kg
DARCO	386 kg	466 kg	6,020 kg	4,960 kg
<u>Waste Type</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>
Mycelia	1,283,100 kg	1,381,800 kg	1,428,800 kg	1,734,700 kg
Super-Cel	1,688,400 kg	1,812,800 kg	1,872,800 kg	1,848,000 kg
Calcium Oxalate	354,900 kg	382,200 kg	39,200 kg	417,300 kg
Resins	248 kg	268 kg	277 kg	251 kg
Filter Aid	168 kg	222 kg	242 kg	376 kg
DARCO	3,300 kg	7,290 kg	8,670 kg	14,180 kg
<u>Waste Type</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
Mycelia	1,326,400 kg	603,900 kg	1,018,600 kg	798,000 kg
Super-Cel	660,000 kg	36,000 kg	318,000 kg	-
Calcium Oxalate	327,600 kg	139,100 kg	244,400 kg	182,000 kg
Resins	203 kg	78 kg	107 kg	103 kg
Filter Aid	339 kg	103 kg	214 kg	190 kg
DARCO	16,040 kg	2,090 kg	7,652 kg	8,060 kg

700958

Table 6.1.B (Con't)Waste Products from Sisomicin and Gentamicin Production

<u>Waste Type</u>	<u>1986</u>	<u>1987</u>
Mycelia	1,145,700 kg	518,700 kg
Super-Cel	-	-
Calcium Oxalate	261,300 kg	118,300 kg
Resins	147 kg	67 kg
Filter Aid	292 kg	133 kg
DARCO	13,400 kg	6,090 kg

PART C:

Netilmicin Plant:

This Plant initiated its operations in 1981, so that no waste was produced prior to that year.

The solid waste that could have been disposed of at the Barceloneta Municipal Landfill proceeding from this source can be described as consisting of regular domestic type trash, as well as empty bags, cardboard containers, non-hazardous waste from production areas, waste paper, etc. In addition to this, empty drums may also be disposed through this stream. This disposal has been done in various manners, such as:

1. Cleaning the drums prior to crushing them in a drum crusher and disposing in an authorized Municipal Landfill. (See Exhibit 6 and 7).
2. Sending all empty drums to Safety-Kleen for final cleanup, crushing and disposal in a Municipal Landfill. This practice was in use extensively. (See Exhibits 8 and 9).

Table 6.1.C. shows a brief summary of the amounts of some of the materials that have been included within the Trash.

700959

Table 6.1. CNetilmicin Plant Solid Waste Generation

Solid Waste Type	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>	<u>1986</u>	<u>1987</u>
1. Super-Cel	112kg	540kg	172kg	496kg	528kg	624kg	-
2. DARCO	420kg	5,590kg	456kg	1,100kg	852kg	1,035kg	660kg
3. Celite	-	3kg	114kg	252kg	106kg	104kg	327kg

Generation of hazardous waste from the Netilmicin Plant did not exist up to 1987, and consists mainly of a solvent mixture with a water content usually less than 25%. This material is properly Manifested and sent along with the rest of the hazardous liquids to Safety-Kleen for conversion into synthetic fuel for disposal at San Juan Cement.

PART C:

Pharmaceutical Building:

Waste products from this source consists of damaged containers, packaging materials, labels, and regular trash. No hazardous waste is produced in this facility.

A brief summary of the volumes of waste estimated to be generated from this source which could have been disposed of at the Barceloneta Municipal Landfill, is as follows:

<u>YEAR</u>	<u>SOLID WASTE-CUBIC YARDS PER WEEK</u>
1972	33
1973	33
1974	66
1975	66
1976	66
1977	66
1978	66
1979	66
1980	66
1981	33
1982	33
1983	33
1984	33
1985	33
1986	33
1987	66

700960

QUESTION NO. 7

Describe, in as much detail as possible, all facts concerning the arrangement you had with Browning Ferris Industries, the Municipality of Barceloneta or any other person that relate to the Barceloneta Landfill from 1970 through the present. Include any environmental permits, contracts or other documents your firm may have relevant to these arrangements.

RESPONSE

The Schering industrial complex began to dispose of its solid waste at Barceloneta Municipal Landfill, (BML) on August 1, 1975, (see Exhibit 10). Prior to that, and since the start-up of the plant late in 1971, the Manatí landfill was used (see Exhibit 11). A contractor used during that time interval to dispose of our solid waste was Chase Iron & Scrap Co., a firm which presently does not exist, (see Exhibit 12) and which was bought by BFI in 1978. A Mr. Ted Bunder and Anthony Paolillo are reported to have been owners of this company. Their whereabouts are unknown to us.

The Barceloneta Municipal Landfill was used up to March, 1986, (see Exhibit 13), at which time, we were notified about its temporary closure. Presently, and since July, 1987, we are utilizing the services of Andrés Reyes Burgos, Inc. for waste disposal (see Exhibit 14). This Company has informed us that they have never utilized the BML, (see Exhibit 15).

During the years from 1975 to July 1987, Schering employed its own resources as well as the services of Browning Ferris Industries, Inc. (BFI) for solid waste disposal, (see Exhibit 11). Contracts between Schering and the Barceloneta Municipal Government are identified as Exhibits 16, 1 Mar 75 to 1 Mar 76; Exhibit 17: 1 Aug 75 to 1 Aug 76; Exhibit 18: 1 Aug 78 to 31 Jul 80; and Exhibit 19: 1 Jan. 81 to 31 May 83. Contracts between Schering and BFI are identified as Exhibits 20, for 1979; 21, for 1980; 22 for 1982--indicating account numbers; 23, for 1984; 24 for 1985; 25, for 1986; and 26, for 1987. (Data for 1981 and 1983 could not be found).

In order to obtain information from BFI on which landfill and the specific location within the Barceloneta landfill where the Schering waste was deposited, we generated a letter to BFI requesting such details, (see Exhibit 27) on December 21, 1986. The response from BFI, dated January 22, indicates you will be informed directly in this matter, (See Exhibit 28). A similar request made to Andrés Reyes Burgos on December 29, 1986, (See Exhibit's 29), resulted in a response, dated January 5, 1987, in which they indicate that the Barceloneta Municipal Landfill has not been employed by their company for Schering waste. (See Exhibit 15).

700961

QUESTION NO. 8

Describe, in as much detail as possible, any information you may have concerning a manufacturing process your company uses known as "Super Seal". At a minimum, include information on:

- a. a description of this manufacturing process;
- b. waste streams produced by this process, and any analysis of this waste stream;
- c. an approximation of the amount of waste generated from 1970 through the present, and the amount of waste disposed of at Barceloneta Landfill.

RESPONSE

Our Company does not manufacture a product known as "Super Seal". We believe the name of the filtering aid Super-Cel, of which there are various types in use, may be the material confused for a product presumably manufactured at Schering, Manatí, by the name of "super seal".

The response to Question No. 6 provides information on the annual amounts produced dating back to 1974.

The nature and properties of Super-Cel types are shown in Exhibit 30. The analysis of the material, once used to filter out the discarded cells for recovery of the antibiotic laden broth, is shown in Exhibit 11. The material is not classified as hazardous before or after its use.

700962

QUESTION NO. 9

Describe the corporate relationship between Schering Corporation (Puerto Rico) and Schering Pharmaceutical Corporation (PR).

RESPONSE

Schering Corporation (Puerto Rico) was liquidated by merger into Schering-Plough Corporation on March 2, 1987.

Schering Pharmaceutical Corporation (PR) was incorporated in 1971. Five thousand (5,000) issued shares are owned by Schering-Plough Corp.

Thus, while they both existed, two entities were sister subsidiaries of Schering-Plough Corporation.

700963

QUESTION NO. 10

Identify all persons besides you that may have disposed or arranged for disposal or treatment of substances which may have contained hazardous substances at the Barceloneta Landfill. For each person identified, further identify:

- a. the persons with whom such an arrangement was made;
- b. the dates on which such disposal took place;
- c. the precise location at the site where substances were disposed;
- d. the chemical composition of the substances that were so disposed;
- e. the quantity of each of the substances so disposed; and
- f. all persons with information relating to this request.

RESPONSE

We have been unable to identify a waste material that could be classified as "hazardous" which was sent to the Barceloneta Municipal Landfill, or any other landfill, for that matter.

700964

QUESTION NO. 11

Identify all persons besides you that may have generated or transported substances which may have contained hazardous substances which were transported to the Barceloneta Landfill. For each person identified, further identify:

- a. the precise location at the site at which the substances were treated or disposed;
- b. the chemical composition of the substances that were so generated;
- c. the quantity of each of the substances so generated;
- d. all persons with information relating to this request; and
- e. the dates the transportation took place.

RESPONSE

We have been unable to identify any person that may have generated or transported hazardous substances to the Barceloneta Municipal Landfill.

700965

EXHIBIT No. 1

Customary Business Description : Product Information Note

Date : N/A

Number : Bulletin No. 5525

Identity of Author : American Norit Company, Inc.

Addressor : N/A

Addressee : N/A

Subject Matter : Defines characteristics of the
DARCO Activated Carbon.

700966

DARCO®

Activated Carbon

American Norit Company, Inc.

420 AGMAC AVENUE
Jacksonville, Fl. 32205

PRODUCT INFORMATION
Bulletin No. 5525

DARCO G-60
POWDERED ACTIVATED CARBON

DARCO G-60 is a premium purity grade of powdered activated carbon with high adsorptive capacity, superior filterability, and low retention of treated product. It is especially useful for treatment of valuable products of high purity to minimize contamination with inorganic substances such as iron, copper, calcium, sulfides and chlorides.

General Characteristics

pH (water extract)	Approx. 5.0
Bulk density, tamped (lbs/cu.ft.)	Approx. 25
Mesh size, % thru 100	Approx. 95
% thru 325	Approx. 70
Acid solubles, %	Approx. 1.0
Ash, %	Approx. 3.5

Specifications

Relative efficiency (molasses solution)	115 min.
Filterability (water), sec/ml/cm	0.6 max.
Moisture, % as packed	12.0 max.
Water solubles, %	0.3 max.

Safety

CAUTION, avoid inhalation of excessive carbon dust. Use forced ventilation or dust masks when necessary. For protection against airborne nuisance dust (carbon) exposures, see Code of Federal Regulations-Title 29, Subpart Z, Par. 1910.1000.

700967

EXHIBIT No. 2

Customary Business Description : Memorandum, Internal

Date : December 22, 1987

Number : N/A

Identity of Author : I. Lassalle/S. Silva

Addressor : I. Lassalle/S. Silva

Addressee : J. Villaverde

Subject Matter : Characterization of DARCO G-60 and
Granular DARCO

700968

TO: J. Villaverde

FROM: I. Lassalle/S. Silva

SUBJECT: Characterization of Darco G-60 and Granular Darco

REFERENCE:

DATE: December 22, 1987

COPIES: I. Quiñones

During the Netilmicin, Gentamicin and/or Sisomicin purification steps, the sulfate form of the aminoglycoside antibiotic is decolorized with Darco. The acidified solution (pH 4.5 to 5.0) is recirculated through the Darco (either through a Darco column as with the granular Darco or through a sparkler as with the G-60 Darco) until the color is reduced to a specified level (determined by the APHA reading). The Darco waste, therefore, will contain mostly color bodies coming from degraded antibiotic, traces of acid and traces of antibiotic. Since the Darco is washed thoroughly with water after used, these non-hazardous residues will be found only in traces.

If you have any questions concerning this subject, please contact me at Ext. 2361.


IVONNE LASSALLE


SERGIO A. SILVA-RUIZ, Ph.D.

IL/SASR/meg

700969

EXHIBIT No. 3

Customary Business:
Description : Letter

Date : August 31, 1981

Number : N/A

Identity of:
Author : Scott W. Rampenthal, Lab Supervisor

Addressor : Environmental Analysis & Design, Inc.

Addressee : Schering Corporation (Puerto Rico)

Subject
Matter : Contains a laboratory analysis of the
Micromonospora (Mycelia), indicating it
is not a hazardous waste.

700970



environmental analysis & design, inc.

a subsidiary of PBS&J

Rec'd 7/15/81 *File 11/11*

*cc: M. Centeno
W. Ronca
T. R. Contoso
T. Medina
S. Gordon*

August 31, 1981

FILE COPY

Code: 1301736

Mr. Miguel Cordoves
Schering Corporation (Puerto Rico)
Post Office Box 486
Manati, Puerto Rico 00701

SEP 17 1981

Film & Return
This copy must be coded
and sent to file within
6 days from date rec'd.

MISCELLUM

Dear Mr. Cordoves:

Enclosed is the report of analysis on the Micromonospora sample received on August 11, 1981. Based on the results of the analyses, this material would not be classified as a hazardous waste under current EPA criteria.

If you have any questions, please contact us.

Respectfully,

ENVIRONMENTAL ANALYSIS & DESIGN, INC.

[Signature]
Scott W. Rampenthal
Laboratory Supervisor

SWR/tah
Enclosure

cc: John Dollar
Wayne Aldridge

700971

4720 n. orange blossom trail, orlando, florida 32804
305/295-4131



environmental analysis & design, inc.
a subsidiary of PBS&J

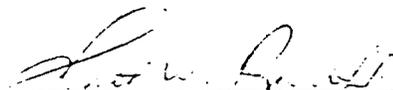
SCHERING CORPORATION
EAD PROJECT NO. 000-128.05
REPORT OF ANALYSIS
SAMPLING DATE - August 7, 1981

Micromonospora

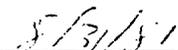
Ignitability (°C)	>60
Corrosivity (pH)	2.85
Reactivity	Non-Reactive @ 125 °C

EP TOXICITY

Arsenic (mg/l)	0.010
Barium (mg/l)	<0.15
Cadmium (mg/l)	<0.010
Chromium (mg/l)	0.12
Lead (mg/l)	0.06
Mercury (mg/l)	<0.0002
Selenium (mg/l)	<0.010
Silver (mg/l)	<0.03
Toxaphene (mg/l)	<0.25
Endrin (mg/l)	<0.01
Lindane (mg/l)	<0.02
Methoxychlor (mg/l)	<0.25
2, 4-D (mg/l)	<5.0
Silvex (mg/l)	<0.5



Scott W. Rampenthal
Laboratory Supervisor



Date

Florida DHRS # 83170

700972

4720 n: orange blossom trail, orlando, florida 32804
305/295-4131

E X H I B I T N o . 4

Customary Business Description : Internal Memorandum

Date : August 11, 1975

Number : N/A

Identity of Author : R. Fuchs

Addressor : R. Fuchs

Addressee : Dr. C.A. Page

Subject Matter : Discusses the possibility of using Mycelia as a fertilizer, and analyzes is characteristics.

700973

TO: Dr. C. A. Page
 FROM: R. Fuchs
 SUBJECT: Composition of Filtered Mycelium
 REFERENCE:

DATE: August 11, 1975
 COPIES: E. Marrero

Upon your request the mycelium as it comes off the filter press was analyzed. The possibility of using the mycelium as a possible fertilizer source determined the type of analysis performed.

Three batches were analyzed. The variation in the results from batch to batch is minimum, therefore, the average of the results is presented.

The average humidity of the mycelium - filter aid mix ranges from 55 to 60%. On a dry basis the composition of the solids is as follows:

Content In Dry Mycelium-
Filter Aid Mixture

<u>Component</u>	<u>%</u>	<u>g/Kg</u>
Filter Aid ⁽¹⁾	34.0	340
Proteins	13.5	135
Estimated Nitrogen From Protein Content (Protein + 6.25)	2.22	22.2
Total Carbohydrates	8.09	80.9
Total Phosphate	0.88	8.8
Phosphorus		
Inorganic	0.21	2.1
Total	0.29	2.9
Potassium	0.03	0.3
Free Ammonia (as NH ₃)	0.037	0.37
Ammonia N (as N)	0.03	0.3

700974

SCHERING MANATI, INC.
FERMENTATION PLANT

El siguiente es un listado de los sacos vacíos y/o envases vacíos descartados y echados en el "Dumper" de la Planta de Fermentación.

1970 to 1980

1981 to Date

MATERIAL	TIPO DESPERDICIO	MATERIAL	TIPO DESPERDICIO
Soy Grits	Bolsa	Harina de Arroz	Bolsa
Dextrin	Bolsa	Harina de Soya	Bolsa
Cerelosa	Bolsa	Dextrin	Bolsa
Carbonato de Calcio	Bolsa	Cerelosa	Bolsa
DL-Methionine	Bolsa	Carbonato de Calcio	Bolsa
Sulfato de Sodio	Bolsa	DL-Methionine	Bolsa
Tiosulfato de Sodio	Bolsa	Sulfato de Sodio	Bolsa
Acido Oxálico	Bolsa	Acido Oxálico	Bolsa
Almidón de Papa	Bolsa	Microbiotone	Drones Cartón
Peptona de Pescado	Bolsa	Hidrolizado de Caseína	Drón Cartón
Meat Solubles	Bolsa	Hidrolizado de Levadura	Drón Cartón
Microbiotone	Drones Cartón	SAG-471	Drón Metal
Hidrolizado de Caseína	Drón Cartón	HODAG-M10	Drón Metal
Hidrolizado de Levadura	Drón Cartón	Corn Steep Liquor	Drón Metal Tap.
SAG-471	Drón Metal Tapa	Cotton Seed Meal	Bolsa
HODAG-M10	Drón Metal Tapa	Sulfato Ferroso	Drón Cartón
Corn Steep Liquor	Drón Metal Tapa	Sulfato de Magnesio	Drón Cartón
Lard Oil	Drón Metal Tapa	Fosfato Dipotacio Dibásico	Drón Cartón
Harina de Soya	Bolsa	AF-60	Drón Metal Tap
AF-60	Drón Metal Tapa		

700976

EXHIBIT No. 6

Customary Business Description : Internal Memorandum

Date : December 23, 1982

Number : N/A

Identity of Author : N. Reyes

Addressor : N. Reyes

Addressee : Attendees of a referred meeting

Subject Matter : Procedure for cleaning and crushing of used drums prior to disposal in an authorized municipal landfill.

700977

TO: Attendees

DATE: December 23, 1982

FROM: N. Reyes 

COPIES:

SUBJECT: MINUTES

REFERENCE:

A meeting was held last Wednesday, December 22, 1982, at 9:00 A.M. in the Conference Room of the New Plant to decide on an area where the empty drums from production could be stored.

Attendees: M. Cordovés, Safety Manager
J. DiMaria, Materials Management Manager
G. Marrero, Warehouse Supervisor
J. Molina, Technical Services Manager
L. Santiago, Central Weighing Supervisor
R. Toro, Environmental Engineer
N. Reyes, Warehouse Manager

Agreements reached:

1. J. Molina and R. Toro will make an inspection of the empty drums now in storage to properly identify their contents:
2. A recommendation was made to use the paved area in front of the Accounting Department and on the east side of the Steroids/Netilmicin parking lot to transfer the drums and set up their storage there. Dr. Cieciora will be contacted upon his return from vacation to make the final decision regarding this matter.
3. The production plants should be in charge of emptying and washing the drums.
4. J. Molina and R. Toro will be in charge of the disposition of the residual material in the drums.
5. J. Molina and R. Toro will prepare a report to make recommendations as to the disposal of the contents and the drums.
6. N. Reyes will prepare a written procedure once the final decisions and agreements are ready for implementation.
7. Production departments will determine their particular areas to store the drums to be destroyed duly identified, washed and ready to be picked up by warehouse personnel. J. Molina will contact the departments to decide on these areas.

Another meeting has been planned to continue discussing these matters. The date and hour will be notified as soon as they are set.

700978

NR/lb

EXHIBIT No. 7

Customary Business Description : Internal Memorandum

Date : July 12, 1983

Number : N/A

Identity of Author : Rafael Toro (Environmental Section)

Addressor : Same

Addressee : Various

Subject Matter : Definition for procedure for the
cleaning and disposal of empty drums.

700979

TO: See Distribution

FROM: Rafael Toro

SUBJECT: Clean-up, Labeling and Disposal
of Used Drums

REFERENCE:

DATE July 12, 1983

COPIES S.J. Cieciora ✓
J.J. Molina ✓
N. Reyes

Distribution: C. Alvarado, M. Centeno, V. Colón, R. García, G. López,
R. Rivera, Z. McCoy

The purpose of this memorandum is to request from you a written procedure for the clean-up, labeling and disposal of used drums in your area. For this, I recommend that you establish in your procedure that as soon as a drum's containment is used, it be treated as follows:

1. Finish emptying the drum, if it still contains material. If the material is an organic solvent it must be disposed down the H.S.W. stream at the Steroids Process Bldg.
2. Rinse twice with water and pour down an aqueous waste drain. If the material in the drum is an organic solvent pour the rinsing water down the C.S.W. stream at the Steroids Process Bldg.
3. Erase/paint all labels and specifications that the drum had from its manufacturer and/or our Q.C. Labs.
4. Label (Paint) outside the drums a sign saying "EMPTY" and "CLEAN". If the drum contained organic solvents include a sign saying "FOR DISPOSAL".
5. Store the empty/clean drums in a specified area. (Do not re-use drums labeled "empty, clean" and "for disposal". If you do, make sure to erase everything and write on the outside the new content).
6. After you store several drums call Warehouse personnel (Mr. Marrero or Mr. Rivera) and arrange disposal of the empty and clean drums at the Barceloneta Landfill.

If you have any question, let me know.


Rafael Toro

RT:ar



700980

EXHIBIT No. 8

Customary Business Description : Internal Memorandum

Date : December 16, 1987

Number : N/A

Identity of Author : Z. McCoy

Addressor : Z. McCoy

Addressee : L. Cerqueira

Subject Matter : Procedure for sending all empty drums to Safety-Kleen for cleaning, crushing, and disposal.

700981

TO: L. Cerqueira
FROM: Z. McCoy
SUBJECT: Drum Handling
REFERENCE:

DATE: December 16, 1987
COPIES: M. Bante
G. Marrero
L. Santiago
J. Del Prado

In order to assure an operational procedure for drum disposal, a meeting was held and the following was established:

- All empty drums will be picked up before 10:00 A.M., on a daily basis.
- Drums will be stored at the empty drums area in the north side of Warehouse.
- Safety Klean will come once a week (Wednesday or Thursday) to pick up drums from the above mentioned area. G. Marrero should contact C. Cordero for the coordination with Safety Klean.
- Central Weighing Area is in charge of drums generated by Netilmicin and Steroids, while Central Warehouse will be responsible for SPCPR and Wesley Jessen drums.

Kindly,

Z. McCoy
Z. McCoy

ol

700982

E X H I B I T N o . 9

Customary Business:
Description : Letter

Date : December 14, 1987

Number : N/A

Identity of:
Author : Daniel Pagan

Addressor : Safety-Kleen Envirosystems Co.

Addressee : Carlos Jimenez (Schering Env. Manager)

Subject
Matter : Procedure employed by Safety-Kleen for
cleanup, crushing and disposal of empty
drums.

700983



SAFETY-KLEEN ENVIROSYSTEMS COMPANY OF P.R. INC
PLANT LOCATION: KM. 51 HIGHWAY 2
P.O. BOX 1098, MANATI, P.R. 00701 TEL. (809) 854-1090

December 14, 1987

Mr. Carlos Jimenez
Environmental Engineer
Schering Pharmaceutical
P.O. Box 486
Manati, P.R. 00701

RE: Standard Operating Procedure
Covering the Handling and
Cleaning Empty Drums

Dear Mr. Jimenez:

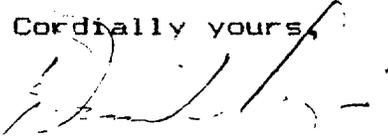
Enclosed please find the standard operating procedure covering the handling of empty drums at our Manati solvent recovery facility (see attachment #1). The procedure under consideration have been written in order to ensure full compliance with all applicable environmental regulations.

Safety Kleen Envirosystems have been engaged in the handling, decontamination and disposal of the empty drums generated by Schering since 9/11/86.

In addition, please note that all empty cleaned and fully decontaminated drums are being shipped to the Arecibo and/or Toa Baja land fills. This action have been contracted with BFI Company.

If additional information in regard to this subject is needed please do not hesitate to contact us.

Cordially yours,


Daniel Pagan
Vice President/General Manager

DP/vmr

Attachment

700984

WAREHOUSE AND DRUM CLEANING STANDARDS OPERATING PROCEDURE

CUSTOMER NAME _____
 MANIFEST NO. _____
 DATE _____
 TOWN _____
 DRIVER NAME _____

DATE - TIME - SIGNATURE

INSTRUCTIONS

OPERATING COMMENTS

1. Verify that manifest complies with regulations:

	YES	NO	COMMENTS
a) Completeness of manifest.	_____	_____	_____
b) Volume information is accurate.	_____	_____	_____
c) Material shipped with the proper EPA/DOT shipping name.	_____	_____	_____
2. Unload the drums from the container. In the event there is a drum leaking; (transfer the contents to an over pack drum).	_____	_____	_____

3. Description of material received at warehouse:

<u>NAME OF PRODUCT/WASTE</u>	Amount 55 gal drums	Fails
-Waste 111-Trichloroethane	_____	_____
-Waste flammable liquid, NCS.	_____	_____
-Waste Methylene Chloride	_____	_____
-Hazardous Waste liquid, NCS	_____	_____
-Waste Combustible liquid	_____	_____
-Other _____	_____	_____
-Other _____	_____	_____
Empty Containers	_____	_____

4. Verify that drums have the needed hazardous waste labels.

5. Drum sampling

Sample all the drums received.

6. Pump the wastes from drum to quantity of drums pumped. T- _____

7. Open the emptied drum. _____

COMMENTS

DATE - TIME - SIGNATURE

8. Clean the drum with required solution.
9. Steamed the cleaned drums.
10. Cool the steamed drum with air.
11. Take out the labels of the drum.
12. Put the cob inside the drums.
13. Crush the cleaned drums.

File - Contract

ESTADO LIBRE ASOCIADO DE PUERTO RICO
GOBIERNO MUNICIPAL
BARCELONETA, PUERTO RICO

CONTRATO POR USO DEL VERTEDERO MUNICIPAL DE BARCELONETA

En virtud de este contrato celebrado en la ciudad de Barceloneta, Puerto Rico a los 1 días del mes marzo de 1974 entre el Municipio de Barceloneta representado por el Alcalde como primera parte y la firma contratante Schering Corporation (Puerto Rico) como segunda parte, queda estipulado y convenido lo siguiente:

PRIMERO: La Segunda Parte, depositará en el Vertedero Municipal únicamente desperdicios sólidos. Usará su propio equipo con su propio personal correrá con todos los riesgos que ocasionen dentro y fuera del Vertedero.

SEGUNDO: La Primera Parte, se compromete a mantener en uso el equipo necesario para el relleno sanitario dentro del Vertedero y que el horario de trabajo sea aceptable por la Segunda Parte.

TERCERO: Este contrato no podrá ser traspasado en todo ni en parte a otra persona o entidad sin el consentimiento escrito de la Primera Parte.

CUARTO: Ninguna persona que esté empleada al servicio del Gobierno de Puerto Rico o de cualquiera de sus dependencias o instrumentalidades, podrá tener interés en este contrato o participación en los beneficios que del mismo se deriven.

QUINTO: La descripción por el Uso y Arrendamiento del Vertedero Municipal con todos los detalles y especificaciones que permitan fijar cabalmente las obligaciones de la firma o entidad contratante serán las siguientes:

1- Este contrato regirá por un término de 1 AÑO vigente desde el 1 de marzo de 1974 hasta el día 1 del marzo de 1975.

2- La Segunda Parte o sea la firma o entidad contratante pagará al Municipio de Barceloneta en cheque certificado o en moneda legal de los Estados Unidos la cantidad de \$600.00 Dólares mensualmente.

3- Todo cheque deberá girarse a nombre del municipio de Barceloneta o el pago cash se hará ante el Tesorero Municipal mediante el recibo correspondiente.

4- La firma o entidad contratante hará un pago anticipado equivalente al pago mensual a la fecha del envío de este contrato.

5- Este contrato podrá ser rescindido por las partes previa comunicación a los efectos con un mes de anticipación.

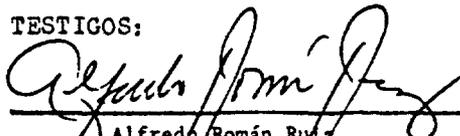
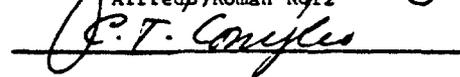
6- Este contrato podrá ser renovado a su vencimiento sin previa notificación.

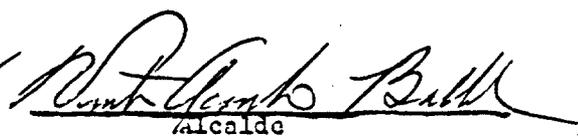
7- La Segunda Parte o sea la firma o entidad contratante deberá estar provista de un Seguro contra todo riesgo.

8- La Segunda Parte enviará al Sr. Alcalde una relación escrita de qué entidad o industrias proceden los desperdicios sólidos a depositarse en el Vertedero Municipal.

EN TESTIMONIO DE LO CUAL: las partes contratantes firman el presente documento en la fecha antes mencionada.

TESTIGOS:


Alfredo Román Ruiz



Alcalde

Contratista

700998

EXHIBIT No. 11

Customary Business Description : Internal Memorandum

Date : January 18, 1983

Number : N/A

Identity of Author : R. Toro (Environmental Section)

Addressor : Same

Addressee : J.J. Molina

Subject Matter : Indicates use of the Barceloneta Municipal Landfill up to that time, and attaches a characterization of the filter cake (Mycelia with filter aids), indicating it is NOT hazardous.

700989

TO: J. J. Molina
FROM: R. Toro
SUBJECT: Barceloneta's Landfill
REFERENCE:

131920
JAN 19 1983
RECEIVED
J.M.

DATE: January 18, 1983

COPIES: S. Gordon
B. Manners
W. Ronca
Dr. S. Cieciora

Following is the information requested by Barbara Manners and necessary to answer the letter from Mr. José Madera, Administrator of Puerto Rico's Economic Development Program.

We started dumping at Barceloneta's Municipal Landfill on August 1, 1975. Attachment I is a copy of the first contract between the Municipal Government and Schering. Before that time, and since the start-up in late 1971 we used Manati's Landfill. We changed to Barceloneta because of access facilities problems at Manati.

Right now, we have a contract that expires on May 31, 1983. This contract was cancelled when we stopped generating filtercake wastes in the summer of 1982. We will have to re-activate it for the Sisomicin batches that will be filtered next month.

I have estimated the total quantity of filtercake wastes dumped at Barceloneta from August, 1975 to July, 1982 to be 33,000 m³.

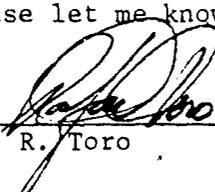
Attachment II presents the results of analyses performed on the filtercake. Based on these results, the filtercake would not be classified as a hazardous waste under current EPA criteria. Even though, its pH is very low, it is still over the limit of 2 for hazardous wastes.

The filtercake waste is composed of inorganic, non-soluble material wetted with fermentation broth. Attachment III shows analyses of broth which were included in the barging permit.

From verbal communication from two drivers who used to take the filtercake to Barceloneta, there is a section where the filtercake waste was always dumped. Other dumpers used this same place also. This area is what they call the second section of the site and describe as a big hole between mountains where a trascalvator distributed the waste through the area.

The other wastes that we dump at Barceloneta are those trucked by Browning Ferris Industries, Inc. (BFI). These are cardboards, paper, rags, broken glass and plastic bags.

If you need additional information, please let me know.


R. Toro

RT/iv
Att.

700990



ATTACHMENT II

environmental analysis & design, inc.

a subsidiary of PBS&J

SCHERING CORPORATION
EAD PROJECT NO. 000-128.05
REPORT OF ANALYSIS
SAMPLING DATE - August 7, 1981

Micromonospora

Ignitability (°C) >60
Corrosivity (pH) 2.85
Reactivity Non-Reactive @ 125 °C

EP TOXICITY

Arsenic (mg/l) 0.010
Barium (mg/l) <0.15
Cadmium (mg/l) <0.010
Chromium (mg/l) 0.12
Lead (mg/l) 0.06
Mercury (mg/l) <0.0002
Selenium (mg/l) <0.010
Silver (mg/l) <0.03
Toxaphene (mg/l) <0.25
Endrin (mg/l) <0.01
Lindane (mg/l) <0.02
Methoxychlor (mg/l) <0.25
2, 4-D (mg/l) <5.0
Silvex (mg/l) <0.5

Scott W. Rampenthal
Laboratory Supervisor

Date

Florida DHRS # 83170

700991

EXHIBIT No. 12

Customary Business Description : Letter

Date : October 20, 1978

Number : N/A

Identity of Author : M. Dick Winter, President

Addressor : Browning-Ferris Industries of P.R. Inc.

Addressee : All clients of Chase Scrap and Disposal Inc.

Subject Matter : Indicates they will take over work previously done by Chase, since they bought them. Up to that time, Chase was disposing of Schering's trash.

700992



Browning-Ferris Industries of P.R. Inc.

WASTE SYSTEMS DIVISION

October 20, 1978

Dear Customer:

Effective October 20, 1978, BROWNING-FERRIS INDUSTRIES OF PR, INC., has purchased the assets and contracts of Chase Scrap and Disposal, Inc. BFI will continue giving the same fine service you had received in the past. In the near future we will be visiting with you to discuss your current and future service requirements. BFI is the largest waste disposal company in the world and has been operating in Puerto Rico since 1963. We will continue to service you from our Barceloneta Branch (formerly Chase Scrap).

For the month of October the enclosed invoice from Chase Scrap is as follows:

1. For equipment - rental for the whole month of October.
2. For service - For loads from October 1st thru October 20th.

Please send your check for October service to Chase Scrap at their normal address. Do not worry if you send it to us, we will be glad to see that they get it. Beginning next month your invoice will come from BFI. Equipment rental for the complete calendar month, service from the 20th of the preceding month to the 20th of the current month. All service received after the 20th of the month will be on the following month invoice.

Since we are on a computer billing system, we ask that you forward a new purchase order number so that we can input it to our computer system and get you on our insurance coverage. If you desire to continue using the same purchase order number, please confirm this to us.

I would like to take this opportunity to welcome you to our BFI family. We appreciate you as our customer and we look forward to a long and good relationship. Please let me personally know if you have any problem at any time.

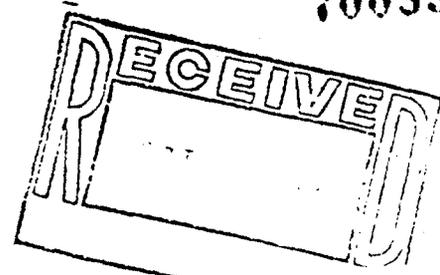
Sincerely yours,

BROWNING-FERRIS INDUSTRIES OF PR INC.

M. Dick Winter
President

W/smv

Enclosure: October invoice from
Chase Scrap and Disposal, Inc.



November 16, 1972

Chase Scrap & Disposal, Inc.
P. O. Box 13372
Santurce, Puerto Rico 00908

Dear Sir:

To clarify the service requested by us on our Purchase Order No. 72198, we require pickup and delivery of containers twice a week specifically on Tuesdays and Fridays.

Thank you for your cooperation in this matter.

Sincerely yours,

SCHERING CORPORATION (PUERTO RICO)



James R. Confroy
Production Manager

/ag

cc: A. Roman
L. Jiménez

700994

E X H I B I T N o . 13

Customary Business Description : Letter

Date : March 6, 1986

Number : N/A

Identity of Author : Daniel Rivera, General Manager

Addressor : Browning-Ferris Industries of P.R. Inc.

Addressee : Schering Corporation P.R. Inc.

Subject Matter : Indicates the Arecibo Landfill will be used due to the closing of the Barceloneta and Manati Landfills.

700995



6 de marzo de 1986

SCHERING CORPORATION P.R., INC.
 P.O. Box 486
 Manatí, PR 00701-0486

ATENCION: Ing. José Del Prado
 Gerente de Mantenimiento

Estimado señor Del Prado:

Confirmamos nuestra entrevista reciente en relación al cierre de los vertederos de Manatí y Barceloneta y su efecto en nuestras respectivas operaciones. Reconociendo nuestro compromiso con nuestros clientes, tan pronto como nos enteramos del cierre hicimos los arreglos necesarios con el vertedero de Arecibo para depositar allí los desperdicios de su planta. Por supuesto, la distancia es más de tres veces la original, haciendo necesario añadir más camiones y personal para cubrir la ruta, de manera que no se afectaran las operaciones de las distintas plantas que servimos. De la misma forma, el costo de disponer de sus desperdicios en este vertedero (Arecibo) es más de tres veces mayor.

Confirmando lo acordado durante nuestra entrevista, Browning-Ferris Industries, absorberá un poco más de la mitad de estos costos adicionales y cargaremos la diferencia a nuestros clientes.

En su caso particular el efecto de aumento será el siguiente:

SISTEMA DE ROLL-OFF (Compactadores, etc.)

<u>CUENTA NO.:</u>	<u>SERVICIO</u>	<u>AUMENTO</u>
973008-001	1 - 42 on call	\$114.00 cada recogido
976605-001	1 - 33 on call	\$118.00 cada recogido

SISTEMA DE F.E.L. (Cajas pequeñas)

972992-001	1 - 3 x 3	\$ 75.00 mensual
976902-001	1 - 8 x 5	\$119.00 mensual
976902-002	1 - 8 x 1	\$ 29.00 mensual
976902-003	1 - 3 x 2	\$ 50.00 mensual
976902-004	1 - 8 x 1	\$ 29.00 mensual
976902-005	1 - 8 x 3 & 1 - 8 x 2	\$120.00 mensual
	1 - 4 x 2	\$ 43.00 mensual

Cont./....

700996

Schering Corporation P.R., Inc.
c/o Ing. José Del Prado
Página 2
6 de marzo de 1986

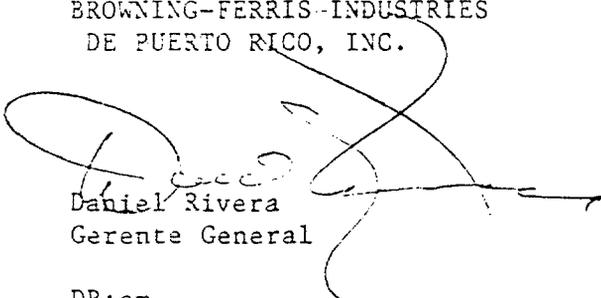
Si re-abrieran los vertederos locales volveríamos a los cargos originales. Sin embargo, tomando en consideración la posibilidad de que el vertedero de Arecibo podría decidir no aceptar más los desperdicios de Manatí y Barceloneta, consideramos que sería conveniente pensar en otras alternativas. Por parte nuestra hemos ordenado más camiones a nuestra oficina matriz, para así poder afrontar cualquier emergencia adicional.

Confirmamos además, el plan discutido de organizar una reunión con los representantes de cada planta para planificar una forma de solución al problema. Durante la próxima semana le informaremos en cuanto al día y lugar donde celebraremos la reunión.

Nos complace servirles.

Sinceramente,

BROWNING-FERRIS-INDUSTRIES
DE PUERTO RICO, INC.



Daniel Rivera
Gerente General

DR:am

cc: Sr. Benjamín Cierra

700997



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

CHANGE ORDER

PURCHASE ORDER

P61-0309-S

This number MUST appear on all correspondences, invoices, shipping papers and packages

ONE: (809) 854-2700
 721-1185
 721-1545
 TELEX: 385-9243

P.O. BOX 486 - MANATI - PUERTO RICO - 00701 - 0486

PAGE _____ OF _____

Browning Ferris Industries
 P.O. Box 29499
 Rio Piedras, P.R. 00929

DATE 2-18-86
 SHIP TO: SCPR

Route 686, Km. 0.5
 Manati, Puerto Rico 00701-0486

773 No.	Terms 30D	FOB Manati	Route:	Appr. Req. No.	Date Required 2-18-86
---------	-----------	------------	--------	----------------	-----------------------

Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	Extended Amount																																																								
2341	3104		PURCHASE ORDER CHANGE Change order issued to correct price. To cover the cost of Waste Removal Services from Jan. 1, 1986 thru December 31, 1986. Fermentation Plant - 42 cu.yd. Monthly charges: Pick-ups: Dumping Fees																																																											
			<table border="0"> <tr> <td>Qt.</td> <td>Cu.</td> <td>Yd.</td> <td>Weekly Pick-ups</td> <td></td> <td></td> <td></td> </tr> <tr> <td>1</td> <td>8</td> <td></td> <td>3-Quality Control</td> <td></td> <td>250.00</td> <td></td> </tr> <tr> <td>1</td> <td>8</td> <td></td> <td>5-Cafeteria</td> <td></td> <td>395.00</td> <td></td> </tr> <tr> <td>1</td> <td>8</td> <td></td> <td>1-Chemical Plant (M)</td> <td></td> <td>97.00</td> <td></td> </tr> <tr> <td>1</td> <td>8</td> <td></td> <td>2-Maintenance (Tuesday & Thursday)</td> <td></td> <td>168.00</td> <td></td> </tr> <tr> <td>1</td> <td>8</td> <td></td> <td>1-Utilities (Monday)</td> <td></td> <td>97.00</td> <td></td> </tr> <tr> <td>1</td> <td>8</td> <td></td> <td>3-Std./Netil.</td> <td></td> <td>401.00</td> <td></td> </tr> <tr> <td>1</td> <td>8</td> <td></td> <td>2-Std./Netil (Tuesday & Thursday)*</td> <td></td> <td></td> <td></td> </tr> </table>	Qt.	Cu.	Yd.	Weekly Pick-ups				1	8		3-Quality Control		250.00		1	8		5-Cafeteria		395.00		1	8		1-Chemical Plant (M)		97.00		1	8		2-Maintenance (Tuesday & Thursday)		168.00		1	8		1-Utilities (Monday)		97.00		1	8		3-Std./Netil.		401.00		1	8		2-Std./Netil (Tuesday & Thursday)*				MT1-15		
Qt.	Cu.	Yd.	Weekly Pick-ups																																																											
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1	8		2-Std./Netil (Tuesday & Thursday)*																																																											
MT/gb			* \$414.00 includes both S/W weely pick-ups. Extra pick-ups:																																																											

Rampfley
 2/25/86

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID.	TOTAL ▶
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Invoices must be rendered in duplicate, for each shipment and each purchase order.

NO DELIVERIES AFTER 3:30 P.M. OR SATURDAYS

Invoice items in same order as described above. ALL DOCUMENTS RELATING TO THIS ORDER SHALL INDICATE WHETHER COMPLETE OR PARTIAL SHIPMENT.

Goods subject to our inspection notwithstanding prior payment in order to obtain discount.

Use separate invoices for each purchase order. Do not combine purchase orders on one invoice.

SCHERING

By _____
 Signature

700998



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

CHANGE ORDER

PURCHASE ORDER

P64-0030-S

This number MUST appear on all correspondences, invoices, shipping papers and packages.

PHONE: (809) 854-2700
 721-1185
 721-1545
 TELEX: 385-9243

PO BOX 486 - MANATI - PUERTO RICO - 00701 - 0486

PAGE _____ OF _____

Browning-Ferris Industries
 P.O. Box 29499
 Rio Piedras, P.R. 00929

DATE 2-18-86

SHIP TO: SPCTR

Route 686, Km. 0.5
 Manati, Puerto Rico 00701-0486

Order No. 0775	Terms: N/30D	F.O.B. City: Manati	Route:	Appr. Req. No.:	Date Required: 2-18-86
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Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	Entered Amount
9322	3104		PURCHASE ORDER CHANGE Change order issued to add unit price: To cover the cost of Waste Removal Services from Jan. 1, 1986 thru Dec. 31, 1986. Pharmaceutical Plant - 33 cu.yd. Monthly charges: Pick-ups: Dumping Fees	MT1-23	\$413.00 114.00 35.00	
- MT/cb						

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID.

TOTAL ▶

Invoices must be rendered in duplicate for each shipment and each purchase order.

NO DELIVERIES AFTER 3:30 P.M. OR SATURDAYS

Invoice terms in same order as described above. ALL DOCUMENTS RELATING TO THIS ORDER SHALL INDICATE WHETHER COMPLETE OR PARTIAL SHIPMENT.

Goods subject to our inspection notwithstanding prior payment in order to obtain discount.

Use separate invoices for each purchase order. Do not combine purchase orders on one invoice.

SCHERING

By _____

Signature

700999



SCHERING

- CORPORATION (PUERTO RICO)
 - ANTIBIOTIC CORPORATION
 - INDUSTRIES, INC.
 - BIOCHEM CORPORATION
 - INDUSTRIAL DEVELOPMENT CORPORATION
 - PHARMACEUTICAL CORPORATION (P.R.)
- S-P PRODUCTS INC.**

CHANGE ORDER

PURCHASE ORDER

P63-0058

This number MUST appear on all correspondences, invoices, shipping papers and packages.

PHONE: (809) 854-2700
721-1185
721-1545
TELEX: 385-9243

PO BOX 486 MANATI PUERTO RICO 00701-0486

PAGE _____ OF _____

DATE: 2-17-86

Browning Ferris Industries
P.O. Box 29499
Rio Piedras, P.R. 00929

SHIP TO: S-P PRODUCTS INC.

Route 686, Km. 0.5
Manati, Puerto Rico 00701-0486

Order No. 0775	Terms N/30D	FOB Manati	Route	Appr. Req. No.	Date Received 2-17-86
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Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	Extended Price
9350	4104		<p>PURCHASE ORDER CHANGE</p> <p>To cover the cost of trash removal services from Jan. 1, 1986 thru December 31, 1986.</p> <p>Qty. Cu.Yd. Weekly Pick-ups</p> <p>1 4 2 S-P Products (Monday & Thursday)</p> <p>CHANGE ORDER ISSUED TO ADD UNIT PRICE.</p>	MT1-26	\$144.00	
MT/Couvertie/gb						

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID.

TOTAL ▶

Invoices must be rendered in duplicate, for each shipment and each purchase order.

NO DELIVERIES AFTER 3:30 P.M. OR SATURDAYS

Invoice items in same order as described above. ALL DOCUMENTS RELATING TO THIS ORDER SHALL INDICATE WHETHER COMPLETE OR PARTIAL SHIPMENT.

Goods subject to our inspection notwithstanding prior payment in order to obtain discount.

Use separate invoices for each purchase order. Do not combine purchase orders on one invoice.

SCHERING

By _____
Signature

701000

E X H I B I T N o. 14

Customary Business Description : Contract

Date : June 1, 1987

Number : N/A

Identity of Author : Andres Reyes Burgos, President

Addressor : A. Reyes Burgos, Inc.

Addressee : Schering, Manati

Subject Matter : Contract for the disposal of trash from
June, 1987 to June 1988.

701001

SERVICE AGREEMENT

This Agreement is effective as of the 1st. day of JUNE, 1987, between SCHERING MANATI a New Jersey corporation with offices at UNION, New Jersey (hereafter called SCHERING) and A. REYES BURGOS INC., a WASTE DISPOSAL corporation with offices at 371 BARBOSA ST. CATANO, P.R. (hereafter called CONTRACTOR).

1.0 SERVICES

1.1 CONTRACTOR agrees to perform the services described in Exhibit A attached hereto and made a part hereof (hereafter called Services).

1.2 The Services are to be performed at SCHERING's MANATI facilities.

1.3 No part of the Services shall be subcontracted without the express written approval of SCHERING. All approved subcontractors shall be bound by the terms and conditions of this Agreement.

2.0 TERM

2.1 The term of this Agreement is from JUNE 87 to JUNE 88. Notwithstanding anything in this Agreement to the contrary, SCHERING may terminate this Agreement at any time, upon thirty (30) days' written notice to CONTRACTOR.

3.0 PAYMENT

3.1 SCHERING agrees to pay CONTRACTOR the sum of \$ (SEE QUOTE 2/23/87) dollars) in consideration for the Services. Payment shall be made by SCHERING within thirty (30) days of its receipt of an invoice from CONTRACTOR.

4.0 WARRANTIES

4.1 CONTRACTOR warrants that it shall perform all Services in a professional and workmanlike manner and that it possesses any and all licenses necessary to perform the Services and that such licenses will be in effect for the entire term of this Agreement.

4.2 CONTRACTOR warrants that all materials, items furnished or installed and all workmanship is of the highest quality obtainable. CONTRACTOR shall repair, replace or reperform as deemed necessary by SCHERING, any of the Services that are found lacking or defective, without additional cost to SCHERING.

U/CNSV0062A
5/86

701002

Federal Occupational Safety and Health Act of 1970, as amended, the Fair Labor Standards Act, Fair Employment Practices Law and the Equal Pay Act. Where applicable, CONTRACTOR shall comply with Executive Order 11246; the Rehabilitation Act of 1973 and the Vietnam Era Veteran Reajustment Assistance Act.

17.0 GOVERNING LAW

17.1 The rights and obligations of the parties to this Agreement shall be construed in accordance with the laws of the State of New Jersey.

18.0 SEVERABILITY

18.1 If any term or provision of this Agreement shall be held invalid or unenforceable, the remaining terms hereof shall not be affected, but shall be valid and enforced.

19.0 FORCE MAJEURE

19.1 Neither party shall be liable for delays or failure of performance caused by events beyond their control. When one party claims excuse under Article 19.1, it must give written notice to the other party.

20.0 GENERAL

20.1 The rights and remedies of SCHERING for any breach of CONTRACTOR's obligations under this Agreement are in addition to any rights or remedies provided by law. Payment by SCHERING under the provisions of this Agreement shall not constitute a waiver of any such rights or remedies.

20.2 This Agreement and the appendices or exhibits referred to herein constitute the final understanding of the parties and supersede any and all prior written or oral statements.

20.3 The headings used in this Agreement are merely for convenience.

In Witness Whereof, the parties execute this Agreement.

SCHERING CORPORATION

[CONTRACTOR]

By: _____

By:  _____

Title: _____

Title: Vice President

Date: _____

Date: _____

701003



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

PURCHASE ORDER

P 71-1286-MT

This number MUST appear on all correspondences, invoices, shipping papers and packages.

PHONE: (809) 854-2700
721-1185
721-1545
TELEX: 385-9243

P.O. BOX 486 - MANATI - PUERTO RICO - 00701 - 0486

PAGE 1 OF 2

DATE July 21, 1987

SHIP TO: Schering Manati, Inc.

Route 686, Km. 0.5
Manati, Puerto Rico 00701-0486

A. Reyes Burgos Inc.
371 Barbosa Street
Cataño, P.R. 00632

V
R
O
O
M

Vendor No. 3987	Terms: N/30 D	F.O.B. Manati	Route:	Appr. Req. No.	MT-4-24	Date Required 6/1/87
---------------------------	-------------------------	-------------------------	--------	----------------	----------------	--------------------------------

LINE	Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	Extent Amou
	4141	53520		To cover cost of Plant Site trash removal services as follows:			
				Q.A. (131, 132) 8 CYD 3X		195.00	
				Cafeteria (241) 8 CYD 3X		270.00	
				Utilities (343) 8 CYD 1X		90.00	
				Maintenance (431) 8 CYD 2X		140.00	
				Chemical Plant (336) 8 CYD 1X		90.00	
				Steroids (631) 8 CYD 2X		140.00	
				Netilmicin (531) 8 CYD 3X		195.00	
				Bornet Mfg. (434) 4 CYD 3X		130.00	
				Fermentation Plant (337) 42 CYD Compactor (once a Week)			
				Rent		325.00	
				Dumping		40.00 ea	pick-
				Pick Ups		95.00 ea	pick-
				Pharmaceutical Plant (261) 42 CYD Compactor			
				Rent		325.00	
				Dumping		40.00 ea	pick-
				Pick ups		95.00 ea	pick-
				Services shall be from June 1 thru December 31, 1987			
						continued.....	

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID

TOTAL ▶

Invoices must be rendered in duplicate, for each shipment and each purchase order.

NO DELIVERIES AFTER 3 30 P.M. OR SATURDAYS

Invoice items in same order as described above ALL DOCUMENTS RELATING TO THIS ORDER SHALL INDICATE WHETHER COMPLETE OR PARTIAL SHIPMENT

Goods subject to our inspection notwithstanding or payment in order to obtain discount

Use separate invoices for each purchase order Do not combine purchase orders on one invoice

SCHERING

701004

By _____ Signature



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

**PURCHASE ORDER
(CONTINUATION SHEET)**

No. P 71-1286-4T

THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE, PACKAGES, INVOICES, ETC. PERTAINING TO THIS ORDER.

PHONE: (809) 854-2700
721-1185
721-1545
TELEX: 385-9243

P.O. BOX 486 - MANATI, PUERTO RICO - 00701 - 0486

TO **A. Reyes Burgos Inc.**

DATE **July 21, 1987**

PAGE 2 OF 2

LINE	Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	Extended Amount
				<p>Cafeteria service shall be Monday thru Friday after 2:00 P.M.</p> <p>Service for 2X shall be given on Tuesdays and Fridays</p> <p>Service for 3X shall be given on Monday Wednesday and Friday.</p> <p>All Friday service shall be after 2:00 P.M.</p> <p>Service for 1X shall be given on Friday</p> <p>Req. by Lourdes Velez/Maint. Confirmed N/Reyes on 5/15/87</p> <p><u>Note: This order should not exceed the amount of \$35,000.00</u></p>			
				SV			

701005

E X H I B I T N o . 15

Customary Business Description : Letter

Date : January 5, 1988

Number : N/A

Identity of Author : Andres Reyes Burgos, President

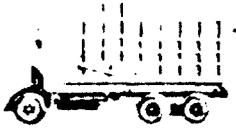
Addressor : Andres Reyes Burgos, Inc.

Addressee : Carlos M. Jimenez, Schering Manati

Subject Matter : Indicates he has not employed the
Barceloneta Municipal Landfill for
the disposal of Schering's trash.

701006

A. Reyes Burgos, Inc.
WASTE DISPOSAL



5 de enero de 1988

C.M. JIMENEZ BARBER
ENV. COMPLIANCE MANAGER
SCHERING INDUSTRIAL DEVELOPMENT CORP.
POST OFFICE BOX 486
MANATI, PUERTO RICO 00701-0486

Estimado Sr. Jiménez Barber:

Un saludo cordial a nombre de la Compañía, ANDRES REYES BURGOS, INC.

Por este medio estamos dando respuesta a su carta de fecha, 29 de diciembre de 1987 relacionada con el depósito de desperdicios sólidos en el Municipio de Barceloneta.

Deseamos informarle que esta Compañía nunca ha utilizado las facilidades del Vertedero del mencionado municipio para el depósito de desperdicios; utilizando los de; Bayamón, Cataño, Arecibo, Toa Baja. Por tanto, y haciendo honor a nuestro contrato con ustedes, utilizamos el Vertedero del Municipio de Toa Baja.

Le estamos enviando copia del personal autorizado a entrar en sus facilidades, así como también del contrato.

Cualquier información adicional estamos en la mejor disposición de ofrecerla.

Sin nada más a qué referirnos, quedo de usted,

Atentamente,

ANDRES REYES BURGOS, INC.


SR. ANDRES REYES BURGOS
PRESIDENTE

ARB/abf

A. Reyes Burgos, Inc.
WASTE DISPOSAL

NOMBRE DIRECCION	NUMERO SEGURO SOCIAL LUGAR Y FECHA NACIMIENTO	FUNCION DESEMPEÑO
Agosto Adorno, Rafael Bo. Maricao, Bzn. 5015 Vega Alta, PR	583-92-7894 06/06/56 - Vega Alta, PR	CHOFER
Cruz Martínez, Rafael 7B 14 Braulio D. Colón Bayamón, PR	092-68-1951 08/05/49 - Bayamón, PR	SOLDADOR
Hernández Hernández, Pedro Calle Santa María Cataño, PR	583-66-4145 09/05/53 - Vega Alta, PR	MECANICO
Ortiz Rodríguez, Erico Calle 7A.E No.3 Urb. Valencia, Bayamón, PR	582-62-4232 08/15/40 - Bayamón, PR	CHOFER
Reyes Rivera, Antonio Calle Barbosa No.371 Cataño, PR	581-02-4415 04/28/56 - Bayamón, PR	CHOFER
Reyes Rivera, Jesús Calle 7 D-16 Las Colinas Toa Baja, PR	581-53-9778 05/07/61 - Río Piedras, PR	CHOFER
Reyes Rivera, Rafael Calle Barbosa No.371 Cataño, PR	583-66-3463 09/09/52 - Bayamón, PR	SUPERVISOR TALLER MECANICA
Rodríguez Rivera, Angel L. Edif.1, Apto.4, Bo. Amelia Guaynabo, PR	583-49-7520 03/04/63 - Río Piedras, PR	AYUDANTE TALLER MECANICO


SR. ANDRES REYES BURGOS
PRESIDENTE

abf

701008



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

File

PURCHASE ORDER

P 71-1286-MT

This number MUST appear on all correspondences, invoices, shipping papers and packages

4/Sept/87
plane a low. y medijo
ve no es Mc. Emviala

PHONE: (809) 854-2700
721-1185
721-1545
TELEX: 385-9243

P.O. BOX 486 - MANATI - PUERTO RICO - 00701 - 0486

PAGE 1 OF 2

DATE July 21, 1987

SHIP TO: Schering Manatí, Inc.

Route 686, Km. 0.5
Manatí, Puerto Rico 00701-0188

VENDOR
A. Reyes Burgos Inc.
371 Barbosa Street
Cataño, P.R. 00632

Vendor No. 3987	Terms: N/30 D	F.O.B. Manatí	Route:	Appr. Req. No.	MT7-4-24	DATE 6/1/87
--------------------	------------------	------------------	--------	----------------	----------	----------------

LINE	Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	
	14141	53520		To cover cost of Plant Site trash removal services as follows:			
				Q.A. (131, 132) 8 CYD 3X		195.00	✓
				Cafetería (241) 8 CYD 5X		270.00	✓
				Utilities (343) 8 CYD 1X		90.00	✓
				Maintenance (431) 8 CYD 2X		140.00	✓
				Chemical Plant (336) 8 CYD 1X		90.00	✓
				Steroids (631) 8 CYD 2X		140.00	✓
				Netilmicin (531) 8 CYD 3X		195.00	✓
				Bonnet Mfg. (434) 4 CYD 3X		150.00	✓
				Fermentation Plant (337) 42 CYD Compactor (once a Week)			
				Rent		325.00	
				Dumping		40.00	cal
				Pick Ups		95.00	cal
				Pharmaceutical Plant (261) 42 CYD Compactor			
				Rent		325.00	
				Dumping		40.00	cal
				Pick ups		95.00	cal
				Services shall be from June 1 thru December 31, 1987			

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID

TOTAL ▶

Invoices must be rendered in duplicate for each shipment and each purchase order.

NO DELIVERIES AFTER 3 30 P.M. OR SATURDAYS

Invoice items in same order as described above ALL DOCUMENTS RELATING TO THIS ORDER SHALL INDICATE WHETHER COMPLETE OR PARTIAL SHIPMENT.

Goods subject to our inspection notwithstanding prior payment in order to obtain discount.

Use separate invoices for each purchase order. Do not combine purchase orders on one invoice.

SCHERING

By _____ Signature

[Signature]

ATTACHED ACKNOWLEDGMENT COPY MUST BE SIGNED AND RETURNED IMMEDIATELY

701009



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

PURCHASE ORDER
(CONTINUATION SHEET)

No. P 71-1286

THIS NUMBER MUST BE
ON ALL CORRESPONDENCE
PACKAGES INVOLVED
PERTAINING TO THIS ORDER

PHONE: (809) 854-2700
721-1185
721-1545
TELEX: 385-9243

P.O. BOX 486 - MANATI, PUERTO RICO - 00701 - 0486

TO A. Reyes Burgos Inc.

DATE July 21, 1987

PAGE 2 of 2

LINE	Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price
				<p>Cafetería service shall be Monday thru Friday after 2:00 P.M.</p> <p>Service for 2X shall be given on Tuesdays and Fridays</p> <p>Service for 3X shall be given on Monday Wednesday and Friday.</p> <p>All Friday service shall be after 2:00 P.M.</p> <p>Service for 1X shall be given on Friday</p> <p>Req. by Lourdes Velez/Maint. Confirmed W/Reyes on 5/15/87</p> <p><u>Note: This order should not exceed the amount of \$35,000.00</u></p>		
				SV		

701010

E X H I B I T N o . 16

Customary Business Description : Contract

Date : March 1, 1975

Number : N/A

Identity of Author : Municipality of Barceloneta

Addressor : Municipality of Barceloneta

Addressee : Schering Corp. de Puerto Rico

Subject Matter : Contract for the use of the Barceloneta
Municipal Landfill from March 1, 1975 to
March 1, 1976.

701011

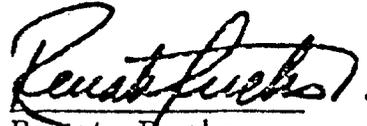
Total Organic Nitrogen (2)
(Kjeldahl)

0.87

8.7

- (1) Residual after extensive acid hydrolysis.
- (2) Sample was predigested thus the nitrogen content is lower than predicted from the protein content.

Due to the high humidity, the sample would undergo rapid microbial decomposition (anaerobic decomposition accompanied by offensive smell would thus also occur). If the mycelium is not to be used immediately, it should be dried to contain less than 5 to 10% humidity.


Renato Fuchs

RF:efm

701012

ESTADO LIBRE ASOCIADO DE PUERTO RICO
GOBIERNO MUNICIPAL
BARCELONETA, PUERTO RICO

CONTRATO POR USO DEL VERTEDERO MUNICIPAL DE BARCELONETA

En virtud de este contrato celebrado en la ciudad de Barceloneta, Puerto Rico a los 1 días del mes Marzo de 1975, entre el Municipio de Barceloneta representado por el Alcalde como primera parte y la firma contratante Schering Corp. de Puerto Rico como segunda parte, queda estipulado y convenido lo siguiente:

PRIMERO: La Segunda Parte, depositará en el Vertedero Municipal únicamente desperdicios sólidos. Usará su propio equipo con su propio personal correrá con todos los riesgos que ocasionen dentro y fuera del Vertedero.

SEGUNDO: La Primera Parte, se compromete a mantener en uso el equipo necesario para el relleno sanitario dentro del Vertedero y que el horario de trabajo sea aceptable por la Segunda Parte.

TERCERO: Este contrato no podrá ser traspasado en todo ni en parte a otra persona o entidad sin el consentimiento escrito de la Primera Parte.

CUARTO: Ninguna persona que esté empleada al servicio del Gobierno de Puerto Rico o de cualquiera de sus dependencias o instrumentalidades, podrá tener interés en este contrato o participación en los beneficios que del mismo se deriven.

QUINTO: La descripción por el Uso y Arrendamiento del Vertedero Municipal con todos los detalles y especificaciones que permitan fijar cabalmente las obligaciones de la firma o entidad contratante serán las siguientes:

1- Este contrato regirá por un término de un año vigente desde el 1 de marzo de 1975 hasta el día 1 del Marzo de 1976.

2- La Segunda Parte o sea la firma o entidad contratante pagará al Municipio de Barceloneta en cheque certificado o en moneda legal de los Estados Unidos la cantidad de \$600.00 dolares mensualmente.

3- Todo cheque deberá girarse a nombre del Municipio de Barceloneta o el pago cash se hará ante el Tesorero Municipal mediante el recibo correspondiente.

701013

4- La firma o entidad contratante hara un pago anticipado equivalente al pago mensual a la fecha del envio de este contrato.

5- Este contrato podrá ser rescindido por las partes previa comunicación a los efectos con un mes de anticipación.

6- Este contrato podrá ser renovado a su vencimiento sin previa notificación.

7- La Segunda Parte o sea la firma o entidad contratante deberá estar provista de un Seguro contra todo riesgo.

8- La Segunda Parte enviará al Sr. Alcalde una relación escrita de qué entidad o industrias proceden los desperdicios sólidos a depositarse en el Vertedero Municipal.

EN TESTIMONIO DE LO CUAL: las partes contratantes firman el presente documento en la fecha antes mencionada.

TESTIGOS:

Calvin C. Page
Alfredo Román

[Signature]
alcalde
1
Contratista

E X H I B I T N o. 17

Customary Business :
Description : Contract

Date : August 1, 1975

Number : N/A

Identity of :
Author : Municipality of Barceloneta

Addressor : Municipality of Barceloneta

Addressee : Schering Corp. of Puerto Rico

Subject :
Matter : Contract with the Barceloneta Municipality
for the use of the Landfill from August 1,
1975 to August 1, 1976.

701015

COMMONWEALTH OF PUERTO RICO
MUNICIPAL GOVERNMENT
BARCELONETA, PUERTO RICO

CONTRACT FOR THE USE OF THE MUNICIPAL DUMP

By virtue of this contract let out in the town of Barceloneta, Puerto Rico on the 1st day of the month of August 1975 between the Municipal Government of Barceloneta represented by the Mayor as the first party and the contracted firm Sohering Corp. of Puerto Rico as the second party, it remains stipulated and agreed that:

First: The Second Party, will deposit in the Municipal Dump only solid waste. He will use his own equipment with his own personnel and accept all the risks which might occur in and outside the dump.

Second: The first party, promises to maintain in use the equipment necessary to provide the fill for sanitation inside the dump and that the schedule of work is acceptable by the second party.

Third: This contract cannot be re-assigned neither in part nor wholly to another person or entity without the written permission of the first party.

Fourth: No one connected with the Government of Puerto Rico and its instrumentalities may have interest or participate in this contract or derive any benefits from the same.

Fifth: The Clauses of the Permit For Use of the Dump with all the specifications and details which will allow the firm obligations entailed will be the following:

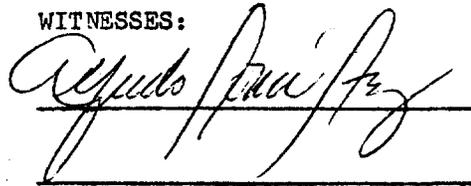
- 1- This Contract will be in effect for the term of ~~one year~~ from the 1st day of August of 1975
- 2- The Second Party or the contractor will pay the Municipal Government of Barceloneta by certified check or in U. S. A. Dollars the amount of Eight Hundred dollars monthly. (\$800.00)
- 3- All checks will be made out to the order of the " Municipio de Barceloneta" or if with cash it must be presented to the Municipal Treasurer through the use of the corresponding receipt.

701016

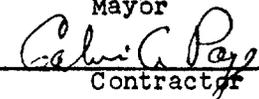
- 4- The contract will advance one month pay at the date this contract is let.
- 5- This contract may be canceled by either party by advising the other party one month before the rescision.
- 6- This contract may be renewed at its termination without previous notice.
- 7- The second party or the contractor should be covered by an insurance against all risk.
- 8- The second party will send to the Mayor a written account of the industries and entities sending solid waste to the Dump.

FULLY WITNESS THAT: The contracting parties sign this document on the aforementioned date.

WITNESSES:





Mayor


Contractor

701017

EXHIBIT No. 18

Customary Business:
Description : Contract

Date : August 1, 1978

Number : N/A

Identity of
Author : Municipality of Barceloneta

Addressor : Municipality of Barceloneta

Addressee : Schering Corporation (Puerto Rico)

Subject
Matter : Contract with the Barceloneta Municipality
for the use of the Landfill from August 1,
1978 to 31 July, 1980.

701018

ESTADO LIBRE ASOCIADO DE PUERTO RICO
GOBIERNO MUNICIPAL
BARCELONETA, PUERTO RICO

CONTRATO POR USO DEL VERTEDERO MUNICIPAL DE BARCELONETA

En virtud de este contrato celebrado en la ciudad de Barceloneta, Puerto Rico a los 1 días del mes AGOSTO de 1978, entre el Municipio de Barceloneta representado por el Alcalde como primera parte y la firma contratante SCHERING CORPORATION (PUERTO RICO) como segunda parte, queda estipulado y convenido lo siguiente:

PRIMERO: La Segunda Parte, depositará en el Vertedero Municipal unicamente desperdicios sólidos. Usará su propio equipo con su propio personal correrá con todos los riesgos que ocasionen dentro y fuera del Vertedero Municipal.

SEGUNDO: La Primera Parte, se compromete a mantener en uso el equipo necesario para el relleno sanitario dentro del Vertedero Municipal y que el horario de trabajo sea aceptable por la Segunda Parte.

TERCERO: Este contrato no podrá ser traspasado en todo ni en parte a otra persona o entidad sin el consentimiento escrito de la Primera Parte.

CUARTO: Ninguna persona que esté empleada al servicio del Gobierno de Puerto Rico o de cualquiera de sus dependencias o instrumentalidades, podrá tener interés en este contrato o participación en los beneficios que del mismo se deriven.

QUINTO: La descripción por el Uso y Arrendamiento del Vertedero Municipal con todos los detalles y especificaciones que permitan fijar cabalmente las obligaciones de la firma o entidad contratante serán las siguientes:

1. Este contrato regira por un termino de DOS AÑOS vigente desde 1 de AGOSTO de 1978 hasta el día 31 del JULIO de 1980.

2. La Segunda Parte o sea la firma o entidad contratante pagará al Municipio de Barceloneta en cheque certificado o en moneda legal de los Estados Unidos la cantidad de \$ 1,200.00 dolares mensualmente.

3. Todo cheque deberá girarse a nombre del MUNICIPIO DE BARCELONETA o el pago cash se hará ante el TESORO MUNICIPAL mediante el recibo correspondiente.

701019

4. La firma o entidad contratante hara un pago anticipado equivalente al pago mensual a la fecha del envio de este contrato.

5. Este contrato podrá ser rescindido por las partes previa comunicaci3n a los efectos con un mes de anticipaci3n.

6. Este contrato podrá ser renovado a su vencimiento sin previa notificaci3n de ninguna de las partes.

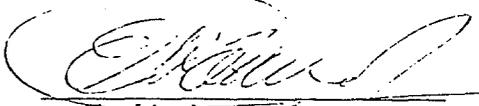
7. La Segunda Parte o sea la firma o entidad contratante debera estar provista de un Seguro contra todo riesgo.

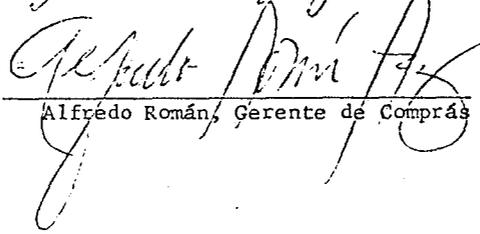
8. La Segunda Parte enviara al Sr. ALCALDE una relaci3n escrita de que entidad o industrias proceden los desperdicios s3lidos a depositarse en VERTEDERO MUNICIPAL.

EN TESTIMONIO DE LO CUAL: las partes contratantes firman el presente documento en la fecha antes mencionada.

TESTIGOS:


James R. Confroy, Gerente General


Alcalde de Barceloneta


Alfredo Román, Gerente de Comprás


Testigo

EXHIBIT No. 19

Customary Business Description : Contract

Date : June 1, 1981

Number : N/A

Identity of Author : Municipality of Barceloneta

Addressor : Municipality of Barceloneta

Addressee : Schering Corporation (Puerto Rico)

Subject Matter : Contract with the Barceloneta Municipality
for the use of the Landfill from June 1,
1981 to May 31, 1983.

701021

To: *Remigio Gutierrez*

ESTADO LIBRE ASOCIADO DE PUERTO RICO
GOBIERNO MUNICIPAL
BARCELONETA, PUERTO RICO

CONTRATO POR USO DEL VERTEDERO MUNICIPAL DE BARCELONETA

En virtud de este contrato celebrado en la ciudad de Barceloneta, Puerto Rico a los 1 días del mes JUNIO de 1981 entre el Municipio de Barceloneta representado por el Alcalde como primera parte y la firma contratante SCHERING CORPORATION (PUERTO RICO) como segunda parte, queda estipulado y convenido lo siguiente:

PRIMERO: La Segunda Parte, depositará en el Vertedero Municipal unicamente desperdicios sólidos. Usará su propio equipo con su propio personal correrá con todos los riesgos que ocasionen dentro y fuera del Vertedero Municipal.

SEGUNDO: La Primera Parte, se compromete a mantener en uso el equipo necesario para el relleno sanitario dentro del Vertedero Municipal y que el horario de trabajo sea aceptable por la Segunda Parte.

TERCERO: Este contrato no podrá ser traspasado en todo ni en parte a otra persona o entidad sin el consentimiento escrito de la Primera Parte.

CUARTO: Ninguna persona que esté empleada al servicio del Gobierno de Puerto Rico o de cualquiera de sus dependencias o instrumentalidad podrá tener interés en este contrato o participación en los beneficios que del mismo se deriven.

QUINTO: La descripción por el Uso y Arrendamiento del Vertedero Municipal con todos los detalles y especificaciones que permitan fijar cabalmente las obligaciones de la firma o entidad contratante serán las siguientes:

1. Este contrato regira por un termino de DOS AÑOS vigente desde 1 de JUNIO de 1981 hasta el día 31 del MAYO de 1983.

2. La Segunda Parte o sea la firma o entidad contratante pagará al Municipio de Barceloneta en cheque certificado o en moneda legal de los Estados Unidos la cantidad \$ 1,200.00 dolares mensualmente.

3. Todo cheque deberá girarse a nombre del MUNICIPIO DE BARCELONETA o el pago cash se hará ante el TESORO MUNICIPAL mediante el recibo correspondiente.

701022

4. La firma o entidad contratante hará un pago anticipado equivalente al pago mensual a la fecha del envío de este contrato.

5. Este contrato podrá ser rescindido por las partes previa comunicación a los efectos con un mes de anticipación.

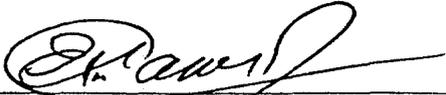
6. Este contrato podrá ser renovado a su vencimiento sin previa notificación de ninguna de las partes.

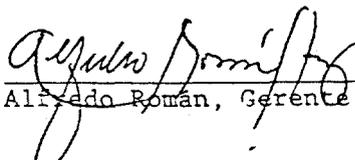
7. La Segunda Parte o sea la firma o entidad contratante deberá estar provista de un Seguro contra todo riesgo.

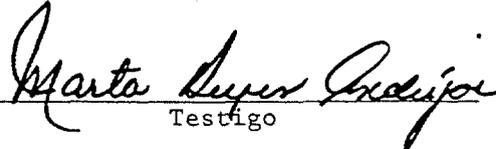
8. La Segunda Parte enviará al Sr. ALCALDE una relación escrita de que entidad o industrias proceden los desperdicios sólidos a depositarse en VERTEDERO MUNICIPAL.

EN TESTIMONIO DE LO CUAL: las partes contratantes firman el presente documento en la fecha antes mencionada.

 6-1-81
James R. Confroy Gerente General


Alcaide de Barceloneta

 6-1-81
Alfredo Román, Gerente de Compra


Testigo

E X H I B I T N o . 20

Customary Business:
Description : Purchase Order

Date : January 11, 1979

Number : 7901-0043

Identity of Author : Schering Co. (Puerto Rico)

Addressor : Schering Co. (Puerto Rico)

Addressee : Browning-Ferris Industries

Subject Matter : Cover the costs for the trash collection
services for 1979.

701024

SCHERING CORPORATION (PUERTO RICO)

P. O. BOX 486 · MANATI · PUERTO RICO · 00701



PHONE (809) 854-2700
724-5488
TELEX: 385-9243

PURCHASE ORDER
No. **7901-0043**
THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE, PACKAGES, INVOICES, PERTAINING TO THIS ORDER.

TO:

DATE **January 11, 1979**

PAGE _____ OF _____

Browning-Ferris Industries
P.O. Box 29499
Rio Piedras, P.R. 00929

SHIP TO: Schering Corporation (Puerto Rico)
Route 686, Km. 0.5
Manati, Puerto Rico 00701
TAX EXEMPTION NO. SL-1650

Vendor No.	Terms:	F. O. B.	Route:	Appr. Req. No.	Requisition Number	Date Required
0775	N/30 Days	Plant				Blanket

FURNISH SUBJECT TO AND IN ACCORDANCE WITH INSTRUCTIONS, TERMS AND CONDITIONS ON FACE AND BACK HEREOF

EXP. CTR.	ACCT. NO.	QUANTITY UNIT	DESCRIPTION	CODE NO. OR REQ. NO.	ITEM NO.	UNIT PRICE
0041	4401		To cover the cost of Waste Removal from Schering Area during the year 1979. Roll Off Pickups	MT1-036	1.	\$325.00 \$32.50
<i>Sra. Licia Colon 765-9927</i>						

lit/70

701025

PHONE (809) 854-2700
724-5488
TELEX: 385-9243



PURCHASE ORDER
No. 8001-0344
THIS NUMBER MUST
ON ALL CORRESPONDENCE
PACKAGES, INVOICES
PERTAINING TO THIS

DATE February 11, 1980

PAGE _____ OF _____

Browning-Ferris Industries
P.O. Box 29499
Rio Piedras, P.R. 00929

SHIP TO: Schering Corporation (Puerto Rico)
Route 686, Km. 0.5
Manati, Puerto Rico 00701

Order No. 0775	Terms: N/30 Days	F. O. B. Plant	Route: Best way	Appr. Req. No.	Date Reqd. 1980
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FURNISH SUBJECT TO AND IN ACCORDANCE WITH INSTRUCTIONS, TERMS AND CONDITIONS ON FACE AND BACK HEREOF

EXP. CTR.	ACCT. NO.	ITEM NO.	QUANTITY UNIT	DESCRIPTION	REQUISITION NUMBER	UNIT PRICE
9305	3104			To cover the cost of Waste Removal from Schering Corporation & Schering Pharmaceutical during 1980.	MT 2-32	\$550-
				ROLL OFF PICKUPS		\$82-
		1	40 cu.yd.	EZP COMPACTOR PICKUPS @ DUMP FEE		\$360 90
		1	30 cu.yd.	AP COMPACTOR PICKUPS @ DUMP FEE		10 \$350 90 10

ACKNOWLEDGEMENT

RECEIVED
 FEB 15 1980
 SHERING

PRICE APPROVAL
[Signature]
 BY: _____
 DATE: 3/13/80

int. mdi

PLEASE REPLY IMMEDIATELY ON THIS FORM. **701027**
 Will you SHIP on date requested?
 IF PRICE IS NOT SPECIFIED, SHOW CORRECT PRICE IN PRICE COLUMN.

Seller adheres to the equal employment opportunity provisions of Executive Order 11246, dated September 24, 1965.

- Will you ship on date requested?
- If price is not specified, show correct price in price column.

EXHIBIT No. 22

Customary Business Description : Purchase Order

Date : March 31, 1982

Number : 8201-0069

Identity of Author : Schering Corporation (Puerto Rico)

Addressor : Schering Corporation (Puerto Rico)

Addressee : Browning-Ferris Industries

Subject Matter : To cover the cost for trash collection
for the year 1982.

701028

SCHERING CORPORATION (PUERTO RICO)

P. O. BOX 488 - MANATI - PUERTO RICO - 00701 - 0486

PHONE: (809) 854-2700
724-1050
724-6245
FLEX: 385-9243



CHANGE ORDER
PURCHASE ORDER
No. 8201-0069
THIS NUMBER MUST APPEAR ON ALL CORRESPONDENCE, PACKAGES, INVOICES, ETC. PERTAINING TO THIS ORDER.

TO: **Browning Ferris Ind. of P.R.**
P.O. Box 29499
Rio Piedras, P.R. 00929

DATE **March 31, 1982**

PAGE _____ OF _____

SHIP TO: Schering Corporation (Puerto Rico)
Route 686, Km. 0.5
Manatí, Puerto Rico 00701 - 0486

Vendor No. 0775	Terms: N/30D	F. O. B. Plant	Route:	Appr. Req. No.	Date Required OPEN
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FURNISH SUBJECT TO AND IN ACCORDANCE WITH INSTRUCTIONS, TERMS AND CONDITIONS ON FACE AND BACK HEREOF

EXP. CTR.	ACCT. NO.	ITEM NO.	QUANTITY UNIT	DESCRIPTION	REQUISITION NUMBER	HSX PR TOP
				PURCHASE ORDER CHANGE This change order is issued to add the following: To cover the cost of solid waste disposal as follows: One 8 cu.yd. container 5 pick-up/wk. Cafeteria One 8 cu.yd. container 1 pick-up/wk. UTILITIES DEPT. Two 8 cu.yd. container 2 pick-up/wk. Steroid/Netilmicin Plant. One 8 cu.yd. container 1 pick-up/wk. Maintenance One 8 cu.yd. container 1 pick-up/wk. Chemical Plant One 4 cu.yd. container 1 pick-up/wk. Accounting Dept. TOTAL CONFIRMATION DO NOT DUPLICATE W/ Prisala 3-29-82 <i>(Signature)</i>	MT-1-98	
						\$999.

23450
APR 1982
Recei
Purch
Depar.

MT/gb

PLEASE REPLY IMMEDIATELY ON THIS FORM.
Will you SHIP on date requested?
IF PRICE IS NOT SPECIFIED, SHOW CORRECT PRICE IN PRICE COLUMN.

701029



SCHERING CORP.

MANATI, P.R.

(SOLID WASTE DISPOSAL SERVICE 1982)

- 1) Account No. 973008 - Schering Corp.
 - One 40 cu. yd. Compactor (EZP)
 - Monthly Rental\$390.00
 - Each Pick-Up\$110.00

- 2) Account No. 976605 - Schering Pharmaceutical
 - One 30 cu. yd. Compactor (AP)
 - Monthly Rental\$380.00
 - Each Pick-Up\$110.00

- 3) Account No. 976902-001
 - One 8 cu. yd. Container ⑤ Pick-ups per week - Cafeteria
 - One 8 cu. yd. Container 1 Pick-up per week - Utility
 - Two 8 cu. yd. Containers ② Pick-ups per week - New Plant
 - One 8 cu. yd. Container 1 Pick-up per week - Maintenance
 - One 8 cu. yd. Container 1 Pick-up per week - Chem. Plant
 - One 4 cu. yd. Container ② Pick-ups per week - Accounting Dept.

Mon - Fri
\$999.00

Mon - Fri

MAY 1982
Received
Purchasing
Department

cc: Accounting

Ekman

5/19/82

701030

EXHIBIT No. 23

Customary Business Description : Purchase Order

Date : April 6, 1984

Number : 8401-0141

Identity of Author : Schering Corporation (Puerto Rico)

Addressor : Schering Corporation (Puerto Rico)

Addressee : Browning-Ferris Industries

Subject Matter : To cover the cost of trash collection services for the year 1984.

701031



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

CHANGE ORDER

PURCHASE ORDER

8401-0141

This Number MUST appear on correspondences, invoices, shipping papers and packages.

PHONE: (809) 854-2700
 721-1185
 721-1545
 TELEX: 385-9243

P.O. BOX 486 · MANATI · PUERTO RICO · 00701 · 0486

PAGE 1 OF

DATE April 6, 1984

TO: **BROWNING FERRIS IND. OF P.R.? INC.**
P.O. BOX 29499
RIO PIEDRAS P.R. 00929

SHIP TO: **SCPR**

Route 686, Km. 0.5
 Manatí, Puerto Rico 00701-0

RODZEV

Vendor No. 0775		Terms: N/30D	F.O.B. Manatí	Route:	Appr. Req. No.	Date Required 1984		
LINE	Expense Center	Account Number	Quantity Unit Ordered	Description		Estimated Price	Unit Price	Extend Amount
	9305	3104		PURCHASE ORDER CHANGE				
				To cover the cost of wast removal services from January 1984 thru December, 1984.				
				Ferm. Plant 42 cu.yd. monthly charge \$ 410.00				
				Pick-ups	\$110.00			
				Dumping	15.00			
				Containers:				
				Qt.	Cu.Yd.	Weekly pick-ups		
				1.	8	5 Cafeteria		
				1	8	Utilities		
				2	8	Steroid/Metibicin		
				1	8	Maintenance		
				1	8	Chemical Plant		
				1	4	Quality Control		
				Extra pick-ups \$17.00/ea.				
						TOTAL	\$ 857.00	261.00/M

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID.

PLEASE REPLY IMMEDIATELY ON THIS FORM.

Will you SHIP on date requested?

IF PRICE IS NOT SPECIFIED, SHOW CORRECT PRICE IN PRICE COLUMN

- Seller adheres to the equal employment opportunity provisions of Executive Order 11246, dated September 24, 1965.
- Read and sign reverse side.

- Will you ship on date requested?
- If price is not specified, show correct price in price column.

701032

E X H I B I T N o . 24

Customary Business Description : Purchase Order

Date : February 11, 1985

Number : 8501-0378

Identity of Author : Schering Corporation (Puerto Rico)

Addressor : Schering Corporation (Puerto Rico)

Addressee : Browning-Ferris Industries

Subject Matter : To cover the cost of trash collection
for the year 1985.

701033



SCHERING

- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

PURCHASE ORDER

8501-0378

This number **MUST** appear on all correspondences, invoices, shipping papers and packages.

PHONE: (809) 854-2700
721-1185
721-1545
TELEX: 385-9243

P.O. BOX 486 · MANATI · PUERTO RICO · 00701 · 0486

PAGE _____ OF _____

2-11-85

Browning-Ferris Ind. of P.R.
P.O. Box 29499
Rio Piedras, P.R. 00929

DATE

SCPR

SHIP TO

Route 686, Km. 0.5
Manati, Puerto Rico 00701-0486

Vendor No. 0775	Terms: N/30D	F.O.B. Manati	Route	Appr. Req. No.	Date Required SERVICES
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LINE	Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	Equip. Amt.
	9305	3104		To cover the cost of waste removal services from January 1, 1985 thru December 31, 1985. Fermentation Plant - 42 cu. yd. Monthly charges: \$410.00 Pick-ups: \$110.00 Dumping Fees: \$25.00 Qt. Cu. Yd. Weekly Pick-ups 1 8 4-Cafeteria \$312.00 1 8 2-Maint.(Tuesday & Thursday) 163.00 1 8 1-Chem. Plant (Monday) 93.00 1 8 1- Utilities (Monday) 93.00 1 8 3-Q.C. 242.00 1 8 2-S/N (Mon. & Thur) 387.00 1 8 3-S/N *	MT2-08		
				* \$387.00 includes both S/N weekly pick-ups.			
				MT/gb			

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID.

TOTAL ▶

PLEASE REPLY IMMEDIATELY ON THIS FORM.

Will you SHIP on date requested?

IF PRICE IS NOT SPECIFIED, SHOW CORRECT PRICE IN PRICE COLUMN.

701034

- Seller adheres to the equal employment opportunity provisions of Executive Order 11246, dated September 24, 1965.
- Read and sign reverse side.

- Will you ship on date requested?
- If price is not specified, show correct price.

[Handwritten signatures and initials]

EXHIBIT No. 25

Customary Business Description : Purchase Order

Date : February 18, 1986

Number : P61-0309-S

Identity of Author : Schering Corporation (Puerto Rico)

Addressor : Schering Corporation (Puerto Rico)

Addressee : Browning-Ferris Industries

Subject Matter : To cover the cost for trash collection
for the year 1986.

701035

EXHIBIT No. 26

Customary Business Description : Purchase Order

Date : April 27, 1987

Number : P71-1019-NP

Identity of Author : Schering Corporation (Puerto Rico)

Addressor : Schering Corporation (Puerto Rico)

Addressee : Browning-Ferris Industries

Subject Matter : To cover the cost for trash collection
for the year 1987.

701037



- CORPORATION (PUERTO RICO)
- ANTIBIOTIC CORPORATION
- INDUSTRIES, INC.
- BIOCHEM CORPORATION
- INDUSTRIAL DEVELOPMENT CORPORATION
- PHARMACEUTICAL CORPORATION (P.R.)

PURCHASE ORDER

P 73-1019-002

This number **MUST** appear on all correspondences, invoices, shipping papers and packages.

PHONE: (809) 854-2700
721-1185
721-1545
TELEX: 385-9243

P.O. BOX 486 - MANATI - PUERTO RICO - 00701 - 0486

PAGE 1 OF 2

Browning Ferris Ind. Of P.R.
P.O. Box 22489
Rio Piedras, P.R. 00929

DATE **April 27, 1967**

SHIP TO: **Schering Manati, Inc.**

Route 686, Km. 0.5
Manati, Puerto Rico 00701-0486

Vendor No. 0775	Terms: N/30 D	F.O.B. Manati	Route:	Appr. Req. No.	NET, 4-24	Date Required 4-22-67
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Expense Center	Account Number	Quantity Unit Ordered	Description	Estimated Price	Unit Price	Extended Amount
			To cover cost of plant site trash removal services as follows:			
14141	53520-02		Q.A. (131,132) 8 CYD 3X		3302 / M.	
			Cafeteria (241) 8 CYD 5X		482 / M.	
			Utilities (343) 8 CYD 1X		114 / M.	
			Maintenance (431) 8 CYD 2X		203 / M.	
			Chemical Plant (336) 8CYD 1X		114 / M.	
			Steroids (631) 8 CYD 2X		203 / M.	
			Netilmicin (531) 8 CYD 3X		302 / M.	
			Bonnet NFE (434) 4 CYD 3X		161 / M.	
14141	53520-01		Fermentation Plant (237) 42 CYD compactor		425 / M.	
			Pick Ups		134 / P.U.	
			Pharmaceutical Plant (261) 42 CYD compactor		425 / M.	
			Pick Ups		134 / P.U.	
CONFIRM.....						

IMPORTANT: COMMITMENTS MADE BY PERSONNEL OTHER THAN PURCHASING FOR ANY SUPPLIES OR SERVICE ARE NOT VALID.

TOTAL ▶

Invoices must be rendered in duplicate, for each shipment and each purchase order.

NO DELIVERIES AFTER 3 30 P.M. OR SATURDAYS

Invoice items in same order as described above ALL DOCUMENTS RELATING TO THIS ORDER SHALL INDICATE WHETHER COMPLETE OR PARTIAL SHIPMENT

Goods subject to our inspection notwithstanding prior payment in order to obtain discount

Use separate invoices for each purchase order Do not combine purchase orders on one invoice

SCHERING

701038

By _____ Signature

EXHIBIT No. 27

Customary Business Description : Letter

Date : December 21, 1987

Number : N/A

Identity of Author : C.M. Jimenez Barber (Env. Manager)

Addressor : Schering Industrial Development Corp.

Addressee : Browning-Ferris Industries

Subject Matter : Request for Information for the EPA
questionnaire on the Barceloneta Landfill.

701039

SCHERING INDUSTRIAL DEVELOPMENT CORP.

POST OFFICE BOX 486



MANATI, P.R. 00701-0486

TELEX 325-2580
325-2581

TELEPHONE 809-854-2700

December 21, 1987

Mr. Daniel Rivera
General Manager
Browning Ferries Industries (BFI)
P.O. Box 29499; 65th Infantry Station
Rio Piedras, P.R. 00929

Dear Mr. Rivera:

As indicated in our recent telephone conversation pertaining to the Barceloneta Municipal Landfill, presently classified as a Superfund Site under CERCLA, the Environmental Protection Agency (EPA), has submitted a second Request for Information, in their search for Possible Responsible Parties. Since Schering has had contracts with your Company for the disposal of solid waste, some of which may have been disposed off at the Barceloneta Municipal Landfill, we hereby request your assistance towards providing the EPA with the desired answers.

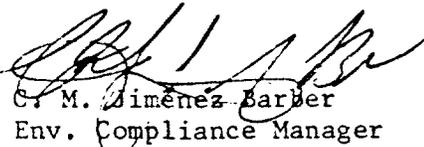
Specific information requested is as follows:

1. Contractual arrangements with BFI, from 1970 to date.
2. Amounts of waste taken to the Barceloneta Municipal Landfill for disposal by means of the above contracts.
3. Precise location where the waste was deposited within the landfill.
4. Names of persons who transported the waste to the landfill.

Your prompt reply to this inquiry is most important, since we may have to respond before the end of January, 1988. Please make sure that all information is clearly identified so as to avoid additional requests from the EPA.

We wish to thank you for your cooperation.

Cordially yours,


C. M. Jiménez Barber
Env. Compliance Manager

701040

E X H I B I T N o . 28

Customary Business Description : Letter

Date : January 22, 1988

Number : N/A

Identity of Author : Daniel Rivera, District Manager

Addressor : Browning-Ferris Industries

Addressee : Schering Corp.

Subject Matter : Response to Schering's letter requesting information for the EPA questionnaire on the Barceloneta Landfill.

701041



January 22, 1988

SCHERING CORP.
Environmental Dept.
P.O. Box 486
Manati, PR 00701

Dear Customer:

Recently you requested from us information in reference to the waste that we pick up at your plant and deposit at the Barceloneta landfill. While in the process of gathering the information requested, the E.P.A. made a similar request from us for the same data.

To avoid duplication of work and information, we will send you a copy of the report that will be submitted to the E.P.A. which includes what you are requesting.

Sincerely,

BROWNING FERRIS INDUSTRIES
OF PUERTO RICO, INC.



Daniel Rivera
District Manager

mjr

Enc.

701042

SCHERING INDUSTRIAL DEVELOPMENT CORP.

POST OFFICE BOX 486



MANATI, P.R. 00701-0486

TELEX 325-2580
325-2581

TELEPHONE 809-854-2700

December 29, 1987

Mr. Andrés Reyes Burgos
General Manager
Andrés Reyes Burgos, Inc.
Calle Barbosa No. 371
Juana Matos, Cataño, P.R. 00636

Dear Mr. Reyes Burgos:

As you are probably aware, the Environmental Protection Agency (EPA) has initiated a second Request for information pertaining to the possible disposal of hazardous waste within the Barceloneta Municipal Landfill. Said landfill has been classified as a Superfund Site under the Comprehensive Environmental Response Compensation and Liability Act, (CERCLA) due to existing ground contamination, for which EPA is gathering evidence to help identify possible responsible parties (PRP's) who may share in the rehabilitation of the site.

Since Schering has a contract with your company for the disposal of solid waste, some of which may have been deposited at the Barceloneta Municipal Landfill, we hereby request your assistance towards providing the EPA with the desired answers.

Specific information requested is as follows:

1. Contractual arrangements you may have had with Schering up to this date.
2. Amounts of waste taken to the Barceloneta Municipal Landfill for disposal by means of the above contracts.
3. Precise location where the waste was deposited within the landfill.
4. Names of persons who transported the waste to the landfill.

Your prompt reply to this inquiry is most important, since we may have to respond before the end of January, 1988. Please make sure that all information is clearly identified so as to avoid additional requests from the EPA.

We wish to thank you for your cooperation.

Cordially yours,


C.M. Jiménez Barber
Env. Compliance Manager

701044

/mv

EXHIBIT No. 30

Customary Business Description : Product Specification

Date : N/A

Number : N/A

Identity of Author : Johns-Manville Co.

Addressor : N/A

Addressee : N/A

Subject Matter : Description of the Filter Aid marketed
under the name of "Super-Cel".

701045

Specification
Hyflo Super-Cel

Specification Properties

Color	Off-white
Appearance	Powder
Origin	Plankton Marine Diatomite
Description	Flux Calcined Filter Aid
Wet Density, lbs./cu. ft., max.	12.1
150 Mesh Screen Analysis, % Retained, max.	9.5

Each specification to which any of our filter aids is made primarily relates to the flow rate and clarifying properties as measured under standard conditions in special equipment. Any product which meets the test described above is considered by us as specification material since the product is sold to perform a certain specific filtration function, and that test is a measure of this function.

Additional
Typical Properties

Ignition Loss	- 0.5%
SiO ₂	- 89.6%
Al ₂ O ₃	- 4.0%
Fe ₂ O ₃	- 1.5%
P ₂ O ₅	- 0.2%
TiO ₂	- 0.2%
CaO	- 0.5%
MgO	- 0.6%
Na ₂ O+K ₂ O	- 3.3%
pH	- 10
Specific Gravity	- 2.30

701046

DS... available in a full range of grades

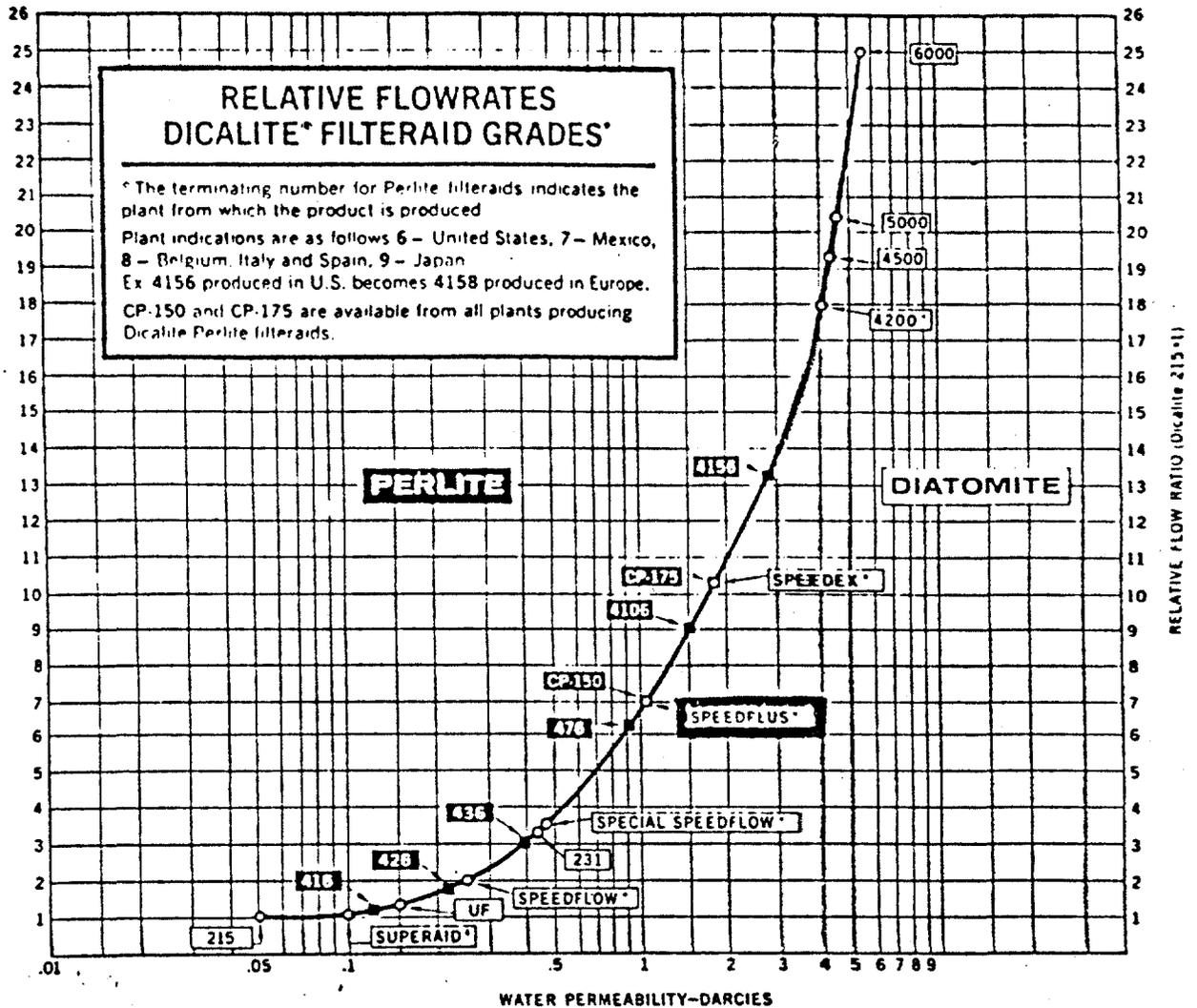
GRADES AND TYPICAL APPLICATIONS

Dicalite Diatomite Grade	Relative Flowrate	Average Filter Cake Density (lbs/ft ³)	Mean Particle Size (Microns)	Typical Applications
215 (calcined)	100	28.0	2.5-3.0	Polish filtration of beer and wine and for other liquids - requiring brilliant clarity
Superaid (calcined)	120	26.0	5.0 2.5-4.0	Industrial Alcohol • Tallow • Tar Oil (heated) • Food Processing Lard • Beet Molasses (dilute) • Citric Acid • Milk Sugar • Vinegar • Wine (polishing)
UF (calcined)	145	28.0	2.7 2.5-3.0	Industrial Lube Oil (used Diesel) • Food Processing Beer (polishing) • Wine (polishing) • Cane Molasses (dilute) • Pharmaceutical Hormones • Pyrogens • Vitamins
Speedflow (calcined)	200	23.0	6.2 5.5-6.5	Industrial Paper Mill Sulphite Liquor • Driers (Cobalt, Lead and Manganese Tallates) • Phosphoric Acid • Palm Oil • Poly Butylene • Varnish • Pharmaceutical Agar • Hormones • Pyrogens • Shaving Lotion • Rochelle Salts • Food Processing Skim Milk (raw) • Citric Acid • Cane Sugar (washed raw liquor) • Beer (polishing) • Brandy Still Slop • Lemon Juice • Olive Oil • Pectin (beet) • Vinegar • Wine (polishing)
231 (calcined)	325	23.0	6.0-7.0	
Special Speedflow (flux-calcined)	350	19.0	7.0 5.5-7.0	Industrial Clarification of various Fats • Lanolin • Latex Removal • Sodium Chloride • Food Processing Phosphoric Acid • Lemon Juice • Citrus Pulp • Malt Syrup, Beet (30° Baume) • Cane Sugar (high raw remelt)
Speedplus (flux-calcined)	700	18.5	8.8-9.4	Industrial Sulphite Liquor • Soda Ash Solution • Linseed Oil • Tallow • Driers (Cobalt & Magnesium Tallate) • Magnesium Chloride • Sodium Silicate • Tall Oil • Lube Oil, Diesel • Sodium Chloride • Sulfuric Acid • Tung Oil • Soya Oil • Transformer Oil • Paper Mill Liquors (white water, black liquor) • Pharmaceutical Palm Oil • Alginate Liquors • Streptomycin • Bitters • Shaving Lotion • Food Processing Beer (ruh) • Citric Acid • Citrus Pulp • Cane Sugar (raw affination syrup) • Beet Sugar (thick juice) • Cane Sugar (raw high remelt, washed raw defecated) • Grape Juice • Cottonseed Oil • Wine (rough) • Malt Syrup, Beet (30° Baume) • Pectin (beet) • Brandy Still Slop • Molasses (dilute cane sugar)
Speedex (flux-calcined)	1,030	19.0	10.0-12.0	Industrial Pyroxylin Solution • Hemp Oil • Dopes • Fuel Oil • Mucilage • Aluminum Hydroxide Flocc • Paints • Lacquers • Sol'n's Dye • Wax (linoleum emulsion) • Lube Oil (used) • Still Residue • Food Processing Apple Juice • Citric Acid • Cane Sugar (raw affination syrup, raw high remelt, washed raw defecated) • Beet Sugar (thick juice) • Coconut Oil • Beer (wort) • Drinking Water
4200 (flux-calcined)	1,800	20.0	18.0-20.0	Industrial Pyroxylin Solution • Sol'n's Dye • Linseed Oil (air-blown) • Lube Oil (used) • Rayon Liquor • Acetate Liquors • Dopes • Lacquers • Varnish • Glue & Glycerine Roller Stock • Resins • Aluminum Hydroxide Flocc • Wax (linoleum emulsion) • Type Coating Solution • Food Processing Beer (wort) • Lime Juice • Grape Juice (concentrated) • Corn Gluten • Orange Juice • Swimming Pool Water
4500 (flux-calcined)	1,925	20.0	20.0-22.0	Typical uses for Dicalite 4500, 5000 and 6000 are in filtration of the same liquids for which Dicalite 4200 is used. However, the higher flowrates of these products are very useful when greater filter output is needed. More specifically: typical liquids filtered are Fruit Juices, Glue, Polyethylene, Rayon Liquor, Varnish, and others.
5000 (flux-calcined)	2,050	22.0	25.0-27.0	
6000 (flux-calcined)	2,500	25.0	35.0-38.0	

701047

Dicalite Diatomite Filter

RELATIVE FLOWRATES



Comparative flowratios of both perlite and diatomite filteraid grades are shown on the above chart.

DIATOMITE PHYSICAL CHARACTERISTICS

Color... Calcined, buff to pink; flux-calcined, white
 Organic Matter 0.0%
 Dry Loose Weight 9-12 lbs./ft.³
 Moisture 0-0.5%
 Particle size and size distribution closely controlled according to grade (see next page).
 Specific Gravity Calcined, 2.2; Flux-calcined, 2.3

DIATOMITE CHEMICAL CHARACTERISTICS

Dicalite diatomite filter aids are practically pure amorphous silica, containing a small amount of microcrystalline material. They are processed in the temperature range of 1500° to 2000° F, which burns off organic matter. Both calcined and flux-calcined diatomite are non-adsorptive. Dicalite diatomite filter aids have extremely low solubilities in inorganic and organic acids at both low and high temperatures. Solubilities in strong alkalis are relatively low and will vary according to temperature and time of contact. Calcined diatomites indicate a pH range of 6.7 to 7.5 and flux-calcined products show a pH range of 9.0 to 10.5 in a 10% slurry.

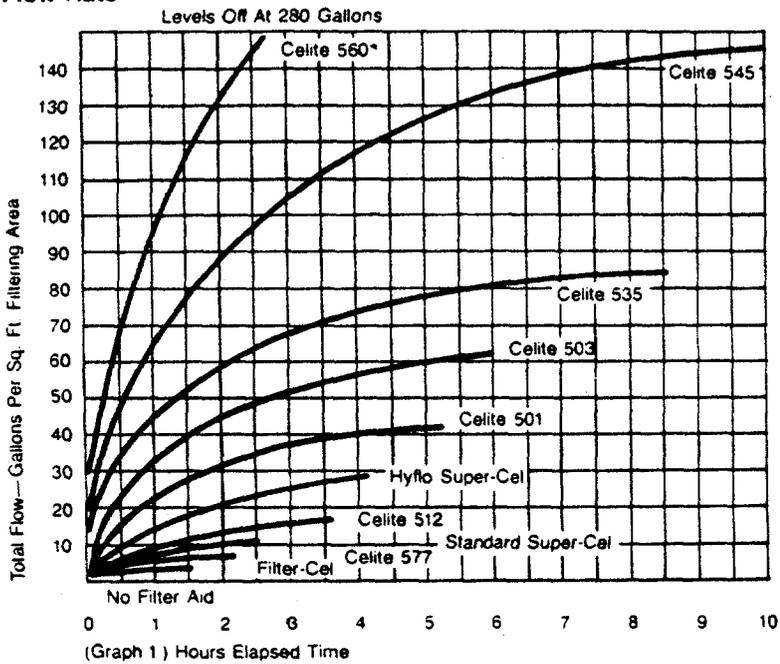
701048

Table A - Particle Size

Weight % Finer Than Micron Size*																	Median Particle Size In Microns	
Micron Size	.5	.75	1.25	1.5	2.5	3.5	5	8	12	17	25	40	60	90	125	175		250
Filter Cel	0	1	7	10	22	31	41	58	72	82	89	96	99	99.7	99.8	100		7.5
Celite 577		0	1.3	3	10	14	26	40	51	61	81	94	98	99.5	99.9	100		12
Standard Super-Cel		0	0.3	0.6	6	13	24	40	66	81	91	97	98	99.5	99.9	100		14
Celite 512				0	2	6	14	33	53	71	84	95	97	98	99	99.5	100	15
Hyflo Super-Cel				0	1	4	9	24	43	55	74	87	92	94	95	99	100	18
Celite 501						0	2	10	15	30	35	61	85	93	96	99	100	20
Celite 503						0	1	3.5	14	29	53	78	91	96	98	99	100	23
Celite 535						0	1	3.5	12	24	46	73	86	93	96	97	100	25
Celite 545							0	2	8	20	44	71	85	92	95	96	100	26
Celite 560							0	1	2	4	7	15	30	44	57	70	100	106

* Data Determined by Coulter Counter®

**Chart 1
Flow Rate**



advantages, among many, of a stronger precoat, longer service from worn screens, easier cake removal, and better filter septum protection. Additional information on Fibra-Cel filter aids may be obtained by requesting Bulletin FF-238 and FA-305.

Also available is a complete line of acid washed filter aids. These products were developed for cases where there is a need for an exceptionally pure filter aid. After the usual processing and purification procedure, the Celite diatomite receives an acid washing which is carried out so as not to impair the original structure of the filter aid. A complete acid removal with water follows. Additional information on Celite Acid Washed Filter Aids may be obtained by requesting Bulletin FF-144.

Typical Diatomite Filtration System

A typical diatomite filtration system is shown in the drawing below. The essentials of this system consist of a filter, filter feed pump, precoat and body feed tanks, and a body feed pump. There are many other items such as a precoat circulating pump, which can be included in the system. Since it is flexible, it should be arranged to suit the particular filtration needs of the individual process.

Selection of Filter and Grades

The selection of the proper grade of filter aid is a compromise between high clarity and low flow rate, and low clarity with high flow rate. The best filter aid is that grade which will give the fastest flow rate (or greatest throughput per dollar's worth of filter aid) and yet provide adequate clarity. The correct clarity must be determined and specified by the filter aid user.

A given liquid clarity is governed principally by:

1. Grade and amount of filter aid for body feed.
2. Grade and amount of filter aid for precoat.
3. Length of cycle.

Because one of the functions of the precoat is to protect the filter septum, it should be fine enough to prevent solids from penetrating it to where they will reach the septum and cause blinding.

Precoating

A precoat is formed by placing a thin layer of diatomite on the filter septum. The purpose of the precoat is threefold:

1. To prevent the filter septum from becoming clogged by impurities, thus prolonging septum life.
2. To give immediate clarity.
3. To facilitate cleaning of the septum at the end of the cycle.

Precoating is accomplished by circulating a slurry of diatomite and filtered, or clear liquid, between the filter and the precoat tank. The amount of precoat should be from 10 to 15 pounds of filter aid per 100 sq. ft. of filter area, the greater amount being used when distribution of flow in the filter is poor, or in starting up new filters. If it is perfectly distributed, 10 pounds of filter aid per 100 sq. ft. of filter area will give a precoat of approximately 1/16" in thickness. If distribution is imperfect with 10 pounds of filter aid per 100 sq. ft., the precoat at the top of the leaves or at the far end of the filter from the precoat slurry entrance may be inadequate. This condition can frequently be remedied by use of baffles.

Precoat slurry concentration will depend primarily on the ratio of filter area to filter and piping volume. The slurries will, however, range from about 0.3% to 0.6%. If they are much below 0.3%, precoating may be difficult since the formation of the bridge depends partly on the "crowding" effect of the particles of Celite trying to get through the septum openings.

The precoating rate will depend mainly on the viscosity of the liquid used. The rate should be sufficient to keep all the filter aid in suspension but should not be fast enough to cause cake erosion in the filter. For water, the rate is from 1 to 2 gallons per sq. ft. of filter area per

minute (gsfm). For viscous liquids, the rate may be as low as 5 gallons per sq. ft. per hour (gsfh). A general rule for precoating is to precoat at that rate which gives a differential pressure of approximately 2 pounds per sq. in. For water, an upward velocity of at least 4½ ft./min. is required for proper filter aid suspension.

Body Feeding

Body feed consists of the addition of small amounts of diatomite during the filtration cycle. Its purpose is to maintain a porous filter cake by preventing the covering of the precoat surface with solid impurities which would eventually restrict the liquid flow until little if any liquid could be passed through the filter.

The amount of filter aid for body feeding is primarily dependent upon the amount of solid impurities present and the compressibility of these solids. The amount used is expressed as a ratio to the suspended solids it is removing. Typical usage ranges from 1 pound of filter aid per pound of solids for non-compressible turbidity to 10 pounds filter aid per pound of compressible solids.

The use of lesser amounts usually results in the diatomite being surrounded by solids and serves only to increase the cake thickness without aiding its porosity. On the other hand, excessive amounts of body feed result in decreased throughput as the solid impurities become lost in the diatomite while cake thickness is increased unnecessarily.

More detailed information on filtration procedures may be obtained by asking for a copy of FA-84A, Filter Aid Filtration.

