

PERMITTING THROUGH AN ADVERSARIAL PROCESS

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ABSTRACT

This paper presents the difficulties of permitting the Quonset Point Resource Recovery Facility (QPRRF) in Rhode Island through a quasi-judicial process which included two hostile interveners. The final permit, with extremely strict emissions limitations and ambient monitoring requirements, is discussed, including the rationale behind the 102 permit limitations and the expected burden on the Facility

HISTORY

The search for an RRF in the State of Rhode Island began more than 8 years ago with proposals by the Rhode Island Solid Waste Management Corporation (RISWMC), a quasi-governmental agency set up to properly handle and dispose of solid waste in the State, to construct mass burn facilities in several different locations across the State. Local opposition defeated several such proposals until a proposal was assembled in 1984 to construct a 1500 ton per day (TPD) [1360 metric tons per day (tpd)] facility in the Quonset Point Industrial Park. This proposal had more political support than previously and so was not defeated as easily as previous proposals; however, enough opposition was assembled to warrant the creation of a statewide study to determine the acceptability of RRFs. This study resulted in the creation of a Special House Legislative Commission which hired Arthur D. Little to produce a report on the topic [1]. This report then resulted in the State General Assembly, in 1986, passing into law a bill which required the construction of three 750 TPD (680 tpd) mass burn RRFs spread out across the State. One of these was to be located at Quonset Point. Even with this law in place, 4 years of continued permitting effort have produced a permit with emissions limitations so severe that the facility may not be able to meet them.

INTRODUCTION

The participation of the public in the permitting of a Resource Recovery Facility (RRF) is a right allowed to citizens of the United States, but is this beneficial to the process, or is this an example of nontechnically proficient individuals being given too much control over highly technical issues that they are not trained to deal with? Anyone who has followed the permitting of RRFs is likely to have heard this asked and answered in many different ways. In fact, looking at the process of a contested adjudicatory hearing as is described in this paper, many feel that the process needs to be changed. The reader can judge for himself after reviewing the costs and benefits as presented here.

Permits for the facility have included the following:
(a) FAA determination on the stack as a potential hazard to air traffic.

(b) Prevention of Significant Deterioration (PSD) permit.

(c) License to operate a solid waste disposal facility.

(d) Determination of no wetlands applicability.

(e) Rhode Island Pollutant Discharge Elimination System (RIPDES) application for storm water runoff.

(f) Environmental Review Form for approval by the Statewide Planning Council (ERF).

(g) Sewer Discharge Permit.

(h) Coastal Resources Management Council (CRMC) Category B assent.

As of the date of this writing all of the above have been obtained, with the exception of the CRMC assent, for which hearings were started in August, 1989 and continue at this time. In addition to the CRMC hearing, there were hearings required for the ERF, the PSD, the solid waste license, and the RIPDES. The hearings for the PSD, solid waste license, and RIPDES were all combined into one by the Rhode Island Department of Environmental Management (RIDEM) to "streamline" the process.

In July, 1986, when this process was being planned, it was estimated that this process would take approximately 10 months. This was deemed reasonable by: regulatory agencies responsible for the review; Environmental Science Services (ESS), who was responsible for preparing the permit applications; Blount Energy Resources Corp., the vendor; and RISWMC, the applicant.

THE VALUE OF PUBLIC PARTICIPATION IN THE PERMITTING PROCESS

There is no doubt that public input and a strong permitting process are beneficial to a RRF process if that RRF is to have a long and successful operating life. Citizens feel that they want to be informed about facilities in their communities and demand that they be part of the process of planning these facilities. A properly conducted public process prior to and during permitting can avoid public opposition once the facility begins operation. In addition, the hearing process can identify the issues that the public is concerned with so that the applicant is informed where to concentrate efforts. Some of the issues brought up during the public process are initiated because of recent problems at other RRFs. These issues can initiate some very beneficial modifications to the design or proposed opera-

tions at the RRF which may not have been made if the public process were not employed.

COSTS OF THE PERMITTING PROCESS

When planning an RRF, the costs of the permitting process can be one of the most significant impediments to development of the project. Direct costs associated with the permitting process include the costs of technical studies and attorney fees, while the indirect costs include time delays, the environmental costs of continued land disposal of wastes, and the technological costs of fixing technology years before actual facility construction. What can be even more costly to the project can be the conditions which are placed on the project as a result of the hearing process. In the case of the QPRRF, 102 conditions were placed on the facility, including emissions limitations for 20 trace pollutants and 8 criteria pollutants. The levels at which the toxic pollutant emissions have been set may be impossible to meet if interpreted in the most strict manner.

DESCRIPTION OF THE PERMITTING PROCESS

For the purposes of this paper, we will concentrate on the hearings held for the PSD permit and the solid waste facility license. These hearings were selected because they were the most in-depth proceedings and yielded the most significant conditions on the project.

Rhode Island procedures require applicants to submit an air dispersion modeling protocol for approval prior to conducting an air quality impact analysis in support of a PSD application.

The modeling protocol was the first official submittal made by ESS to the RIDEM, submitted in November of 1986. Following receipt of comments and approval of the modeling protocol from both the RIDEM and Region I EPA, modeling was completed and the PSD Application was submitted in March of 1987, along with a complete solid waste facility license application. Following a detailed review by the engineering and toxicological staff of DEM's Division of Air and Hazardous Materials (DAHM), a draft PSD and air quality permit was issued which contained emissions limitations, design and operating requirements, continuous emission monitoring requirements, stack testing requirements, and fifteen other permit conditions. Following a public notification period, a prehearing conference was held at which time the Hearing Officer (an administrator from DEM appointed by the Director) granted intervenor status to two parties: The

Town of North Kingstown (the intended “host” community), and CONCERN (a group of local residents who organized to oppose the facility). Hearings on the PSD and solid waste applications began on December 7, 1987, with four parties participating: The Applicant, two interveners, and the DAHM. After 40 separate sessions and testimony by 37 witnesses, generating over 6000 pages of transcripts, the hearing was closed on June 23, 1988.

A 210-page decision, containing 98 permit conditions, was issued by the Hearing Office on October 3, 1988. A Motion for Reconsideration/Modification of certain permit conditions was filed by the Applicant in two parts on October 17 and November 23, 1988. Following a written reply to this Motion by the Hearing Officer, the Hearing was reopened on March, 6, 1989, to hear testimony on certain issues raised in the Motion. These reopened hearings included eight more sessions through April 13, 1989, and generated nearly 1000 more pages of transcripts. The final Decision and Order was issued on May 18, 1989, and consisted of 44 pages and four additional permit conditions. This was nearly 18 months after the Hearing began and over two and a half years after the first official submittal of the Modeling Protocol. The final PSD permit conditions and emissions limitations were issued by the RIDEM on October 4, 1989, and reflect most of the conditions placed on this facility by the Hearing Officer.

ISSUES RAISED DURING THE PERMITTING PROCESS

During the course of this three plus years of permitting, many issues were raised. These issues ranged from the criticism of the Applicant for not attempting to assess the impact on birds flying through the plume to very significant issues such as the setting of permit limitations to limit the emissions of 19 trace pollutants to average emissions measured at recently constructed RRFs. Other major issues discussed are identified here, but it is beyond the scope of this paper to discuss each issue in detail.

Environmental Impacts from Air Emissions

This area of discussion was, as one would expect, the area consuming the most amount of time and discussion. Direct impacts of stack emissions on ambient air quality for seven criteria and 22 noncriteria pollutants was estimated using computer air dispersion modeling. Impacts on plants, soils, and animals were

estimated using a screening procedure developed for EPA [2] and using wet and dry deposition models [3].

Impacts on local surface water and wetlands was estimated using both dry and wet depositional modeling, as well as stormwater runoff models, and by comparing resultant concentrations to State and Federal water quality standards. At the request of RIDEM, potential impacts were also predicted for rooftops of existing and proposed industrial buildings in the surrounding industrial park, which had fresh air intakes or to which public access could be granted. This rooftop receptor modeling was completed in case these receptor locations could have been considered “ambient air”.

Details of Facility Operations

There was much discussion about facility operations designed to limit the possibility of a fire at the proposed facility including testimony about, and a videotape of, the fire at the North Andover, Massachusetts RRF. Much testimony was entered regarding the separation of “hazardous” materials prior to charging solid wastes into the furnace. Additional items discussed included the method of conveying, storing, and testing ash from the facility, as well as methods of reducing odors and “vectors”.

SPECIFICS OF FINAL PERMIT ISSUED

The final permit issued by the Hearing Officer had many restrictive conditions associated with it. The 98 original permit conditions were detailed in the 210 page original decision. The four modified conditions were detailed in the 44 page supplemental decision released May 18, 1989. There were permit conditions relating to many of the issues mentioned above, including separation and temporary storage of incoming hazardous materials, handling and testing of ash, reporting and regulatory review details, continuous emission monitor requirements, and facility shutdown requirements. The most significant conditions, however, related to air emissions.

These conditions included the reassessment of BACT for this facility by the State to determine if catalytic or noncatalytic NO_x control should be added to the facility and a facility design that would allow for the addition of this equipment. Also included were conditions limiting stack emissions and requiring quarterly stack testing and conditions requiring extensive preconstruction and postconstruction environmental monitoring of soils, vegetation, shellfish, seafood,

ponds, and nearby marine benthic and pelagic organisms and their environment.

The conditions limiting stack emissions are set both on a never-to-exceed level (not to be exceeded during any stack test performed) and on an annual average (to be measured as the average of four quarterly stack tests). These limits are shown in Table 1. These levels were, in the case of the annual average limits, set to be equal to the average emissions measured from five recently tested, similarly equipped facilities. The never-to-exceed limits were established at the 95% confidence level upper bound of the data available from these five facilities. There are several basic problems with the basis by which these limits were established.

(a) They are not set based on any environmentally protective standard, so they are, in some cases, orders of magnitude more restrictive than necessary to protect the environment. For example, the Maximum Annual Average emission rate set for antimony is 0.22 mg/sec/flue (see Table 1). The acceptable ambient level (AAL) set by the RIDEM to protect health is 40 $\mu\text{g}/\text{m}^3$, and there are no established water quality standards for antimony. Modeling predicts that at the point of maximum impact, an emission rate of 0.22 mg/sec/flue will yield a ground-level concentration of 0.00094 $\mu\text{g}/\text{m}^3$. This established emission limitation is therefore 40/0.00094, or 42,500 times lower than allowable under the State's AAL regulation.

(b) They are based on a very limited data set—in some cases, one measurement from one RRF—and, therefore, are not very reliable as the basis for limitations on a new facility of somewhat different design. For example, the emissions limitations on Table 1 for tin, vanadium, and cobalt are all based on a single test result at another RRF.

(c) The annual standards are set for 20 trace pollutants, based on average measured emissions. If it is expected that this facility will have the same average emissions as those five facilities measured, the chances will be 50/50 that any one pollutant will meet these limits. That makes the chances of meeting all 20 limits equal to 0.5 to the 20th power, which is 0.00000095. It is therefore almost impossible for this facility to meet the limitations for all 20 pollutants simultaneously.

(d) The penalty for noncompliance with these emissions limitations has not been defined, so it is not clear what risk will be involved in going forward with this project given the emission limitations in places.

The permit conditions related to environmental monitoring mentioned above are more extensive than any others that have been established anywhere. They require monitoring both pre- and post-operational lev-

TABLE 1 FINAL EMISSION LIMITATIONS IN mg/sec/FLUE

	Never to Exceed Rate	Maximum Annual Average
Antimony	1.102	0.22
Arsenic	0.048	0.0089
Beryllium	0.016	0.002
Cadmium	1.119	0.22
Chromium	0.177	0.0756
Cobalt	0.244	0.003
Copper	1.276	0.126
Lead	1.884	0.553
Manganese	4.519	0.429
Mercury (particulate)	1.345	0.148
Mercury (total)	12.013	4.0
Molybdenum	0.206	0.0125
Nickel	8.168	1.57
Selenium	0.090	0.00984
Tin	0.201	0.0124
Vanadium	18.910	3.10
Zinc	2.473	0.771
Total PAH	0.448	0.0478
Benzo-a-Pyrene	0.051	0.00625

* Facility will have two waste processing trains with one flue each, processing 355 tons per day per train.

els of "all regulated pollutants" (at least 24 compounds) in nearby "soils, seafood and shellfish harvested for human consumption, vegetation, fresh water bodies, Narragansett Bay and Fry's Pond (a local brackish water pond which was the subject of much testimony), including their benthic and pelagic environments and their inhabitants at various trophic levels." In addition, this section of permit limitations requires "protocols and procedures for assessing impacts of pollutant concentrations on marine and aquatic biota, human and animal consumers of such biota, vegetation, and birds." The total cost and implication of these environmental monitoring requirements has not yet been determined, since a plan to conduct these measurements has not yet been accepted. A plan has been submitted by the RISWMC to RIDEM for approval. This plan included approximately \$500,000 in preoperational monitoring and \$1,400,000 per year in post-operation monitoring.

SUMMARY

This is the first permit for a RRF ever issued in the State of Rhode Island. The issuance of the permit followed a process which extended over a period of several years and which has been strongly opposed by

a well-funded municipality and a local citizens' organization.

The need for a non-landfill solution in the State of Rhode Island is great since the one major landfill in the State, Central Landfill, where over 70% of the State's solid waste is disposed, has a limited life. This need was recognized by the State General Assembly in 1986 when they passed a law requiring the construction of three RRF's in the State.

The permit issued for this facility may have restrictions that prove to be fatal to this project and to the other two RRF projects in the State unless some of the critical conditions on this permit are modified or clarified. It is in the best interest of the State to require the construction of a safe facility; however, it is not in the best interest of the people of Rhode Island to establish unreasonable limitations on RRFs which

force the continued land disposal of all solid waste generated in the State. This permit must be carefully reviewed to assure that the conditions are not unreasonable.

REFERENCES

[1] Report to the Special House Legislative Commission to Study the Proposed Resource Recovery Project, Arthur D. Little, January, 1986.

[2] Argonne National Laboratory. "A Screening Procedure for the Impacts of Air Pollution Sources on Plants, Soils, and Animals." Prepared for the Environmental Protection Agency, 1980.

[3] Environmental Science Services. "Worst Case Dry and Wet Deposition Analysis Impact on Narragansett Bay-Quonset Point Resource Recovery Facility (QPRRF)." November 1987.

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