

Interim License
Order
3-23-88

STATE OF RHODE ISLAND AND PROVIDENCE PLANTATIONS
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
DIVISION OF AIR AND HAZARDOUS MATERIALS

IN RE: APPLICATION OF THE RHODE ISLAND SOLID WASTE
CORPORATION-CENTRAL LANDFILL

DECISION AND ORDER

This matter is before the Hearing Officer on the application of the Rhode Island Solid Waste Management Corporation for an interim license to continue operations at the Central Landfill located on Shun Pike, Johnston, Rhode Island. The application requests approval for continued operations at the Central Landfill for a period of approximately eighteen (18) months. The applicant seeks to place additional waste over a previously filled area.

Hearings were held at the Johnston High School, Cherry Hill Road, Johnston, R. I. on February 15, 1988; February 17, 1988; February 29, 1988; March 2, 1988; March 4, 1988; March 7, 1988; and March 10, 1988. All hearings were held pursuant to the Rhode Island Administrative Procedures Act, R. I. G. L. §42-35 et. seq and the Administrative Rules of Practice and Procedure adopted by the Department of Environmental Management. The parties to the proceeding were the applicant, Rhode Island Solid Waste Management Corporation and the Department of Environmental Management, Division of Air and Hazardous Materials. Albert West, Esq. and George West, Esq. represented the applicant. Claude Cote, Esq. represented the Department of Environmental Management, Division of Air and Hazardous Materials. Kendra L. Beaver served as legal counsel to the Hearing Officer.

A pre-hearing conference was held on February 10, 1988 in Room 209 of the Cannon Health Building, 75 Davis Street, Providence, R. I. A request to intervene was received from Birchwood Realty, Inc. After hearing argument and review of written memoranda, the petition of Birchwood Realty for leave to intervene was denied. A separate decision and order was issued by the Hearing Officer and is part of the record for these proceedings. No other requests to intervene were received. In accordance with the pre-hearing order issued by the Hearing Officer, the parties submitted a list of joint exhibits and stipulations prior to commencement of the hearing. Those items are identified as follows:

EXHIBITS

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| Jt. 1 | Notice of Hearing |
| Jt. 2 | Affidavit of Publication |
| Jt. 3 | Application for Redesign of Central Landfill |
| Jt. 4 | Consent Agreement, December 11, 1986 |
| Jt. 5 | Letter of January 6, 1988 Interim Area 2 and
February 4, 1988 |
| Jt. 6 | Public Information Engineering Report for interim
operations and addendum |
| Jt. 7 | Engineer Design Report |
| Jt. 8 | Plans for Interim Area 2 operational grading
plan |
| Jt. 9 | Engineering Plans for permitting of the Central
Landfill, July, 1987, revision of November, 1986
plans |

Jt. 10 Hydrogeologic study of October, 1986

Jt. 11 Boring log-Interim Area 2

Jt. 12 Exploration Location Map

Jt. 13 Groundwater Contour Plan

Jt. 14 Gas collection system site plan

Jt. 14a Colored map of gas collection system site plan

Jt. 15 Policy on odor control - Rhode Island Solid Waste Corporation

Jt. 16 Statewide Resource Recovery System Development Plan, June, 1987

Jt. 17 Deed of Rhode Island Solid Waste Management Corporation

Jt. 18 Conservation Easement

Jt. 19 Deed Restrictions

Jt. 20 Comingle Sludge Consent Agreement

In addition to the above stated joint exhibits, the following exhibits were entered in full without objection and marked as follows:

Applicant 1 Siebecker Resume

Applicant 2 Interim Area 2 large display map

Applicant 2a Display maps of Interim Area 2 (2 exhibits)

Applicant 3 Slide transparency

Applicant 4 Well sampling locations

Applicant 5 Well schematic

Applicant 6 Doorley Resume

Applicant 7 Dargie Resume

3. That the application before the Hearing Officer is limited to that area known as Interim Area 2, described in the Public Information Engineering Report for the interim operations at the Central Landfill, Town of Johnston, R. I. prepared by Wehran Engineering Corporation, and Addendum thereto, as well as the plans for Interim Area 2 Operational Grading Plan drawn by Wehran Engineering Corporation. To the extent these documents reference material contained in Engineering Design Report for the Central Landfill dated July, 1987, prepared by Wehran Engineering Corporation and the accompanying Engineering Plans for Permitting of the Central Landfill, July, 1987, containing revisions of the November, 1986, plans prepared by Wehran Engineering. Solely, these references will be included in the Application before the Hearing Officer. All other material contained in the Engineering Report for the Central Landfill in the accompanying Engineering Plan and Drawings should not be the subject of the within hearing. The foregoing statement regarding the scope of the hearings does not restrict the Department from recommending permit conditions beyond Interim Area 2.

4. Groundwater contours are displayed at ten (10) foot intervals for purposes of clarity on the Groundwater Contour Map prepared by Goldberg-Zoino and Associates.
5. That John Travassos, of Environmental Scientific Corporation, a biologist, has reached the conclusions detailed in his correspondence of 2/23/88 relative to impact on endangered species and compliance of Interim Area 2 with Rule 9.10. The parties stipulate to said conclusions.
6. The Rhode Island Solid Waste Management Corporation has properly arranged for fire protection in compliance with Rule 10.09.

The applicant, the Rhode Island Solid Waste Management Corporation, bore the burden of proving by a preponderance of the evidence that the operation of this facility would comply with R. I. G. L. §23-18.9-8.1 and the Rules and Regulations for Solid Waste Management Facilities adopted by the Department of Environmental Management.

In the course of presenting its case, the Rhode Island Solid Waste Management Corporation (hereinafter "Corporation") presented six (6) witnesses.

The first witness called by the Corporation was John Siebecker. Mr. Siebecker is employed by Wehran Engineering Company. Mr. Siebecker holds a Masters in Environmental Engineering and is a professional engineer. He has been employed with Wehran Engineering for nine (9) years, predominantly in the area of landfill design. Mr. Siebecker testified he is experienced with similar landfill expansions as well as the creation of new landfill sites. He has experience in remedial designs for landfills in both the States of New Jersey and New York. Mr. Siebecker was qualified, without objection, as an expert in landfill design, engineering and preparation of operational plans.

Generally, Mr. Siebecker's testimony centered upon his preparation of operational and design plans with respect to Rules 6, 9 and 10 of the Department of Environmental Management's Rules and Regulations Governing Solid Waste Management Facilities. Briefly stated, it was Mr. Siebecker's opinion, based upon reasonable engineering certainty, that the plans submitted by the Corporation comport with the requirements of Rules 6, 9 and 10 of the Regulations. Mr. Siebecker also discussed the effect that the filling of Interim Area 2 would have on the leachate that is presently being discharged from the facility. Mr. Siebecker acknowledged that leachate is currently discharged from the landfill. He stated that the operational plans and

proposed design of the Interim Area 2 is specifically designed to reduce the generation of leachate. He stated that the placement of new solid waste in combination with a prompt capping program would allow a gradual reduction in the amount of leachate being generated throughout the site and would ultimately reduce the amount of leachate that would enter the groundwater.

Under cross-examination, Mr. Siebecker stated more clearly that new waste over existing landfill areas in Interim Area 2 would not increase leachate generation within the landfill.

There was substantial testimony concerning the final cover alternatives presented by the applicant in Joint Exhibit 6 and the addendum thereto. Under questioning from the Department and questioning by the Hearing Officer, Mr. Siebecker testified that one of the two alternative final cover plans addressed in Joint Exhibit 6 will be chosen based essentially upon cost comparison between the two types of cover, those being either a geomembrane or clay capping system. Under questioning by the Hearing Officer, Mr. Siebecker stated that each of the two cover alternatives have certain advantages and disadvantages. He did state, however, that the particular topography of a landfill would determine which type of cover would be more easily maintained and/or applied. Mr. Siebecker did not recommend one type of final cover over the other. The witness did state that the less costly cover would most likely be the means employed by the Corporation at the time of final cover.

Pursuant to Rule 15 of the Regulations, the Corporation seeks a variance from Rule 10.05(b)1 in order to place additional fill within two hundred (200) feet of Cedar Brook. Mr. Siebecker testified that the Corporation seeks a variance for approximately a five hundred (500) foot portion of the southern boundary of the landfill, within existing waste limits. The Corporation proposes to install a diversion swale at the edge of the landfill to intercept storm water runoff. Sediment from the runoff would be directed down the southern edge of the landfill into a sedimentation pond which, according to Mr. Siebecker's testimony, would eliminate flow from the landfill directly into the stream.

The Corporation also requested a variance from Rule 6.03 of the Regulations which requires that a radius plan include all areas within a one quarter (1/4) mile radius from all property lines of the site. The radius plan submitted by the applicant includes all areas within a quarter (1/4) mile radius from the landfilled area of the facility. Mr. Siebecker's testimony indicated that this variance was accomplished due to the large area of the entire landfill property which, by its irregular shape, would require plans that are unnecessarily large and would not provide additional pertinent information. In Mr. Siebecker's opinion, the plans required by Rule 6.03 would

have been less helpful to the Department in reviewing the materials. The Department had no objection to the granting of this variance.

Finally, the Corporation requested a variance from Rule 6.04 entitled Site Plan. The applicant has requested a variance, specifically from 6.04(2), which requires that final proposed contours be at five (5) foot intervals. The site plan submitted with the application contains final proposed contours at twenty (20) foot intervals. Testimony by Mr. Siebecker indicated that, due to the scale of the plan and the height of the landfill, twenty (20) foot contour intervals provide a better representation of actual slope. Mr. Siebecker further testified that five (5) foot intervals, as technically required by the Regulations, would not provide a readable plan. Accordingly, the site plan was prepared at twenty (20) foot intervals in order to provide a better representation of the proposed slope of the landfill. The Department had no objection to the granting of this variance.

Michael Powers was the next witness called by the Corporation. Mr. Powers is a senior associate with the firm of Goldberg, Zoino and Associates of Newton, Mass. and Providence, R. I. Goldberg, Zoino and Associates, Inc. is a geohydrological engineering firm that deals primarily in foundation design and groundwater investigation. Mr. Powers has been employed with the firm for fourteen (14) years and holds several degrees in Civil Engineering, including a Masters Degree with an emphasis in Groundwater Hydrology.

Mr. Powers was qualified, without objection, as an expert in hydrological investigations and transmissibility of groundwater. Mr. Powers prepared, or had prepared under his direction, a hydrological study dated October, 1987 which is marked Joint Exhibit 10. Generally, Mr. Powers' testimony centered on the requirements of Rules 6.06, 6.07, 9.04(a), 9.04(b), and Rule 10. With regard to groundwater migration, Mr. Powers opined that the groundwater is moving in a southeasterly direction and would impact areas to the southeast and south of the landfill. The areas that would be primarily impacted would be to the south of the landfill extending to and including the upper regions of the Simmons Reservoir. Additionally, there is a small portion of the landfill area in the northeast corner where groundwater migration flows in the direction of the Almy Reservoir. That area is not within the Interim 2 proposal.

Mr. Powers testified that three (3) primary sources of groundwater contamination exist at the site. The first source is the result of disposal of liquid chemicals known generally as the Hazardous Waste area of the landfill. Mr. Powers stated that this source of contamination is unrelated to landfill activity. The second source of contamination results from the placement of debris at an elevation where the water table has risen into the fill and groundwater has moved directly through that material, causing leachate. The third

source stems from precipitation moving through debris and refuse and finally, leaching into the groundwater. In Mr. Powers' opinion, based upon groundwater monitoring, the major causes of contamination are associated with the residuals from liquid chemical waste and from refuse currently in contact with groundwater. In Mr. Powers' opinion, the placement of additional fill as proposed for Interim Area 2 would have no immediate effect on groundwater contamination concentration but would prolong existing contamination. Mr. Powers also opined that the placement of additional fill in Interim Area 2 would not impact any additional areas and will not significantly alter the direction of groundwater movement.

Mr. Powers discussed at length the Remedial Investigation and Feasibility Study (hereinafter "R.I.F.S.") which is a federally mandated program conducted for the Environmental Protection Agency. That study is currently underway and data is being collected to determine which contaminants are present, their migration path, and the possible effects of those contaminants on human health and the environment.

Mr. Powers next addressed the impact of Interim Area 2 upon surface water. Briefly stated, Mr. Powers indicated that the placement of additional debris in Interim Area 2 has the potential to generate additional leachate. Ultimately, that

material would discharge to Cedar Brook Swamp or the Upper Simmons Reservoir. Secondly, Mr. Powers stated that the placement of interim cover during operations within Interim Area 2 has the potential for erosion and runoff into adjoining surface water bodies. Mr. Powers opined, however, that the implementation of the proposed closure procedures, construction of drainage swales, proposed vegetative cover and sediment control activities should adequately address runoff.

Finally, Mr. Powers addressed contamination of the Scituate Reservoir. Mr. Powers indicated that the Scituate Reservoir watershed is approximately six thousand (6,000) feet from the landfill. Studies to date reveal that major fractures, referred to as lineaments, are contained within the bedrock underneath the Central Landfill. Through use of aerial photography, a series of lineaments were identified. One series runs through the Almy Reservoir, across the landfill and intersects with the Scituate Reservoir. There is currently not sufficient information to determine whether or not this series of lineaments is continuous. A second series of lineaments were identified and these fractures are perpendicular to those previously stated. The study then addressed whether or not the fractures are water-bearing. Mr. Powers identified the differing elevations of the Scituate Reservoir, the Central Landfill and the Simmons Reservoir and with that information, Mr. Powers then attempted to delineate

locations of water transmissibility through a series of geotechnical explorations employing shock waves into the ground. Through the measurement of the movement of shock waves through existing lineaments, it is anticipated that the placement of wells in these areas will sufficiently identify water migration through existing bedrock fractures. Mr. Powers testified that to date the wells are installed but the data has not been collected and interpreted.

Mr. Powers opined that, based upon the data available to date, groundwater movement is toward the landfill and not from the landfill toward the Scituate Reservoir. Mr. Powers did indicate, however, that subsequent data will provide a sufficient basis upon which to base a more certain opinion. Mr. Powers stated that, if a major connection did presently exist between the landfill and the Scituate Reservoir, it would be reflected in the present data. Mr. Powers testimony indicated that the data received to date does not indicate a major movement of groundwater in the direction of the Scituate Reservoir. Mr. Powers acknowledged that he cannot render a definitive opinion with respect to whether or not there is any contamination moving from the landfill to the Scituate

Reservoir until further data is collected. He did opine, based upon presently available data, that Interim Area 2 would pose no quantifiable risk in terms of contamination to the Scituate Reservoir. Under cross-examination by Mr. Cote, the witness revealed that the RIFS study is an on-going process which will generate substantial technical data and further reports. Testimony indicates that a much more certain interim report is due in May of 1988. That report will include information obtained from the installation of five (5) deep multi-level wells, the sampling results from those wells, and sampling data from surface water bodies. In Mr. Powers' opinion, the May report will enable a hydrogeologist to determine to a much greater level of certainty whether or not any potential flow paths exist from the landfill to the Scituate Reservoir. The data collected to date does not indicate any flow of contaminants from the Central Landfill to the Scituate Reservoir.

With regard to testing for the presence of metals in groundwater, Mr. Cote inquired whether in Mr. Powers' opinion annual or quarterly monitoring of metals is adequate. Mr. Powers stated that metals are frequently found in leachate emanating from landfills. Although annual testing is to his mind adequate, Mr. Powers acknowledged that for the protection of public health and environment, quarterly testing is better. With respect to monitoring for volatile organic compounds, Mr. Cote inquired whether in Mr. Powers' opinion,

quarterly sampling is required by administrative agencies when monitoring landfills. Mr. Powers responded that monitoring on a quarterly basis is very frequently required by federal regulations.

James Doorley, Landfill Manager of the Rhode Island Central Landfill testified on behalf of the Corporation. Mr. Doorley has managed the Landfill for the past six (6) years and holds a Bachelor of Science degree in Civil Engineering. Mr. Doorley is responsible for daily operation of the Central Landfill and supervision of its forty-nine (49) employees. Mr. Doorley was qualified, without objection, as an expert in landfill operations. Generally speaking, this witness testified concerning daily operational requirements of the Regulations. It was Mr. Doorley's opinion, based upon a reasonable degree of engineering certainty, that the operational plans contemplated for Interim Area 2 can be performed within the requirements of Rule 9 and Rule 10 of the Regulations.

Mr. Doorley discussed several issues that were of prime importance to members of the public. The first issue was litter control. Mr. Doorley stated that existing personnel and equipment is sufficient to control litter at the facility. I cannot find this testimony to be credible. Subsequent witness testimony as well as extensive public statements, based upon personal knowledge, indicate that

litter is presently a serious problem at the Central Landfill and that unless further means are taken to control litter, this problem will continue to exist during Interim Area 2 operations. Mr. Doorley also stated that dust control measures presently undertaken at the Central Landfill, and anticipated for Interim Area 2, are and will be sufficient to control dust from the facility. Again, based upon subsequent witness testimony and sworn public statements, I cannot find Mr. Doorley's testimony in this regard to be credible.

The Corporation's next witness was David Dorocz. Mr. Dorocz is employed by the Corporation as its environmental engineer. As part of Mr. Dorocz' duties, he manages environmental affairs for the Central Landfill. The witness holds a Bachelor of Science degree in Chemical Engineering. Mr. Dorocz serves as the Remedial Investigation and Feasibility Study Project Manager for the Corporation and acts as a liaison between the USEPA and the Department of Environmental Management on behalf of the Corporation. Very briefly, Mr. Dorocz testified that the plans for operation of Interim Area 2 comply with Rule 9.08 of the Regulations concerning open burning, air standards and odors. Mr. Dorocz testified that the elimination of sludge and scum from the Central Landfill would significantly improve odor problems. Finally, Mr. Dorocz indicated that the list of sampling wells proposed by the Corporation on page 64 of Joint Exhibit 7 are a minimum recommendation by the Corporation.

Finally, the Corporation called Donald F. Dargie. Mr. Dargie is employed by Hayden Wegman Corporation. Hayden Wegman is a consulting engineering firm dealing primarily in the areas of solid waste and landfill gas projects. Mr. Dargie holds a Bachelors and Masters degree in Civil Engineering and Environmental Engineering and is a registered professional engineer. Mr. Dargie has experience with several gas migration control projects in New Jersey and Massachusetts. Mr. Dargie was qualified, without objection, as an expert in landfill gas recovery and as an odor control project engineer. Mr. Dargie stated that landfill gas is a natural byproduct of the decomposition of waste deposited at the landfill. After several years of waste placement, the debris is at its peak gas production. Gas samples taken by Hayden Wegman early in 1988 indicate that landfill gas at the Central Landfill is composed of approximately fifty-two (52) percent methane, forty-three (43) percent carbon dioxide, four (4) percent nitrogen, one (1) percent oxygen and less than one percent of other compounds, one of which is hydrogen sulfide. Mr. Dargie testified that hydrogen sulfide and other compounds of sulphur are the components responsible for odors. Mr. Dargie detailed the gas collection system proposed by his company to collect and burn off methane gas currently contained under the Central Landfill. Specifically, Mr. Dargie stated that approximately sixty (60) gas collection wells will be installed and operating in July of 1988.

Included with the sixty (60) wells will be a twenty-six hundred (2600) CFM flare. Upon questioning by Mr. West, this witness stated that in his opinion, the combination of cover and the gas collection system would effectively eliminate obnoxious odors. Mr. Dargie further opined that the proposed gas collection system, cover and ultimate capping of the facility are suitable measures to minimize odors originating at the facility. Mr. Dargie also testified that the proposed gas collection system has been designed in order that it may be enhanced in the event that its present design proves ineffective. Under cross-examination by Mr. Cote, Mr. Dargie acknowledged that the air samples analyzed by Hayden Wegman were not tested for non-sulphur based compounds, including organic compounds. Mr. Dargie reiterated that the gas collection system will effectively control odors, however, he refused to confirm that after installation and operation, the facility will not violate odor regulations beyond the property line.

The Department of Environmental Mangement, Division of Air and Hazardous Materials began its presentation on March 7, 1988. The Division called Susan Kiernan as its first witness. Ms. Kiernan is employed by the Department of Environmental Management in the Division of Groundwater and

Freshwater Wetlands Protection. She serves as a supervising environmental planner for the Groundwater Protection Program. Ms. Kiernan has day to day supervisory responsibilities for the development and implementation of the Groundwater Protection Program mandated by the Groundwater Protection Act of 1985. She supervises technical staff including hydrogeologists and engineers. Ms. Kiernan holds a Bachelor of Science degree in Biology and a Masters Degree in Public Affairs with a concentration in Environmental Science and Policy.

Ms. Kiernan's testimony corroborated that of Michael Powers with respect to the direction of groundwater flow. Ms. Kiernan stated that groundwater contours indicate flow is in a southerly to southeasterly direction toward the Simmons Reservoir. Ms. Kiernan confirmed Mr. Power's testimony, stating that bedrock fractures exist under the Central Landfill which are capable of bearing water. She further stated that the presently available information is not sufficient and that ultimate conclusions regarding flow through bedrock fractures cannot be made without additional study. Ms. Kiernan indicated that the additional data should be forthcoming as part of the interim R.I.F.S. due in May of 1988.

With respect to groundwater contamination, Ms. Kiernan testified that monitoring results from virtually all wells underlying Central Landfill show the presence of volatile organic compounds and elevated levels of certain inorganic

substances such as chlorides. Analysis of monitoring well samples closest to Interim Area 2 indicate the presence of metals in excess of the drinking water standards. Based upon review of the application for operations within interim area 2 and based upon groundwater monitoring results, Ms. Kiernan recommended that quarterly sampling for volatile organic compounds and metals be continued.

Ms. Kiernan testified that the Groundwater Protection Act passed by the legislature in 1985 mandates the classification of all groundwaters of the state. Based upon her review of the documentation and current condition of the groundwater underlying the Central Landfill, Ms. Kiernan opined that the proper groundwater classification for the site would be either GB or GC. GB denotes areas presumed or known to be degraded which would require treatment in order to provide water supplies for drinking water purposes. GC sites are intended to be sites which are identified as more suitable for waste disposal than for drinking water purposes. Ms. Kiernan further testified, that based upon the evidence of record and based upon the Groundwater Protection Act, the limited degradation that Interim Area 2 may cause is allowable due to the fact that no alternative waste disposal options presently exist within the state and because continued operation provides an essential, desirable and justifiable public service.

Ms. Kiernan corroborated Mr. Powers testimony that groundwater quality beneath Interim Area 2 and downgradient would not be significantly changed with regard to pollutant

concentrations as a result of the placement of additional fill above Interim Area 2. Additionally, Ms. Kiernan concluded that the placement of additional debris in Interim Area 2 has potential to increase the period of time over which groundwater will be degraded. Ms. Kiernan recommended several permit conditions. They are as follows: Sampling for metals and volatile organic compounds shall be performed on a quarterly basis, the number of wells sampled on a quarterly basis shall not be reduced as indicated in the applicant's engineering plans, that the Solid Waste Management Corporation revise their groundwater sampling program to include additional wells after receipt of the R.I.F.S. interim report to enhance monitoring on the western and southwestern sides of the Central Landfill, that a detailed program for quality control for the capping and installation of final cover be prepared and submitted to the Department of Environmental Management for its approval, and that the Department of Environmental Management approve the qualifications of personnel installing the final cover during the next 18 months.

Next, the Division of Air and Hazardous Materials called John Quinn, Supervisor of the Solid Waste Management Program for the Department of Environmental Management. Mr. Quinn has been employed in this capacity since 1978. Mr. Quinn holds a degree in chemical engineering from the University of Rhode Island. His present duties and responsibilities include oversight of the regulation of solid waste management facilities. Mr. Quinn was qualified as an expert solid waste

engineer for purposes of review of solid waste applications. Mr. Quinn stated that in his opinion, the plans submitted for Interim Area 2 comply with the engineering requirements of Rule 6 of the Regulations for design of solid waste management facilities. With regard to the operational history of the Central Landfill, Mr. Quinn testified that the Central Landfill has, on various occasions, violated daily cover requirements, intermediate cover requirements, litter control requirements, and dust control requirements.

Under questioning by the hearing officer, Mr. Quinn stated that more frequent inspections of the landfill would assist to better enforce Department regulations. Under cross-examination and under questioning from members of the public, Mr. Quinn alternatively stated that the proposed gas collection system would help reduce odors but would not help to the extent that odors would no longer be offensive. Mr. Quinn acknowledged that he has not seen a similar gas collection system in operation and does not have any personal knowledge as to whether or not such a system will be effective. Mr. Quinn's testimony conflicts with the testimony given by Mr. Dargie. Based upon Mr. Dargie's qualifications with respect to landfill gas engineering and landfill gas collection, I find Mr. Dargie's testimony with respect to the proposed effectiveness of the gas collection system to carry more weight.

Upon questioning from a member of the public Mr. Quinn stated that in his opinion, the 200 foot buffer zone surrounding the landfill is not adequate for a facility of this size.

The Corporation called Robert Weisberg as its sole rebuttal witness. Mr. Weisberg owns Analytical Testing Services, Inc. and is its President and Chief Operator. Analytical Testing Services, Inc. is an environmental consulting and testing firm. Mr. Weisberg holds undergraduate degrees in both Biology and Health and holds a Masters degree in Public Health as well as a Doctorate degree in Environmental Health from the School of Public Health in Houston, Texas. Mr. Weisberg is an engineer in training and a certified industrial hygienist. Mr. Weisberg was qualified, without objection, as an expert in air pollution testing methods and analyses of air pollution. Mr. Weisberg served as an assistant site supervisor for the State of Rhode Island during Phase III of work at the Piccilo hazardous waste site in Coventry, Rhode Island. Mr. Weisberg's duties included monitoring of the on-site laboratory that conducted environmental testing at the Piccilo site. Mr. Weisberg based his testimony upon certificates of analysis of three (3) sets of air samples collected by personnel from Goldberg, Zoino and Associates and analyzed by Rhode Island Analytical

Laboratories. Mr. Weisberg also reviewed results of air samples collected by the Department of Environmental Management. According to Mr. Weisberg's testimony, the air monitoring tests were properly conducted according to approved methodologies and the results are valid. Briefly stated, the air samples were collected for analysis for a group volatile organic compounds. Air samples were taken in areas to establish background data. Background data is information collected either throughout the State of Rhode Island or beyond the Central Landfill. Downwind air samples were also collected and analyzed. Downwind data is the result of air sampling from locations downwind of a suspected source of pollution or contamination, based upon the general expectation that pollutants will travel from that source in the direction that the wind is blowing. Mr. Weisberg acknowledged that compounds such as chloroform, trichloroethylene, chlorobenzene, benzene, toluene, and other compounds were found in the air samples, but Mr. Weisberg noted that there is no statistical difference between background data and downwind samples.

Mr. Weisberg stated that based upon his analysis of the data available to date, in his opinion there is no significant health threat to residents of the abutting areas of the Landfill from air emissions of the Central Landfill. The witness further opined that the odors escaping from the site

are not harmful even though the odors are clearly evident. Mr. Weisberg did remark, however, that additional air monitoring as recommended by the Division of Air and Hazardous Materials is appropriate.

Mr. Weisberg's education and work experience focus specifically upon environmental testing and the effects of contaminants on public health. In light of his specific expertise concerning air quality and public health, I have accorded more weight to this witness's testimony than to other witnesses whose testimony addressed those issues.

FINDINGS OF FACT

After review of all the documentary and testimonial evidence of record, I make the following specific findings of fact.

1. Notice of the prehearing conference, public hearings and comment period was published in the Providence Journal, a newspaper of general circulation throughout the state, on February 5, 1988.
2. A prehearing conference was held on February 10, 1988. One request to intervene was received from Birchwood Realty, Inc. and the petition was denied in a separate order.
3. Public hearings were held on February 15, 1988; February 17, 1988; February 29, 1988; March 2, 1988, March 4, 1988, March 7, 1988 and March 10, 1988 at Johnston High School, Cherry Hill Road, Johnston, R. I.

4. The parties stipulated to the fact that no alternative disposal site is available within the state for the twenty-eight (28) communities that dispose of waste at the Central Landfill and that the facility is therefore reasonably required to dispose of wastes generated within the state.
5. The parties stipulated that the application before the Hearing Officer is limited to Interim Area 2 as described in Joint Exhibit 6 and 6A.
6. The initial application was submitted to the Division of Air and Hazardous Materials in July of 1987.
7. The Central Landfill is owned and operated by the Rhode Island Solid Waste Management Corporation.
8. The proposed plans for operation of Interim Area 2 do not contemplate additional equipment.
9. The applicant has submitted closure plans detailing estimated closure costs.
10. Initial investigation plans were submitted to the Division as well as a radius plan that includes all areas within one quarter (1/4) mile radius out from the landfilled portions of the site.
11. A site plan was submitted by the applicant which includes, where necessary, the information detailed in Rule 6.04(1) through (20). The site plan includes final proposed contours at twenty (20) foot intervals which provides a better representation of actual slope.

12. Cross sectional plans for Interim Area 2 were submitted by the applicant and prepared by Wehran Engineering. Gas venting systems are represented on Joint Exhibit 14, and groundwater monitoring wells are detailed in Joint Exhibit 10.
13. The applicant submitted an operating plan addressing each of the twenty-five (25) requirements of Rule 6.08.
14. Approximately 1,000,000 cubic yards of cover material is available on site. A vendor's letter has been submitted stating that 1,000,000 cubic yards of additional cover can be supplied to the Corporation.
15. The site is presently staked pursuant to Rule 6.10 of the Regulations.
16. A closure plan exists which details groundwater and surface water monitoring, final cover areas and alternatives, vegetative cover, final grades and legal boundaries. Mr. Siebecker detailed closure procedures and stated that vegetative programs and screenings constitute good engineering practices to ameliorate some of the impacts of an operational facility.
17. The Corporation has delivered a perpetual conservation easement to the Hearing Officer which describes the permitted facility and the activities conducted therein. The easement grants the Director of the Department of

Environmental Management and his agents the right to enter upon the property at reasonable times and contains a prohibition on excavation.

18. Access to the facility is restricted by natural barriers with the exception of the entrance for vehicular traffic. The plans do not contemplate the installation of a gate to restrict access.
19. No salvage activities are conducted at the landfill.
20. The landfill practices contemplated by Interim Area 2 shall not cause or contribute to the taking of any endangered or threatened species nor will it cause or contribute to the destruction or adverse modification of a critical habitat of endangered or threatened species.
21. The Central Landfill has violated dust and litter control regulations on various occasions and litter control and dust control continue to be everpresent problems at the facility.
22. Implementation of the design and operational plans submitted by the applicant will reduce the amount of leachate generation that is currently occurring at the facility.
23. An aggressive vegetation program is necessary to assure reduction in the generation of leachate.
24. Comingling of sludge with municipal solid waste causes a higher amount of leachate.

25. A two hundred (200) foot buffer zone between the facility and neighboring residences is insufficient for a landfill of this magnitude.
26. In excess of thirty-five (35) observation wells are presently on site with a total of forty (40) planned for the end of March. The borings taken are located to give the best indications of subsurface conditions at the site.
27. Groundwater flow is moving from the Central Landfill in a south, southeasterly direction. A small portion of groundwater flow in the northeast corner of the landfill is moving in the direction of the Almy Reservoir.
28. The placement of additional debris over existing fill, within Interim Area 2, will have no immediate effect on groundwater contamination concentrations but would cause a longer period of leachate discharge. Leachate will not impact additional areas.
29. When the last home downgradient from the landfill is connected to public water, no wells will be directly impacted by Interim Area 2.
30. The May, 1988 Interim RIFS report will provide sufficient data to identify what, if any, actions are necessary to further protect human health and the environment.
31. Interim Area 2 does not overlay a groundwater reservoir or a groundwater recharge area designated or planned as a public drinking water source.

32. Presently available data reveals that groundwater movement is from the Scituate Reservoir toward the landfill. There is insufficient data at present to conclude with certainty that groundwater is not carried through bedrock fractures running between the landfill and the Scituate Reservoir watershed. If a major flow existed, it would be reflected in present data -- and is not. The RIFS will reveal if a minor flow may exist. Interim Area 2 poses no quantifiable risk to the Scituate Reservoir.
33. Elimination of sludge and scum from the landfill will significantly reduce odors.
34. The proposed gas collection system and cover plans may prove suitable measures to minimize odors. Conditions must be imposed, however, to ensure that the gas collection system will be installed and operated as promised by Hayden Wegman Corporation and the Corporation.
35. More frequent inspections of the Central Landfill would result in more certain compliance with Regulations governing operation of the facility.
36. Air quality data presently available does not indicate the presence of volatile organic compounds at levels harmful to human health. Additional testing is appropriate.

CONCLUSIONS OF LAW

Based upon all the documentary and testimonial evidence of record, I conclude the following as a matter of law.

1. Reasonable notice of the hearings was provided as required by the Administrative Procedures Act, R.I.G.L. §42-35- et seq. and Rule 13(d) of the Administrative Rules of Practice and Procedure for the Department of Environmental Management.
2. The permit sought by the Corporation is reasonably required to dispose of wastes generated within the state pursuant to R.I.G.L. §23-18.9-8.1.
3. The variance requested from Rule 6.03 is not contrary to the purposes and policies expressed in Rules 1.02 and 1.03 of the Regulations and complies with the requirements of Rule 15 of the Regulations.
4. The variance requested from Rule 6.04(2) is not contrary to the purposes and policies expressed in Rules 1.02 and 1.03 of the Regulations and complies with the requirements of Rule 15 of the Regulations.
5. The variance requested from Rule 10.05(b)(1) of the Regulations, with additional environmental controls, will not be contrary to the purposes and policies expressed in Rules 1.02 and 1.03 of the Regulations and complies with the requirements of Rule 15 of the Regulations.

6. Based upon available evidence to date and upon compliance with appropriate permit conditions as outlined in the Order below, the applicant will meet the Rules and Regulations for Solid Waste Management Facilities adopted by the Department of Environmental Management.

Therefore, it is

ORDERED

that the permit is granted for an initial period of four (4) months subject to strict compliance with all plans submitted by the applicant and additionally with the time frames, terms and conditions set forth below, and may continue for two (2) additional seven (7) month increments upon demonstration to the satisfaction of the Hearing Officer, that the applicant's plans and the terms and conditions set forth below have been met by the applicant. Accordingly, I will retain jurisdiction over this matter for an eighteen (18) month period.

1. The acceptance of unincinerated sludge at the Central Landfill must be reduced by twenty-five (25) percent within six (6) months of the issuance of this order, fifty (50) percent within twelve months of the issuance of this order and must be further reduced by seventy-five (75) percent at the end of eighteen months from the date of issuance of this order. The Corporation is further

implement Aug 1



ordered to submit a plan for review and approval by the Department of Environmental Management that would be in conformance with the above stated conditions. This plan must be submitted to the Hearing Officer and the Division of Air and Hazardous Materials by June 24, 1988. Notwithstanding the above, the Corporation is also ordered to make a good faith effort to completely eliminate the disposal of sludge at the Central Landfill. The Corporation shall demonstrate that a good faith effort to eliminate sludge disposal by one hundred (100) percent has been made by addressing its total elimination within the plans which they will present to the Hearing Officer and the Department.

2. The Corporation is hereby ordered to phase down the dumping of scum at the facility in accordance with the same terms and conditions contained in item 1. Scum is defined as the skimmings from the top of treatment tanks and is comprised primarily of grease and water.
3. Solid Waste Management Corporation is ordered to begin plans to acquire additional property surrounding the landfill as a buffer zone to neighboring residents. The Corporation is ordered to submit a buffer zone plan to the Hearing Officer and the Department within two (2) months of the date of this order. The plan shall include a revegetation plan for the entire site including the

planting of trees of a minimum height of ten (10) feet. The plans should also include revegetation in areas near and surrounding the recycling center that is currently under construction. The plan must mandate that revegetation shall begin in the spring planting season of 1988, no later than April of 1988.

4. The Corporation shall establish a land acquisition fund to provide the necessary monies to effect the acquisition of properties to properly carry out the buffer zone plan. The land acquisition plan must be submitted to the Hearing Officer and to the Department within six (6) months of this order. The plan will be subject to the approval of the Hearing Officer and the Division of Air and Hazardous Materials. Pursuant to this land acquisition plan and as a condition of this permit, the Corporation is required to establish a land acquisition fund in the initial amount of six hundred thousand dollars (\$600,000.00), said fund to be established and funded within two (2) months of the date of this order. The Corporation, as a condition of this permit, is further ordered to deposit into said fund, one hundred thousand dollars (\$100,000.00) per month for each month that the facility accepts waste, beginning with the month of May, 1988.

5. This modified permit does not include any approval for blasting within any area of the facility.

Counsel for the applicant, as well as several witnesses for the applicant, indicated to the Hearing Officer that the application which is the subject of this hearing did not include any request for approval of blasting by the Corporation. In order that there not be any confusion, I feel it necessary to state, without equivocation, that this order does not contemplate, nor does it include, any tacit approval of blasting by the Corporation. Any rock blasting at the facility, must have the prior written approval of the Department, however, this decision does not address that issue.

6. The Corporation is ordered to fund a position for an Air Quality Engineer within the Department of Environmental Management and to provide office space at the Central Landfill for this inspector. The Air Quality Engineer shall be employed by the Department of Environmental Management and stationed full time at the Central Landfill to continuously monitor compliance with the Regulations and permit conditions. This inspector shall report directly to Thomas Getz, Chief of the Division of Air and Hazardous Materials of the Department of Environmental Management and to the Director, Robert L. Bendick, Jr. This inspector shall not report in any manner to the Rhode Island Solid Waste Management Corporation.

There was substantial testimony by witnesses on behalf of the Corporation that existing equipment and personnel were sufficient to comply with all of the Regulations. There was conflicting testimony, however, that even with existing personnel and equipment, the Corporation has either continuously or on many separate occasions violated litter regulations and odor regulations. There was certainly more than adequate evidence to indicate that a period of intensive monitoring by the Department of Environmental Management is necessary to insure that the Corporation will comply with existing Regulations and permit conditions established in this Order. Accordingly, I am requiring that the Corporation fund the position for an Air Quality Engineer no later than thirty (30) days from the date of this order. The Department of Environmental Management is likewise ordered to, upon receipt of funds, expedite the posting and filling of this position. This position shall remain funded by the Corporation for the duration of its operating permit.

7. The Corporation is ordered within thirty (30) days of receipt of the May interim Remedial Investigation and Feasibility Study to submit a revised groundwater monitoring network plan to the Hearing Officer and the

Department of Environmental Management, Division of Air and Hazardous Materials. The plan shall provide for monitoring of groundwater movement between the Central Landfill and the Scituate Reservoir. The monitoring must include water samples which shall be tested for the presence of metals and volatile organic compounds. The Corporation shall provide a copy of the RIFS interim report to the Hearing Officer within forty-eight (48) hours of receipt of the report.

8. Should the interim RIFS report indicate potential sources of contamination to the Scituate Reservoir, the Corporation is required to establish a contingency plan which would intercept any and all plumes of contamination which are directed toward the Scituate Reservoir. This plan must be completed and submitted to the Hearing Officer and the Division of Air and Hazardous Materials in sufficient detail, no later than thirty days (30) days after receipt of the RIFS interim report.
9. Within three (3) months of receipt of the May, 1988 RIFS interim report, the Corporation must submit detailed plans to the Hearing Officer and the Division of Air and Hazardous Materials for the installation of a leachate collection system on the western side of the landfill. Said plan shall be subject to approval by the Division of Air and Hazardous Materials, Groundwater Protection

Section of the Department of Environmental Management and the Hearing Officer prior to any excavation in the areas identified in the July, 1987 plans as Phase 2 and Phase 3.

10. Within sixty (60) days of the issuance of this order, the Corporation is required to submit to DEM a closure plan which details a design requirement of a minimum of a forty (40) mil geomembrane cap for the facility. The Department of Environmental Management, Division of Air and Hazardous Materials shall review the alternative final covers recommended by Wehran Engineering and based upon which form of final cover best protects public health and the environment, shall select the final type of cover that will be used at the facility. The Corporation must adhere to the selection made by the Department of Environmental Management with respect to final cover.
11. No installation of final cover shall commence unless and until the Department of Environmental Management, Division of Air and Hazardous Materials has approved qualifications of all persons participating in the installation of final cover. The Department shall review the qualifications of said installers to insure that final cover is appropriately installed by persons qualified to do said work.

12. As a further permit condition, the Department recommended that the Corporation submit to the Division of Air and Hazardous Materials within thirty (30) days of this order a plan to monitor air quality at the facility and also at the property line of the Central Landfill. This recommendation was made by the Division of Air and Hazardous Materials, however, I will extend the requirement to monitor air quality to include monitoring of private property of neighboring residents. Within thirty (30) days of this order the Corporation shall submit to the Hearing Officer and to the Division of Air and Hazardous Materials, an air quality monitoring plan which shall include sites contained within the property owned by the Corporation and shall also include sites that surround the landfill but are located off-site of the property owned by the Corporation. The Corporation, in order to comply with this condition, is ordered to contact neighboring residents and attempt to obtain their prior consent to air monitoring. This information shall be provided to the Hearing Officer and the Division within the thirty (30) day period stated above. The air quality monitoring shall include monitoring for volatile organic compounds as well as monitoring for the concentration of hydrogen sulfide and methane. Reports analyzing results of such monitoring shall be provided to the private parties who participate in the air quality monitoring program.

At a minimum, air samples shall be taken on a monthly basis. Sampling locations must include representative areas within a three hundred and sixty (360) degree ✓ circumference of the landfill property. The Corporation shall be required to implement the monitoring plan within thirty (30) days after final administrative approval by the Hearing Officer and the Division of Air and Hazardous Materials.

13. Groundwater monitoring must be performed on a quarterly basis for the following parameters: pH, specific conductants, temperature at sampling, chlorides, Ammonia, Nitrate, Total Suspended Solids, Turbidity, Total Iron, Total Chloroform^{coliform} Bacteria, Dissolved Oxygen, Biochemical Oxygen Demand, USEPA Priority Pollutant Metals, USEPA Priority Pollutant Volatile Organic Compounds, and total organic carbon. The Hearing Officer retains the authority to impose any additional sampling parameters or ✓ frequencies based upon information from the on-going ✓ investigations on site, including, but not limited to, the ✓ remedial investigation and feasibility study. ✓
14. The groundwater monitoring program required under condition number 12 shall include, but not be limited to, the following wells; Well A, Well B, Well B1, Well C, Well C1, Well D, Well E, Well G, Well H, Well I, Well J, Well M, Well N, Well O, Well P, WE 85-16, WE 85-NL1, WE 85-5,

Replacement for Well D, Deep bedrock well at Well C1, Deep bedrock well at Well B1, Replacement for Well A, WE 85-ML2, Deep bedrock well at Well O.

15. In order to provide limited access to the facility, the Corporation is ordered to fence the vehicular access area in its entirety with a minimum ten (10) foot chain link fence which will be locked during the hours when the facility is closed. This would provide a more secure facility and would serve to restrict access by vehicles during the hours in which the facility is not in operation.
16. Again, although there was testimony by experts for the applicant that existing equipment and personnel are sufficient to control litter at the site, there was extensive conflicting testimony that the facility violates litter control regulations on a regular basis. Almost every individual who participated in the public comment portion of the hearings, stated that airborne refuse regularly leaves the facility and is deposited on adjacent roadways and neighboring properties. Accordingly, the Corporation is ordered to purchase a minimum of seven (7) additional litter fences to be used on the working face to assist in the control of blowoff. The Corporation is further ordered to employ individuals after the facility is closed on Saturdays and also during the day on Sundays in order to remove litter which has made its way onto adjoining roadways, into the trees that line those

roadways, and onto neighboring properties. Since the facility does not accept refuse on Sundays, the litter personnel employed at that time can devote their working hours solely to the cleanup of neighboring properties and adjacent areas. Specifically, the Corporation is ordered to have assigned to litter detail a minimum of four (4) persons for at least three (3) hours subsequent to closing on Saturdays and for a minimum of six (6) hours on Sundays. Additionally personnel shall be assigned to the office at the Central Landfill to respond to complaints. Personnel shall also be available and qualified for dust control purposes on Saturdays and Sundays.

17. Based upon testimony that the Upper Simmonsville Reservoir is the depository of leachate from the landfill, the Corporation is ordered to begin quarterly testing of the sediment in the Upper Simmonsville Reservoir. Samples are to be taken from various locations and shall be monitored for at least the following components; pH, Chlorides, Ammonia, Nitrates, Total Iron, Total Chloroform Bacteria, USEPA Priority Pollutant Metals, USEPA Priority Pollutant Volatile Organic Compounds, and total organic carbon. A plan for the above monitoring shall be submitted to the Hearing Officer and the Department of Environmental Management, Division of Air and Hazardous Materials, within sixty (60) days of the date of this order. The

plan shall be reviewed and approved by the Hearing Officer and the Division of Groundwater and Freshwater Wetlands Protection and shall be implemented by the Corporation within thirty (30) days of the date of approval.

18. During the hearings, a common concern was voiced by members of the public. This overriding concern is the conspicuous lack of an alternate disposal site for the wastes currently accepted at the Central Landfill.

Although the pending application requests an interim permit of limited duration (18 month maximum), the Corporation, as outlined in its Statewide Resource Recovery System Development Plan (Joint Exhibit 10) anticipates operation of the Central Landfill beyond the year 2000. There presently are no alternative disposal sites within the state. The Corporation uses this dilemma to establish that a need exists. This need, both foreseeable and self-created, has been used too often as both a sword and a shield. In light of obvious height and odor problems, I find it irresponsible to proceed, undaunted, for continued operation of the Central Landfill without actively seeking alternative disposal sites.

Accordingly, as a further condition of this permit, the Corporation is ordered to immediately undertake a statewide search for identification of a minimum of three

(3) suitable sites to serve as alternate disposal facilities to the Central Landfill.

The Corporation shall submit reports on its progress to the Hearing Officer and the Division of Air and Hazardous Materials on or before the following dates: December 1, 1988 and May 30, 1989. The first report must include, at a minimum, identification of at least three (3) suitable locations with due regard for general environmental suitability and available buffer zones. Specific information regarding the number of acres available, owner(s) of the properties, and anticipated acquisition costs shall be provided in the first report.

The second report shall be submitted between April 1 and May 30, 1989 and shall outline progress in negotiations to acquire said properties and the steps taken by the Corporation to effectuate said purchases(s) (i.e. whether written offers have been made or purchase and sale agreements have been signed.) This report shall establish a specific timetable for purchase of the properties and a timetable for submission of an application for operation of the landfill(s) to the Department of Environmental Management with appropriate design plans. This second report shall include other information deemed necessary by the Hearing Officer after review of the December 1, 1988 report.

19. The Corporation is ordered to post a performance bond with corporate surety, or equivalent security approved by the hearing officer, in the amount of \$500,000, or equal to the amount of the contract for services between Corporation and Hayden Wegman, whichever is less, as assurance that approximately sixty (60) gas wells and the proposed 2600 CFM flare will be installed and properly operating on or before August 1, 1988. After August 1, 1988, the Department of Environmental Management shall have the right to call said bond or equivalent security, for equipment failure or for failure to adhere to the installation time schedule. The Department of Environmental Management shall have the option to procure replacements of defective equipment and to accomplish installation of replacement wells. Said bond or equivalent security shall be posted no later than April 30, 1988.
20. Prior to the placement of additional fill with two hundred (200) feet of Cedar Brook, silt fencing and sedimentation controls proposed by the applicant must be in place. The Department of Environmental Management Division of Freshwater Wetlands and Groundwater Protection shall review the proposal and shall recommend additional safeguards to ensure effective runoff and erosion

controls. The recommendations shall be made by April 20, 1988 and a copy of the recommendations shall be sent to the Hearing Officer and the applicant and the Hearing Officer reserves the right to implement these recommendations.

21. After August 1, 1988, the Department of Environmental Management shall monitor the effectiveness of the methane gas collection system with respect to odor control and gas migration. The Department of Environmental Management shall recommend to the Hearing Officer whether additional wells or other enhancement of the system is required. The Hearing Officer reserves jurisdiction to order additional measures as recommended by the Department of Environmental Management.
22. Variances from the technical requirements of Rule 6.03 and 6.04(2) are granted.

The foregoing is hereby recommended to the Director for adoption as a final Decision and Order.

11-1-23 1988
Date

Kathleen M. Lanphear
Kathleen M. Lanphear
in her capacity as
Hearing Officer

The above recommendation is hereby adopted, in its entirety,
as a final Decision and Order of the Director.

3 23 88
Date

Robert L. Bendick, Jr.
Robert L. Bendick, Jr.
Director, Department of
Environmental Management

CERTIFICATION

I hereby certify that a true and accurate copy of the within
Decision and Order has been sent first class mail, postage
prepaid to Albert West, Esq. and George West, Esq., 711 Fleet
Bank Building, Providence, R. I. 02903 and by interoffice mail
to Claude A. Cote, Esq., 9 Hayes Street, Providence, R.I.
02908 on this twenty-third day of March, 1988.

Robert L. Bendick, Jr.