Conference Proceedings: "The Impact on Industry of the Clean Water Act of 1977 and Cost-Effective Wastewater Treatment Technologies in Puerto Rico"
Date: January 26, 1979
Sponsored by: Institute of Chemical Engineers
In cooperation with: Center for Energy and Environment Research

"Legal Aspects of NPDES Permits", Mr. Antonio Escudero-Viera, Beq., McConnell, Valdés, Kelly, et al.
"The NPDES Program and the Water Quality Certificate in Puerto Rico", Mr. Carlos O'Neill, Environmental Quality Board.
"The Clean Water Act", Mr. John Frisco, Environmental Protection Agency.
"Pretreatment Program in Puerto Rico", Mr. Rafael Andreu Villeg, Environmental Protection Agency.
"Land Treatment of Industrial Wastes", Dr. Rafael Ríos Dávila, Water Research Institute, University of Puerto Rico.

Presentations made by Dr. Rafael Muñoz Candelario and Mr. A. Heres were not included because they are not authorized to be published at this moment. If you're interested, please contact them at 832-4040 and 725-9030 respectively for specific information on when they will be available to the public.

Introduction:

The permit program under the National Pollutant Discharge Elimination System ("NPDES") established under Section 402 of the Federal Clean Water Act is the mechanism through which water quality standards and limitations are applicable nationwide to individual discharge points. All discharge points, whether federal, municipal, or industrial, were legally required to obtain an NPDES permit before December 31, 1974 (Section 402(k)). (The references in parentheses are sections of the Federal Clean Water Act.) Since NPDES permits are not valid for more than five (5) years, the vast majority of sources are currently involved in the process of negotiating the second generation of permits. The regulation that covers this process is codified in Title 40 of the Code of Regulations.

Federal Part 126 and 125 (1977). It is important to note, however, before diving in, that on August 10, 1978, the Federal Agency for Environmental Protection (EPA) proposed extensive revisions to the existing regulations governing the permit mechanism. This was published on August 21, 1978, in the Federal Register, Volume 43, page 37,078.

INSTITUTE OF CHEMICAL ENGINEERS SAN JUAN, PUERTO RICO in cooperation with CENTER FOR ENERGY AND ENVIRONMENT RESEARCH University of Puerto Rico PROCEEDINGS OF CONFERENCE ON THE IMPACT OF INDUSTRY ON ‘THE CLEAN WATER ACT OF 1977 COST-EFFECTIVE WASTEWATER TREATMENT TECHNOLOGIES IN PUERTO RICO LEGAL ASPECTS OF NPDES PERMITS. ANTONIO ESCUDERO-VIERA, ESQ. PARTNER McCONNEL, VALDES, KELLY, SIFRE, ET.AL. HATO REY, PUERTO RICO JANUARY 26, 1979

CONTENT & CONDITIONS OF A PERMIT A NPDES permit incorporates discharge limitations and standards promulgated under sections 301, 304, 306, and 307, as well as water quality limitations established under section 302 for individual sources.

Although Congress generally contemplated that discharge limitations would be implemented before permits were issued, the law provides for the opposite situation. That is, NPDES permits can be issued "subject to the condition that such discharge complies, either with all the requirements applicable under sections 301, 302, 306, 307, 308, and 403 of the Law or before the implementation actions necessary in relation to all these requirements or those conditions that the Administrator determines are necessary to carry out the provisions of the Law." (Section 402 (a) (1))

Therefore, before adopting discharge limitations for the industry, EPA can issue individual permits containing "those conditions that the Administrator determines are necessary to carry out the provisions of" this Law. A permit normally contains a number of

Otras condiciones, en adición a indicar qué cantidad de un contaminante puede ser descargada, contienen, por ejemplo, fechas finales para cumplir con limitaciones y estándares, fechas interinas para la sumisión de planos a la Agencia, fechas de comienzo de construcción y aquellos otros pasos relacionados con la instalación de equipo para el control de la contaminación (40 CFR 124.44, 128.23 (1977)). En adición, en virtud de la sección 308 (a), el permiso puede requerir que la industria que instale equipo de muestreo, tome muestras de las descargas, mantenga récords y ofrezca información a EPA o al Estado (40 CFR 124, Subparte g (1977), 40 CFR 125.27 (1977).

PROCEDIMIENTO PARA OBTENER UN PERMISO NPDES

El procedimiento mediante el cual se obtiene un permiso NPDES puede dividirse en varios pasos, cada uno de los cuales describo a continuación:

(a) Solicitud: El proceso comienza con la solicitud para un permiso NPDES, bien sea en su forma estándar o en su forma corta (40 CFR 125.2 (1977). La solicitud que se someta por una corporación debe estar firmada por el principal oficial ejecutivo, al menos a nivel de vicepresidente o su representante autorizado (40 CFR 125.12 (0) (1977). El titular de un permiso que desea continuar descargando luego que expira el permiso debe solicitar su reexpedición no menos de 180 días antes de su fecha de expiración (40 CFR 125.12 (j) (1977)). Finalmente, en cuanto a la solicitud se refiere, deben tener presente que recientemente el asesor legal de la EPA en Washington determinó que la información que se somete en una solicitud o aquella que forma parte de un permiso NPDES no es confidencial (General Counsel's Clans Determination 1 = 78).

Para el caso de Puerto Rico, hay que solicitar de la Junta de Calidad Ambiental un Certificado de Calidad de Agua. La Sección 401 (a) (1) de la Ley de Agua Limpia requiere que el estado, en este caso Puerto Rico, certifique que la descarga propuesta no viola el Reglamento de Estándares de Calidad de Agua de

Puerto Rico, aprobado en 1973 y subsiguientemente enmendado en 1976, (Nota: Estándar de Calidad de Agua - En la declaración de política pública contenida por la Sección 101 (b) de la Ley,

el Congreso reconoció la responsabilidad y el derecho en primera instancia de los estados para prevenir, reducir y eliminar la contaminación. Antes de 1972, la gran mayoría de los estados habían adoptado normas de calidad de agua basadas en el impacto de la descarga en aguas navegables. El Congreso decidió conservar el derecho de los estados a establecer dichos estándares de calidad de agua y en 1972 requirió que cualquier permiso incluyese limitaciones a las descargas suficientes para asegurar el cumplimiento con dichos estándares. (Sección 301 (b) (1) (c) y 402 (a) (1)). Los estándares de calidad de agua se derivan del nivel de descarga de contaminantes que pueda ser asimilado por un cuerpo de agua sin que se deteriore su uso designado. La disponibilidad de tecnología de control no es un factor relevante a pesar de que los factores tecnológicos se consideran en determinar los requerimientos mínimos necesarios para conservar el uso deseado de un cuerpo de agua. Normalmente los estándares de calidad de agua para cualquier cuerpo de agua contienen dos elementos: Un uso o usos designados y una concentración máxima para un contaminante específico. La Sección 303 (a) conserva los estándares de calidad de agua que estaban en efecto antes de 1972. El procedimiento para cambiar los estándares que no eran consistentes con la Ley se dispuso en la Sección 303 (a). Además, cualquier estado que no había adoptado estándares de calidad de agua antes de las enmiendas de 1972 se le concedió seis meses para adoptar y someter dichos estándares. La agencia estatal (en nuestro caso la Junta de Calidad Ambiental) tiene tres alternativas: aprobar, denegar o renunciar a la certificación. La propia ley impone una renuncia si no se expide el Certificado de Calidad de Agua dentro de un "periodo razonable (que no excederá de un año)".

Desde el punto de vista de ingeniería, o más bien desde el punto de vista que concierne a los ingenieros, deben tener presente que los reglamentos y estándares de calidad de agua de Puerto Rico recogen unos estándares sumamente estrictos. Desde el punto de vista legal, deben tener presentes dos aspectos: (1) que si la agencia estatal deniega el permiso, la agencia federal está impedida de expedir un permiso NPDES y (2) que la negociación y la resolución judicial de un Certificado de Calidad de Agua tiene que hacerse en las cortes estatales. Es decir, que a pesar de que más adelante en el procedimiento pueden hacerse comentarios sobre el Certificado de Calidad de Agua, si una fuente no está conforme con el contenido del Certificado de Calidad de Agua, el foro apropiado para dilucidar dicha controversia es el tribunal local y no la agencia federal.

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La EPA hace entonces una determinación preliminar sobre si va a expedir o va a denegar el permiso. Si decide expedir el permiso, se prepara un borrador de permiso que contiene las limitaciones propuestas, los plazos de cumplimiento y cualquier otra condición (40 CFR 125.31 (1977)). Se publica un aviso sobre la determinación preliminar a las agencias de gobierno (40 CFR 125.14 (1977)) y a todas las personas interesadas (40 CFR 125. 32 (a) (1977). El público tiene entonces 30 días siguientes a la publicación del aviso para someter comentarios por escrito sobre el permiso preliminar o para solicitar que se celebre una vista (40 CFR 125.32 (b) (1977)). La vista pública tiene por obligación que celebrarse si la agencia determina que existe un grado significativo de interés público sobre el permiso propuesto (40 CFR 125.34 (a) (1977)).

El Administrador Regional está facultado para hacer una determinación final sobre la solicitud no menos de 30 días luego de publicado el aviso de su decisión preliminar (40 CFR 125.35 (1977). El otorgamiento del permiso constituye una determinación.

Administrativa Señal, a menos que se solicite y se conceda una vista adjudicativa (40 CFR 125.35 (c) (1977). 1:4 en manos (c) Vista Adjudicativa: Cuando el otorgamiento del permiso de EPA, como es el caso de Puerto Rico, cualquier persona con interés puede solicitar del Administrador Regional que se celebre una vista adjudicativa si se solicita dentro de los diez (10) días siguientes a la determinación final para admitir o denegar el permiso (40 CFR 128.26 (hd) (19779).

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La solicitud tiene la obligación de ser concedida si se hace en la forma apropiada y contiene hechos materiales relevantes a si el permiso debe ser expedido, denegado o modificado (40 CFR 125.36 (c) (1977). Si la solicitud se concede, el efecto de aquellas partes del permiso que son objeto de la vista se pospone hasta que haya una determinación final de la EPA (40 CFR 125.35 (4) (2) (1977).

La vista adjudicativa es presidida por un oficial examinador quien es nombrado por EPA, y se recibe testimonio oral y escrito. Se permite el contrainterrogatorio y se lleva un registro (40 CFR 125.36 (i) (1977).

Al finalizar la vista, el oficial examinador certifica el registro junto con sus determinaciones de hecho propuestas al administrador Regional. Si existen cuestiones de derecho planteadas, el Examinador las certifica al Sub-Administrador a cargo de "enforcement" y al Asesor Legal General.

El Sub-Administrador Regional entonces considera el registro y emite una decisión inicial sobre los puntos objeto de disputa que no sean cuestiones de derecho. Las cuestiones de derecho se deciden por el Sub-Administrador a cargo de "enforcement" y el Asesor Legal General (40 CFR 125.36 (1) (2), (1977).

La decisión del Sub-Administrador a cargo de "enforcement" y del Asesor Legal General sobre cuestiones de derecho se convierte en final después de haberlas comunicado al Administrador Regional, al oficial examinador y a las partes.

La decisión inicial del Administrador Regional es final a menos que dentro de los 10 días de su emisión una de las partes solicite una revisión.

En cualquier permiso, estás condiciones NPDES. Sin embargo, bajo la Sección 122.14 propuesta, condiciones ya establecidas, así como cuatro nuevas y significativas condiciones serán obligatorias para todos los tenedores de permisos, independiente de que se incluyeran o no en el permiso. Las nuevas propuestas son las siguientes: (a) El tenedor del permiso estaría limitado a niveles de descarga de contaminantes informados en la solicitud, si el contaminante no se limita de otra forma en el permiso. (b) El tenedor del permiso estaría impedido de descargar cualquier contaminante para el cual se solicitó información en la solicitud, a menos que expresamente lo autorice el permiso. (c) El tenedor del permiso estaría impedido de "bypass" de las facilidades de tratamiento, a menos que el "bypass" fuese necesario para impedir pérdida de vida, daños serios o graves daños a la propiedad y en el caso donde no existan alternativas viables y aviso sobre dicho "bypass" sea dado con anterioridad. (d) El tenedor del permiso podría justificar un incumplimiento a

las condiciones del permiso, si dicho incumplimiento se causa por un "upset", es decir, factores que estén más allá del control razonable del tenedor del permiso, a pesar de tener diseños, operación y prácticas de mantenimiento adecuados. 6, Limitaciones y Condiciones - La reglamentación y los requerimientos aplicables al permiso NPDES serían aquellos que estuviesen en vigor antes de la expedición del permiso por EPA. Las reglas propuestas clarifican las condiciones que deben incluirse en un permiso si fuese necesario, incluyendo limitaciones más estrictas que aquellas basadas en guías tecnológicas; la opción de las mejores prácticas de administración bajo la Sección 304 (e) y los estándares de pretratamiento bajo la Sección 307. EPA además requeriría que las limitaciones y condiciones de un nuevo permiso sean tan estrictas como aquellas que contiene el permiso que expiró, aún cuando dichas condiciones sean más estrictas que las guías de descargas subsiguientemente.

The National Pollutant Discharge Elimination System (NPDES) is a permit program designed to control the discharge of pollutants into surface and coastal waters. It constitutes the legal mechanism upon which state and federal agencies rely for the abatement of water pollution. This permit program replaces and improves the old permit system under the 1899 Refuse Act, which was administered by the U.S. Corps of Engineers. Today, this program is administered by the federal government through the U.S. Environmental Protection Agency (EPA) and co-administered by the corresponding state environmental agency, the Environmental Quality Board (EQB).

The NPDES permit is implemented as a mechanism to ensure that effluent limits are met, the necessary technology is applied, and that all requirements of the Clean Water Act and applicable Water Quality Standards are met on schedule. Under this law, it is illegal to discharge any pollutant into the nation's water without an approved NPDES permit. Many people have identified the NPDES permit as a "license to pollute," but on the contrary, the permit regulates both qualitatively and quantitatively what may be discharged.

Such a permit sets specific limits on the effluent from each point source. It commits each discharger to comply with all applicable provisions of the Federal Clean Water Act and Water Quality Standards Regulation. If an existing discharger cannot comply immediately, the permit sets target dates to achieve compliance. The permit commits the discharger to reduce or eliminate its discharges in an orderly fashion, in specified steps at specified dates. These commitments are legally enforceable.

If a permit contains a compliance schedule, each step can be enforced without waiting for final compliance, and clear limits are put on discharges while the polluter is moving toward compliance. A guarantee that a permit is not a "license to pollute" is that the entire process must be carried out with public transparency. Under the Clean Water Act, the permit

The applications and proposed permits are available to the public. There is an opportunity for a public hearing before a permit is issued or denied. The permit itself, along with all conditions and requirements, is also a public document. The monitoring information that permit holders must report is also available to the public. The NPDES permit, in essence, is a contract between a discharger and the government. If a discharger violates the conditions of the permit or makes illegal discharges without a permit, such discharger is subject to fines and may even face imprisonment.

Both the EPA and EQB can enforce compliance with permit conditions by issuing administrative orders that are enforceable in state and federal courts, or by seeking administrative or court actions.

After receiving the permit application, both agencies evaluate it. To comply with section 401 of the Act, before the EPA can issue an NPDES permit, a Water Quality Certification must be received from the state in which the discharge takes place. This is to ensure that the discharge will not violate national effluent limitations and to assure that applicable water quality standards applied to the receiving body of water will not be exceeded as a consequence of the discharge.

In order to comply with this section, the EPA proposes a draft permit and requests a Water Quality Certificate (WQC) from EQB. In the Commonwealth of Puerto Rico, the Environmental Quality Board is the agency responsible for issuing such certification. A first limitation is reviewed. The limitations imposed in the draft permit are compared with applicable Water Quality Standards Regulations, and then the EQB modifies such limitations to ensure compliance with local regulations. It also sets special conditions to assure compliance with the state's continuous planning process and state strategy to abate water pollution (e.g., 205b and 208). In the analysis and development of the draft water quality certificate, the EQB utilizes the most recent techniques of mathematical modeling in order to impose the appropriate limitations.

Discharge limitations are established in such a way that the applicable Water Quality Standards of the receiving waters can be reasonably assured and maintained. At the end of the analysis, the Board prepares a draft Water Quality Certificate, a draft NPDES permit, preliminary determinations, and states its intent to issue a Water Quality Certificate and a Public Notice.

The Comprehensive Water Quality Management Plan for Puerto Rico spans from 1970 to 2020 and includes 208b goals and progress of statewide water quality management planning. This information is detailed in the 208 Water Quality Management Plan for the Island of Puerto Rico.

In some instances, there is reasonable assurance that the discharge will not comply with applicable Water Quality Standards. In such cases, the certification is denied. The intent to issue or deny a certification is published after a thorough evaluation of the information concerning the discharge and through field inspections to the sites.

To ensure public participation in the process of issuing the Water Quality Certification, an appropriate public notice is published in the local news media. This notice allows 30 days to receive comments from the general public and/or from the applicant. If no comments or opposition are received after this period of public participation, the Board automatically issues the final Water Quality Certificate to the applicant and to the EPA.

During the public participation period, a public hearing may be requested. The EQB will consider the reasons for such a request and, at its discretion, may grant a hearing to consider the draft Water Quality Certificate. The EQB designates the hearing panel and notifies the general public 30 days in advance by publishing an appropriate public notice in the news media.

After the public hearing is held, the hearing panel submits its recommendations to the Board for the final determination. The Board then issues the final Water Quality Certification to the applicant and the EPA. As soon as the federal agency receives the final Water Quality Certificate, the EPA is in a position to finalize their decision.

Procedure to issue the final permit to the applicant:

The permit system grants the state certain powers in the case of Puerto Rico, including the right of entry to the permittee's premises to inspect and monitor sources of pollution. The state also has the authority to require polluters to install monitoring equipment, maintain records, and submit reports.

Additionally, the Board has the right to immediately halt discharges that pose an imminent or substantial threat to public health. As part of the permit, dischargers are required to continuously monitor their waste and report on the amount and nature of all waste components. These reports, known as Discharge Monitoring Reports, are evaluated upon submission by EQB and EPA staff to ensure that reported values are within the permitted limits.

If any violation is reported in the Discharge Monitoring Report, the permit holder should include a non-compliance notice explaining the reasons for the non-compliance. This non-compliance notification is evaluated to determine further action.

Should a discharger continuously violate the conditions of the permit, EQB or EPA may require the discontinuation of said discharge until necessary changes or adjustments are made to achieve compliance with the limits specified in the permit. The EQB also conducts compliance and sampling inspections for those industries or facilities that have NPDES permits, to verify the accuracy of the information submitted in the self-monitoring report and assess compliance with the conditions of the permit.

At present, as stated before, the NPDES permit is issued by the EPA, but through the Water Quality Certification process, the participation of EQB is guaranteed in the development of all permits within the jurisdiction of Puerto Rico. In the near future, EQB intends to apply for and receive delegation of the NPDES permit program to issue and administer the entire program. This move towards delegation is part of the comprehensive Water Quality Standard Regulations.

"Assure a proper mechanism to implement such a program in accordance with EPA's requirements. In conclusion, the NPDES permit program aims to restore and maintain the chemical, physical, and biological integrity of the surface and coastal waters of Puerto Rico. Both federal and state laws provide us with formidable tools to reach this objective. The Board needs and looks forward to the support and cooperation of the industry, other government agencies, and the general public to help us apply these tools and implement the permit program, as well as to carry out our responsibilities to protect our public health and our environment.

INSTITUTE OF CHEMICAL ENGINEERS SAN JUAN, PUERTO RICO

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PROCEEDINGS OF CONFERENCE ON THE IMPACT OF INDUSTRY ON ‘THE CLEAN WATER ACT OF 1977

COST-EFFECTIVE, WASTEWATER TREATMENT TECHNOLOGIES IN PUERTO RICO

‘THE CLEAN WATER ACT

ENG. JOHN FRISCO, WATER FACILITIES BRANCH, REGION II ENVIRONMENTAL PROTECTION AGENCY

JANUARY 26, 1979

I am here to talk to you about the 1977 Amendments to the Federal Water Pollutant Control Act, also known as the Clean Water Act. Most of our discussions today will focus on new industrial requirements. With the amendments, Congress has made some very significant changes to the original Act. One of the most important is the emphasis now placed on the control of toxic substances. Another is the elimination of the requirement for the industry to build treatment systems when there is apparently no environmental benefit in doing so. The Act establishes new classes of pollutant limitations for industrial discharges and, in addition, extends the deadlines for meeting those limits. It also provides an incentive for the industry to develop innovative technology to treat its wastewater discharges. Now, let's discuss these."

Changes in more detail. The new Act establishes three classes of pollutants - conventional, non-conventional, and toxic. Conventional pollutants are those that have commonly been regulated in the past. These are BOD, TSS, fecal coliforms and pH. I believe COD and Oil & Grease have recently been added to the conventional list.

Under the old Act, effluent limits for conventional pollutants were to be met in two steps. The first step required the installation of best practical treatment systems, or BPT, no later than July 1, 1977. The second step involved a higher level of treatment, which we have termed BAT, for best available treatment. Compliance with BAT standards was required by July 1, 1983.

The new Act creates a new level of treatment for the control of conventional pollutants, namely, best conventional treatment, or BCT. Compliance with this new standard has been extended until July 1, 1984. In terms of comparison with BPT and BAT, BCT is likely to lie somewhere in between. BCT was established so that industries which have already complied with BPT standards would not have to unnecessarily install additional treatment facilities.

The way in which this necessity is determined is simply based on economics. Specifically, the cost for industry to go from BPT to BAT is compared with municipal treatment cost to achieve a similar reduction in pollutants. If the industrial cost is higher, the BAT standard is eliminated and the industry is only required to comply with the first step BPT standard. At the current time, EPA is re-evaluating almost all of its previously issued effluent guidelines. New BPT standards are expected to be published in the Federal Register momentarily.

Now that we've discussed conventional pollutants, let's talk a little about another of the three classes of pollutants established by the new Act, namely toxic pollutants. Toxic pollutants are defined in Section 307 of the Clean Water Act. At the present time, they include the

The text has been corrected as follows:

65 classes of pollutants are listed in the NRDC consent agreement. For those of you not familiar with the NRDC consent agreement, it resulted from a lawsuit against the EPA by the Natural Resources Defense Council. The suit involved the EPA's failure to establish standards for the discharge of toxic pollutants directly into waterways and into municipal sewage treatment plants. An agreement was eventually reached whereby the EPA would develop standards for 65 toxic pollutants as discharged by 21 primary industries. These industries were selected due to the nature of their operations and their high potential to discharge one or more of the 65 toxic pollutants. The EPA has the responsibility to periodically review the list of pollutants and industries and make changes when appropriate. When Congress amended the Act, it virtually incorporated the entire NRDC consent agreement into the new amendments. The new Act also established that BAT or best available treatment would form the basis for effluent limitations for toxic pollutants. However, it did extend the date for compliance with BAT standards from July 1, 1983, to July 1, 1984. One added point - the EPA will be developing standards for the 65 toxic pollutants and 21 primary industries, both for direct dischargers or those that need NPDES permits, and also for those industries that discharge wastes into municipal sewage treatment plants. In this latter case, the limits will be expressed in terms of concentration and will be designated pretreatment standards. As usual for direct dischargers, effluent limits will be expressed in terms of mass loading per unit of production. Pretreatment standards will be expressed in concentration terms to make enforcement by local authorities easier. However, the same BAT technology will be the basis for both types of effluent requirements. As you know, EPA's pretreatment strategy places primary responsibility for enforcement of industrial standards.

At the local level, federal backup is provided when necessary. The final class of pollutants established by the new amendments is nonconventional. Nonconventional pollutants include everything except conventional and toxic pollutants. While this may seem like a lot of pollutants to be regulated, I don't believe that the EPA will be devoting much time to the development of effluent limits for pollutants in this class, except in some very rare or specific cases.

As I initially stated, the major focus of the new amendments is on the control of toxic pollutants. When limits for nonconventional pollutants are developed, they will be based on the consideration of a BAT level of technology, similar to the technology employed for toxic pollutants. Again, I do not believe that there will be much agency activity in this area. And if standards are developed, there are all kinds of environmental and economic variances.

In summary, I think the new amendments are both significant and beneficial. By placing the emphasis on the control of toxic substances and eliminating the need for unnecessary waste treatment facilities, the new Act is more compatible with today's problems.

Now, what does it all mean to you? We've discussed the types of pollutants, levels of treatment, and deadlines for compliance. As usual, the mechanism for achieving treatment objectives is the NPDES permit program. If you represent an industry that discharges waste directly into a

waterway, you very likely already have an NPDES permit. In fact, that permit was probably issued some time ago and will be expiring soon. You are required to submit a renewal application at least 180 days or 6 months before your current permit expires, although I would suggest that you do not wait that long. We want to be sure that a new permit is issued before the old one expires. The type of permit that the EPA will reissue will depend on the nature of your business, or specifically, whether or not you represent one.

Of the 21 primary industries, if 90% or more is covered, a short term permit of approximately 2 years duration will be issued. During the next 2 years, the EPA will be developing guidelines for the 21 primary industries. Until these new guidelines are published, we will simply be extending the terms of your current permit. When appropriate, we will adjust some of the limits to more accurately reflect current operating conditions. In approximately 2 years, a new permit of 5 years duration will be issued based on the new guidelines and requiring compliance by 1984.

If your business is not included in the 21 primary industry categories, then we would, in general, not expect to be concerned about toxic pollutants. In these cases, the EPA would not be developing BAT PE standards for toxic pollutants. However, these so-called secondary industries would be required to comply with BCT standards no later than July 1, 1984. If you recall, BCT or best conventional treatment is the new level of technology established for the control of conventional pollutants. A secondary industry would be expected to discharge conventional pollutants and, therefore, would be required to comply with BCT standards. In this case, a 5 year permit will be issued with BCT requirements as soon as your old permit expires.

As a final case, if you represent an industry that discharges all wastes to a municipal sewage treatment plant, you are subject to pretreatment standards. While general pretreatment standards will apply to all industries in municipal systems, specific numerical limitations will only be developed for 65 toxic pollutants and 21 primary industries. If you are included in this primary industry category, a pretreatment standard will be established which must be complied with within 3 years of the date it is published, but in no event later than July 1, 1984. If you represent a secondary industry and are currently complying with your sewer use ordinance, it is likely that additional requirements will be enforced.

The text appears to be a mix of coherent sentences and a random string of characters and symbols that do not form meaningful English sentences or phrases. It seems like there might have been an error in data transmission or conversion.

Here's the coherent part of the text corrected:

"Will not be imposed by EPA. This, of course, is left to the discretion of the local authority. To repeat one point, it is our intention that the responsibility for the enforcement of pretreatment standards be placed at the local level. All efforts will be made to ensure that local authorities have the capability to administer pretreatment programs to the thousands of industries in their systems. This will minimize the resource requirements on EPA and, at the same time, allow the Agency to provide backup to local authorities when necessary. This, in general, summarizes the amendments to the Act, particularly as it relates to the industrial sector, and also gives you some idea on how the Region II office intends to proceed with permit activities. If you have any questions at this time, I shall be happy to try to answer them."

As for the rest of the text, I'm unable to translate or correct it as it doesn't seem to be in English or any recognizable language.

Corrected Text:

Pushing structured your busy Aqua had reasons plus objectives to work towards. In the eyes of thousands and more, Aqua had tens of supporters per their objectives to win over. With a substantial budget, they were ready to achieve unparalleled success.

Page Break

SCHEDULE FOR NEW PRETREATMENT AND BAT GUIDELINES INDUSTRY PROPOSAL DATE

1. Timber Products Processing 9/30/78
2. Steam Electric Power Plants 8/31/79
3. Leather Tanning & Finishing 12/30/78
4. Iron and Steel Manufacturing 6/30/79
5. Petroleum Refining 4/9/79
6. Nonferrous Metals Manufacturing 5/7/79
7. Paving and Roofing (Tars and Asphalt) 12/31/78
8. Paint and Ink Formulation and Printing 5/31/79 - 5/1/80
9. Coal Mining 8/31/79
10. Ore Mining and Dressing 12/31/78
11. Inorganic Chemical Manufacturing 5/31/79
12. Organic Chemical Manufacturing 9/30/79
13. Textile Mills 3/31/79
14. Plastic and Synthetic Materials Manufacturing 9/30/79
15. Pulp and Paperboard Mills and Converted Paper Products 6/30/79
16. Rubber Processing 6/30/79
17. Auto and Other Laundries 6/30/79
18. Soap and Detergent Manufacturing 9/30/79

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INDUSTRY

19. Machinery and Mechanical Products Manufacturing
20. Miscellaneous Chemicals
21. Electroplating

Each industry is defined by SIC at 43 Federal Register 22160 (May 23, 1978). Date depends on industrial sub-category.

PROPOSAL DATE:

6/22/79 - 11/30/80
6/30/79 - 10/31/79

12/15/79

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PROCEEDINGS OF CONFERENCE ON THE IMPACT OF INDUSTRY OF THE CLEAN WATER ACT OF 1977 AND

Cost-Effective Wastewater Treatment Technologies in Puerto Rico: Pretreatment Program in Puerto Rico by Eng. Rafael Andreu Villegas, Environmental Protection Agency, San Juan Field Office, January 26, 1979.

As many of you are aware, the EPA has been working on a national pretreatment policy for several years due to concerns over the environmental problems caused by industrial discharges to Publicly Owned Treatment Works (POTW's). Considering the large number of industries that would be affected by pretreatment standards, the Agency has devoted a substantial amount of time and effort in developing a national policy. The EPA encouraged a maximum degree of public involvement, more than in any other category.

In February 1977, the Agency proposed four pretreatment strategy options to the public for consideration and comment. Four public hearings and numerous public meetings were held on these proposals, and over 375 sets of written comments were received. In addition to the public's input, there was major congressional consideration of pretreatment in the 1977 amendments to the Water Pollution Control Act, now known as the Clean Water Act.

On June 26 of the same year, the EPA published general pretreatment regulations establishing mechanisms and procedures for controlling the discharge of industrial waste into POTW's. This was presented at the Impact on Industry of the Clean Water Act of 1977 and Cost-Effective Wastewater Treatment Technologies in Puerto Rico event, held at the Colegio de Ingenieros y Agrimensores de P.R., on January 26, 1979, at the Caribe Hilton Hotel, San Juan, Puerto Rico.

The objectives of the National Pretreatment Regulation are:

1. To prevent the discharge of pollutants that will interfere with the operation of POTW's by upsetting the biological treatment process, damaging plant equipment and sewers, or in extreme cases, endangering plant employees.

2. To prevent the discharge of pollutants that are not susceptible to treatment in sewage treatment plants and can pass directly through the plant into the environment.

Quantities that would be unacceptable if discharged directly.

3. To prevent the discharge of pollutants that contaminate the POTW's sludge and make it unfit for beneficial uses such as application to exop land.

The final strategy selected by the EPA involves the establishment of national pretreatment standards for 65 toxic pollutants that may be discharged by 21 industrial categories. Standards on these toxic pollutants will be set on an industry by industry basis. Although the initial focus will be on covering the 65 pollutants and 21 industries, additional pollutants and industries may be added at a later date. In other cases where incompatible pollutants are discharged, the EPA will issue guidance to state and local governments on how best to control these pollutants.

Where national standards are set, specific pollutant discharge limits will reflect the application of the best available treatment. Pretreatment standards will express discharge limits in easier to enforce concentration limits but where possible will provide an equivalent mass limit which may be used by enforcement authority if it desires. Compliance dates for pretreatment standards will normally be three years after promulgation. The agency will initially encourage POTWs to enforce National Pretreatment standards and POTWs receiving new construction grants will have to develop enforcement programs as part of their grant.

The costs of developing local pretreatment programs are grant eligible in PRASA. Municipalities with flows of over 5 MGD which receive industrial waste will be required to have a pretreatment program in effect within 3 years of the NPDES permit reissuance or modification but in no case later than July 1, 1983. Since we are in the process of modifying the permits to these municipalities, we expect many local pretreatment programs to be developed well before the 1983 deadline. Where POTW's authorities have not established local pretreatment programs, the EPA will enforce violations of pretreatment standards directly against violators.

Industry. Where a local program was required but not developed, enforcement actions will be taken against the owner as well as against the industry.

In order to prevent the industry from having to install unnecessary treatment for regulated pollutants, the regulation provides for modification of the national standards to reflect the capability of the POTW to remove the pollutants. To obtain such a modification, the POTW must develop an approved local pretreatment program. Secondly, the POTW must consistently remove the pollutants at the level claimed and thirdly, show that the modification of the standards will not create problems for the disposal of the sludge.

In Puerto Rico, fortunately, there are no municipal authorities as there are in the states. Therefore, here, the pretreatment program will be the "work and art" of the AAA; to be developed with the assistance of the JCA and the EPA. In these, we have received the plan to develop the pretreatment program in Puerto Rico. The plan is based on the federal regulation of June 26, 1978, effective August 25 of the same year, and proposes the strategy for developing, implementing, and maintaining the pretreatment program throughout the island. We are currently reviewing it and will comment soon to the AAA, so we expect to have a work plan for the coming weeks with federal participation of 75% of the necessary funds to develop the program in Puerto Rico. But, what does

all this mean for industries and commercial establishments that discharge effluents to the treatment plants of

the AAA now? And for those who could choose to do so in the future using the new facilities that are currently being built under the Treatment Plant Construction Program with EPA funds? Basically, it means that any discharge of some "contaminant", industrial or commercial, to AAA treatment plants that (1) interferes with the operation of the plant (ii) or passes "from

"Largo" y pueda salir al ambiente en cantidades no aceptables por los límites de calidad de agua o (ii) que de alguna forma interfiera con la posible utilización y/o disposición de los cienos, tendré, la industria, que proveer el pre-tratamiento necesario para evitar dicha consecuencia. En cuanto al estudio para desarrollar el programa de pre-tratamiento se contemplan, entre otras, las siguientes actividades: 1. La identificación de las áreas de estudio. 2. Preparación de un inventario de industrias, incluyendo las que no descargan actualmente a plantas de AAA. 3. Identificación de aquellas industrias que requieren "monitoreo". 4. Identificación de los parámetros a estudiarse. Desarrollo y estudio de los resultados del programa de monitoreo. 6. Delineación de las regiones y desarrollo del programa de pre-tratamiento por regiones.

Algunas actividades que se desarrollarán concurrentemente incluyen: evaluar la autoridad legal existente en la AAA para controlar y poner en vigor este programa, evaluar las fuentes de financiamiento para su fase operacional, determinar los niveles de tolerancia y de remoción de las plantas existentes y futuras, cambios en los requisitos de los permisos NPDES y analizar los recursos necesarios para implementar y mantener en vigor el programa. Todo esto no es nada más que la implementación de un requisito federal indispensable para lograr una eficiente operación de nuestras plantas y así mejorar la calidad de las aguas de Puerto Rico. Por su parte, la AAA ha estado implementando su Reglamentación para el Uso del Servicio Sanitario Doméstico e Industrial, mediante el cual se requieren algunas medidas de pre-tratamiento. Ejemplos de industrias que actualmente están prestando sus efluentes son la Du Pont, la Digital de San Germán que ha bajado la descarga de Cu, y la Pamco de Río Piedras dedicada al "electroplating". Ahora bien, quiero presentarles en la mañana un caso de lo que algunas veces significa en "dólares y centavos" el control de contaminación. Según la primera.

Mass law in chemical engineering states, "Everything that goes in comes out or accumulates." However, in many cases, we voluntarily let our profits escape through the liquid effluent. This was the case for a dye factory in Aguas Buenas, which upon receiving notification from AAA that they would impose a surcharge for the color, decided to neutralize it with more chemicals, thus increasing the BOD to over 20,000 mg/l. When AAA found out, they decided to impose a surcharge of 49 times the normal rate. This precipitated a study of processes and production, finding that money was being lost through the discharge. Thus, with a small investment and some corrective operational measures, they were able to considerably save on raw materials and surcharges in the long run. The moral is clear, let's first seek the solution to pollution control where it is produced, in the processes and operation. I could continue and try to present you with the requirements and peculiarities of the pre-treatment program regulations, but I would only confuse you. And since everything is written, I invite you to request a copy of the regulations from our office in Puerta de Tierra so you can provide us with the cooperation we need.

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PROCEEDINGS OF CONFERENCE ON THE IMPACT OF INDUSTRY ON THE CLEAN WATER ACT OF 1977

COST-EFFECTIVE WASTEWATER TREATMENT TECHNOLOGIES IN PUERTO RICO

LAND TREATMENT OF INDUSTRIAL WASTES

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JANUARY 26, 1979

Introduction

Land treatment systems involve the use of plants and the soil to remove previously unwanted contaminants from wastewater. This treatment is capable of achieving removal levels comparable to the best available advanced wastewater treatment technologies while...

Achieving some additional benefits, the recovery and beneficial reuse of wastewater and its nutrient resources through crop production, as well as wastewater treatment and reclamation, allow land treatment systems to accomplish far more than most conventional treatment and discharge alternatives. The EPA's policy on the treatment of municipal wastewaters by land application states that land treatment processes should be preferentially considered as an alternative wastewater management technology. The advantages are obvious:

1. There will be a significant improvement in the quality of the receiving waters.
2. Nutrients such as nitrogen and phosphorus will be recirculated for beneficial use.
3. A new water source for the agricultural sector is created.
4. Land treatment has favorable characteristics in terms of energy use and cost.

It is likely that an increase in land treatment systems will take place in Puerto Rico. The discussion that follows is of importance to the industrial sector because of two reasons:

1. An industry currently using or planning to use a publicly owned treatment work (POTW) for disposal of its wastewaters might find that its pretreatment standards are different if the POTW has a land treatment system.
2. An industry with available land or with high-strength waste will probably find a land treatment system as the most economical alternative. This will also result in being exempted from the NPDES system since no discharge is made to navigable waters.

Land Treatment System: There are three types of land application systems commonly in use: slow rate, rapid infiltration, and overland flow. The emphasis in the discussion that follows will be on slow rate processes, commonly known as irrigation, since these systems are most likely to be used in Puerto Rico.

1. Slow rate processes: Commonly known as irrigation, these processes refer to the application of treated wastewaters to land in order to both apply further treatment and to grow crops. The applied wastewater is...

The text is treated as it flows through the soil matrix, and a portion of the flow percolates to the groundwater. Surface runoff is not allowed, since its discharge into a surface water would require an NPDES permit. Both surface and sprinkler application techniques can be used. Surface application can be done by either ridge-and-furrow or border strip flooding techniques. Impact sprinklers or fixed spray heads can be used for sprinkler application. Slow rate systems can be operated to achieve a number of objectives. When wastewater treatment is the primary objective, the hydraulic loading is limited either by the infiltration capacity of the soil or the nitrogen removal capacity of the soil vegetation system. If the hydraulic capacity of the site is limited by a relatively impermeable subsurface layer or by a high groundwater table, an underdrain system can be installed to increase the allowable loading. This again brings in the problem of disposal of an effluent, but since this water is of good quality, it should not present a serious problem. The nitrogen removal capacity of the system can be increased by using grasses as vegetation, since they have a high nitrogen uptake capacity. If this is not a problem, a crop with higher value is likely to be selected. In Puerto Rico, a good compromise is sugar cane. The treatment performance of slow rate systems is the best of all land treatment systems. Table 1 below shows the results that can be obtained with a well-designed and well-operated slow rate system, assuming percolation of a municipal primary or secondary treated effluent through 5ft of soil.

TABLE 1 - Treated Water Quality Concentration (mg/L)

Parameter	Average	Maximum
BOD	2	5
SS	1	5
NH3-N	0.5	2
N (total)	3	8
P (total)	0.1	0.3

Performance at Muskegon, Michigan, where 5350 acres of corn are grown, is given in Table 2. Organics, expressed as either BOD or COD, are substantially reduced.

TABLE 2 - Muskegon Treatment Performance

Parameter	Applied Wastewater (mg/L)	Treated Water (mg/L)
BOD	130	3

COD | 185 | 28
SS | 200 | 7
P | - | -

Total La 0.05 NH2 0.6 NON La 1g

PARAMETER: Applied wastewater (mg/l) & Treated water (mg/l)

Zn 0.07, Fecal coliform 103/100 ml to 10°/100 ml.

The slow rate land treatment, filtration, and adsorption are the initial mechanisms in BOD (Biochemical Oxygen Demand) removals, but biological oxidation is the ultimate treatment system. The system is so efficient for BOD removal that application rates of up to 5000 lb/acre/day have been reported in the case of a vegetable processing industry. As a comparison, Muskegon's application is about 0.5 lb/acre/day.

Data on SS (Suspended Solids) removal is not as well documented as BOD removals, but effluents down to 1 mg/l can generally be obtained. Physical removal by filtration is the mechanism to act, and then biological oxidation takes place. Once fixed, the mineral solids become part of the soil matrix.

Nitrogen removal from the wastewater is dependent on the type of crop grown and the crop yield. An effective removal requires a crop whose portion containing the nitrogen is physically removed from the field during harvesting. In some cases, denitrification can be an effective removal mechanism, but this generally requires high organic loading that would cause anaerobic conditions in the soil. In some cases where anaerobic conditions have not prevailed at all times, removals by denitrification of up to 32% of the applied nitrogen have been reported.

Adsorption and chemical precipitation are the main phosphorus removal mechanisms in the soil. Irrigation systems usually give high removal rates, independent of the crop used (which takes 15-30% of the

Phosphorus) or the phosphorus concentration applied. Soil properties are the important parameters for this removal.

Rapid infiltration: This land treatment process refers to the application of wastewaters to rapidly permeable soils such as sands by spreading in basins or sprinkling. Most of the applied flow percolates through the soil to the groundwater. Treatment takes place during travel through the soil matrix. Vegetation is not normally required.

Required, but its presence is not harmful. Although the primary purpose of this system is treatment, other secondary benefits such as groundwater recharge and recovery of renovated water by wells or underdrains can be readily accomplished. The treatment performance for this system is shown in Table 3, assuming the percolation of a primary or secondary municipal effluent through 15% concentration (mg /l) average maximum BOD 2 5 SS 2 5 NH,-N 0.5 2.

Average maximum NN (total) 10 20 P (total) 1 5 of soil. Removal of most pollutants is excellent. The filtering and straining action of the soil is excellent in removing BOD, SS, and fecal coliforms. However, nitrogen removals are generally poor unless specific operating procedures are established to maximize denitrification. This can be done by adjusting application cycles, supplying an additional carbon source such as methanol for the denitrifiers, using a crop with a high nitrogen requirement, and reducing application rates. Although total nitrogen removals may be low if these measures are not applied, rapid infiltration is an excellent method for achieving a nitrified effluent. Phosphorus removal with this system is generally high, again depending on the physical properties of the soil. The long-term capacity is only limited by the mass of soil in contact with the wastewater.

3. Overland Flow

Overland flow as a wastewater treatment process refers to the application of water over the upper reaches of sloped terraces and its subsequent flow across the vegetated surface to runoff collection ditches. The wastewater is treated by physical, chemical, and biological means as it flows in a thin film down the relatively impermeable slope, usually covered with grass.

This system is relatively new in the United States. Its objectives are wastewater treatment, and to a minor extent, crop production. Treatment objectives may be to achieve secondary or better quality from primary treated effluents, or to achieve high BOD and nitrogen removals comparable to those of advanced wastewater treatments.

Advanced treatment systems require that treated water must be collected at the end of the slope and either reused or discharged to a surface water. This again raises the issue of compliance with NPDES regulations and paperwork. There is very little data on treatment performance for this type of system. A pilot scale facility operated by EPA at its Ada Laboratories, with an overland flow of about 150 ft, provides the results shown in Table 4.

Table 4: Treated Water Quality Parameter Average
BOD: 10-15
SS: 10-20
NH4-N: 0.8-2
N (total): 3-5
P (total): 4-6

Organic matter and suspended solids are removed by biological oxidation, sedimentation, and grass filtration. Nitrogen removal is primarily due to denitrification, while phosphorus is removed by adsorption and precipitation.

The specific design of a land treatment system starts with the site selection and treatment process, followed by calculation of the required field area. This area is calculated based on the required final effluent quality, which can either be the quality of the percolate reaching groundwater in a slow rate system, or the quality of the water ending up in a river or lake if an overland flow system is used. The critical loading rates to be determined are the hydraulic and nitrogen rates. Once the area corresponding to the most critical of these two rates is selected, the loadings and removals of BOD, SS, phosphorus, trace elements, and microorganisms usually fall within accepted ranges.

A detailed discussion on process design for the three systems mentioned here is given in Chapter 5 of Process Design Manual for Land Treatment of Municipal Wastewater, EPA 625/1-77-008. Although aimed at the municipal sector, the procedure is applicable to the treatment of industrial wastes.

The factors given below can be used as a general guide to design or for determining the feasibility of a land treatment system for industrial purposes. They apply to a slow rate system and are obviously dependent on various factors.

Depending on the type of crop used, wastewater quality and its use for irrigation can have significant impacts. This can vary based on weather conditions, soil type, and the agricultural practices used.

The following table provides values of parameters generally accepted as reasonable for irrigation. For the quality of water that reaches the aquifer, the EPA recommends that the water should not contain microbial contamination. The contaminant levels given in Table 6 should not be exceeded in the groundwater.

TABLE 5: Water Quality for Irrigation
- Ds: 1000 aL
- Ae: 0.10
- Be: 0.10
- B: 0.75
- Ca: 0.00

- Mo: 0.20
- Ni: 5.0
- Se: 5.0
- Zn: 20 meq/1 in the soil
- pH: 4.5-9.0

Parameter Concentration (mg/1)
- Turbidity: 1 unit
- As: 0.05
- Ba: 1.0
- Ca:
- Cr:
- Pb:
- Hg:
- No: 10
- Se: 0.01
- Ag: 0.05
- Total coliforms: 1/100 ml
- Endrin: 0.0002
- Lindane: 0.004

- Methoxychlor:
- Toxaphene: 0,005
- 4D:
- 2,4,5 TP: 0.01

This table assumes that the groundwater can potentially be used for drinking water supply. In Puerto Rico, all groundwater is at least a potential source of potable water.

General Design Parameter
a. Application: surface or sprinklers
b. Application rate (hydraulic): 2-20 ft/year, depending on crop. Sugarcane requires from 4-6 ft depending on location.
c. Area: 56-560 acres/MGD, without including buffer areas or roads. Sugarcane requires 186-280 acres/MGD.
d. Weekly application rate: 0.54 in
e. Pretreatment: wastewater quality roughly equivalent to that from a municipal primary treatment facility or better
f. Terrain slope: less than 20%, as flat as possible
g. Permeability: ranging from moderately slow to moderately fast.
h. Depth to groundwater: 2-3ft minimum for treating industrial wastewaters, particularly those with a high organic content.

Problems can be caused by the presence of heavy metals or other toxins. Pretreatment would be required in this case.

2. Cost Effectiveness: of the

The process depends on the price of land and the magnitude of the problem. If the land is already available or cheap to acquire, the cash value of the crop is normally sufficient to offset most, if not all, of the treatment costs.

3. Exemption from the NPDES system is a major advantage of land treatment systems.