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D.E.A. SOUTH DISTRICT

October 15, 1992

Mr. Philip R. Edwards  
Director of District Management  
Florida Department of Environmental Regulation  
2295 Victoria Avenue, Suite 364  
Fort Meyers, Florida 33901

Re: Lee County Solid Waste Energy Recovery Facility  
Groundwater and Surface Water Monitoring Plan  
Response to Comments PPSC PA 90-30

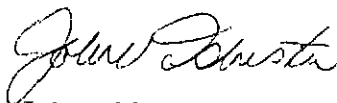
Dear Mr. Edwards:

Enclosed please find our responses to the comments issued by the FDER on October 2, 1992 regarding the Lee County SWERF Groundwater and Surface Water Monitoring Plan. The responses and additional information provided in this report are hereby incorporated as part of the Groundwater and Surface Water Monitoring Plan dated August 1992.

We trust that these responses adequately address the concerns of the Department and appreciate your expeditious review and approval of the Monitoring Plan. If you have any questions, please do not hesitate to call.

Very truly yours,

MALCOLM PIRNIE, INC.



John Isbister, CPG  
Vice President



dt

c: J. Gould, FDER  
D. Markley, MPI  
D. Carrato, MPI  
M. van der Heijden, MPI  
P. Young, OMS  
L. Johnson, LCDSW  
L. Sampson, LCDSW  
P. Barbaccia, FDER  
G. Minhaj, FDER  
D. Sessions, FDER  
J. Kowal, OMSL  
R. Lane Ware, UE&C  
S. Coughanour, SFWMD  
C. Merriam, SFWMD

REVISED

OCT 16 1992

LEE COUNTY DISTRICT

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**LEE COUNTY SOLID WASTE ENERGY RECOVERY FACILITY  
RESPONSE TO FDER COMMENTS**

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Power Plant Siting Act Permit Application PA 90-30  
Lee County, Florida

October, 1992

Project 1971-011-130

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**MALCOLM  
PIRNIE**

ENVIRONMENTAL ENGINEERS, SCIENTISTS & PLANNERS

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This report provides responses to comments raised by the Florida Department of Environmental Regulation regarding the Surface Water and Groundwater Monitoring Plan for the Lee County Solid Waste Energy Recovery Facility.

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**Comment 1:**

**The site-specific ground water flow direction derived from measurements made by Mortensen Engineering was determined to be southeasterly. The method and accuracy of the measurements do not appear adequate to reflect true site conditions in consideration of the regional data which suggests a northerly flow direction. Please provide site-specific ground water elevation information, obtained through reliable means, which defines the direction of flow at this location.**

**Response 1:**

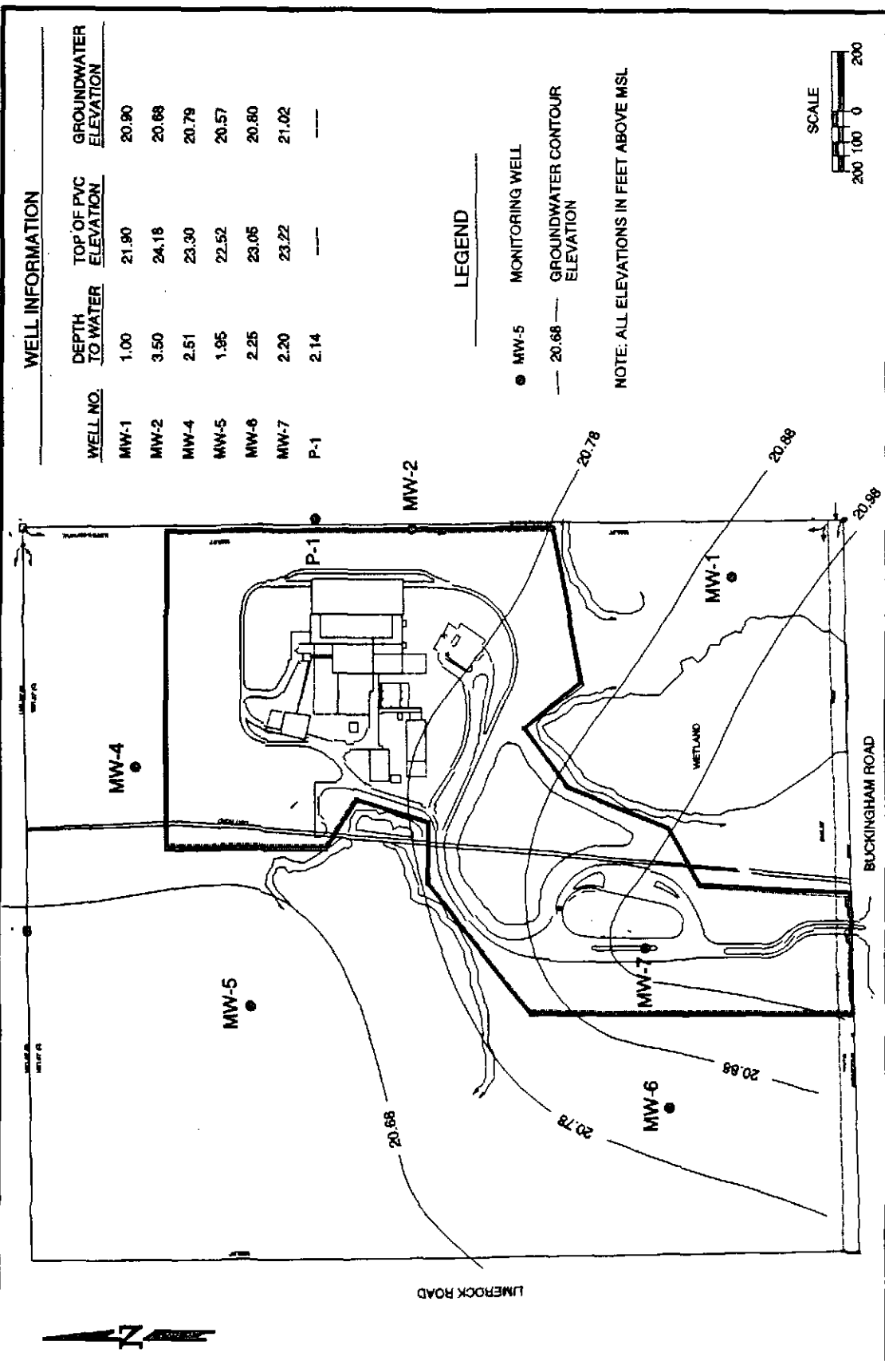
Six monitoring wells have recently been installed at the Lee County SWERF site. These wells are screened in the surficial aquifer and were installed to monitor groundwater quality during the dewatering operations. Static water levels were measured in the six monitoring wells on September 28, 1992. The locations and top of casing elevations of the wells were surveyed so that groundwater elevations could be determined. The well locations and groundwater elevations were plotted on a survey map and groundwater contour lines were established. The locations of the wells and the groundwater contour lines are shown on Figure 1.

As shown on Figure 1, groundwater movement in the surficial aquifer is generally to the northeast. This is consistent with the regional groundwater flow direction. The horizontal hydraulic gradient across the site is relatively flat and is calculated to be 0.0003 feet/foot.

Intermediate depth wells are proposed to be installed as part of the Monitoring Plan. Once these wells have been installed, groundwater flow direction in the intermediate zone (sandstone aquifer) will be established.

**Comment 2:**

**Site-specific hydrogeologic conditions should be established to determine its consistency with general information referenced from the Lee County Water Resources Management Project of October 1988 by James M. Montgomery, Inc. Please provide assurances that the rate of ground water flow at this location will be established as part of the ground water monitoring plan.**



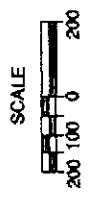
**WELL INFORMATION**

WELL NO.	DEPTH TO WATER	TOP OF PVC ELEVATION	GROUNDWATER ELEVATION
MW-1	1.00	21.90	20.90
MW-2	3.50	24.18	20.68
MW-4	2.51	23.30	20.79
MW-5	1.95	22.52	20.57
MW-6	2.25	23.05	20.80
MW-7	2.20	23.22	21.02
P-1	2.14	---	---

**LEGEND**

- MW-5 MONITORING WELL
- 20.68 GROUNDWATER CONTOUR ELEVATION

NOTE: ALL ELEVATIONS IN FEET ABOVE MSL



LEE COUNTY SOLID WASTE ENERGY RECOVERY FACILITY  
 MONITORING WELL LOCATIONS AND  
 GROUND WATER CONTOUR LINES

**MALCOLM  
 PIRNIE**

MALCOLM PIRNIE, INC

**FIGURE 1**

Response 2:

Site-specific hydrogeologic conditions will be established as part of the Monitoring Plan. During the installation of the surficial and intermediate monitoring wells, sieve analyses will be conducted on selected soil samples collected in different depth intervals to identify physical properties of the water-bearing formations (e.g., grain-size distribution and porosity). Identification of the physical properties will aid in the determination of the rate of groundwater flow in the surficial and sandstone aquifers.

**Comment 3:**

**The background water quality presented in Section 3.13 is valuable information; however, site-specific background conditions shall be established through the sampling and analysis of the upgradient on-site monitoring well as proposed in the monitoring plan.**

Response 3:

In accordance with the Conditions of Certification, quarterly groundwater quality sampling and analysis will be conducted in the on-site monitoring wells starting 12 months prior to the operation of the SWERF. This will establish site-specific background groundwater chemical conditions. All on-site monitoring wells (including the upgradient wells) will be incorporated into the initial sampling program.

**Comment 4:**

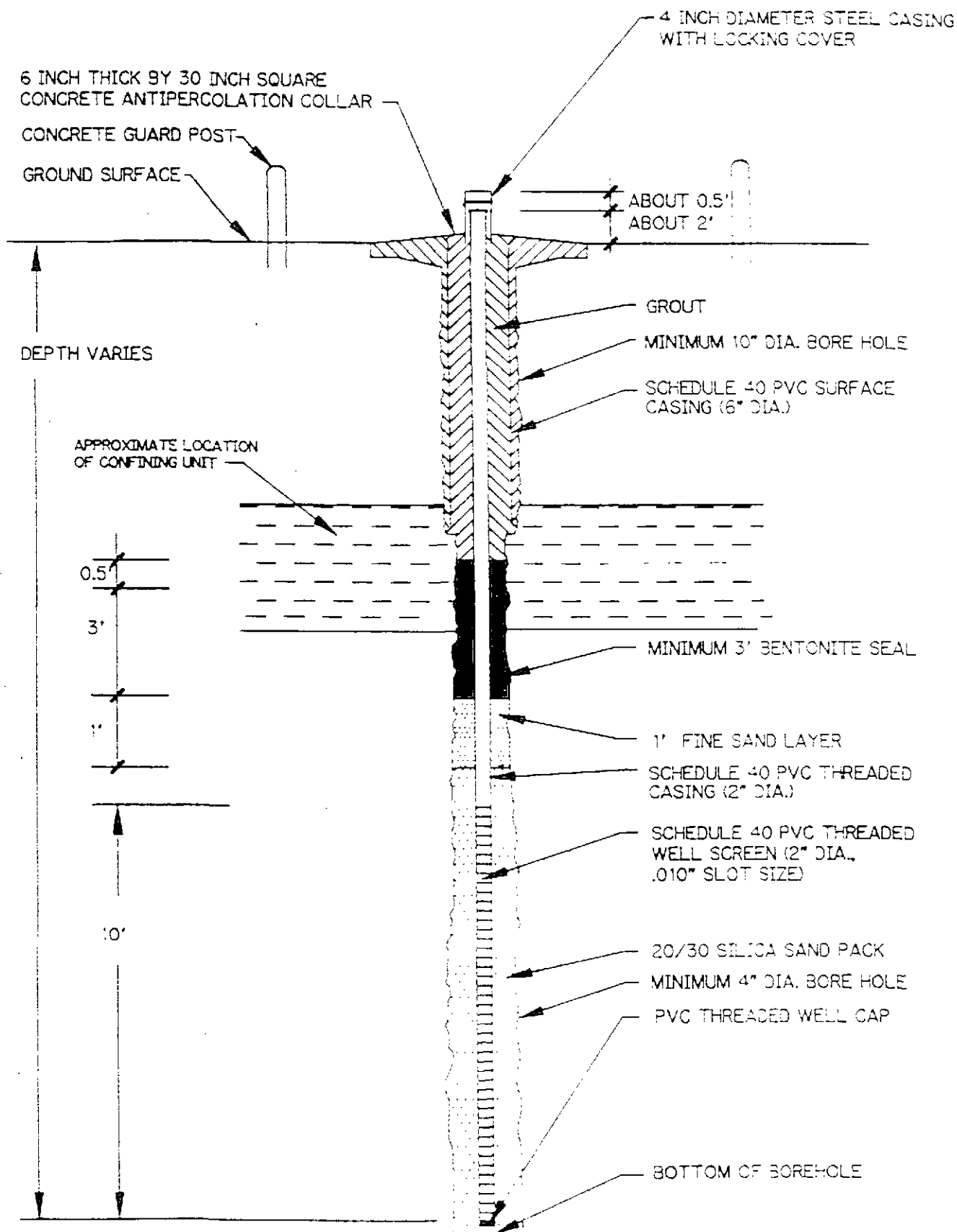
**The typical construction detail drawings of monitor wells are not consistent with the text. Of particular concern is the fine sand layer shown above the bentonite seal which would be located within the confining layer for intermediate depth wells. Please review the construction details and revise, as necessary, to resolve any inconsistencies.**

Response 4:

The well construction for the intermediate depth wells will not include a 0.5 foot thick fine sand layer above the three foot bentonite seal. The typical construction detail for the intermediate monitor wells (Figure 11 of the Monitoring Plan) has been revised to be consistent with the text of the Monitoring Plan and is attached as Revised Figure 11. The reference to the 0.5 foot fine sand layer has been removed.

**Comment 5:**

**Please indicate the anticipated total depth of both shallow and intermediate wells. Also, please indicate the length of well screen to be used for both well types.**



SOURCE: CDM PLAN, DATED OCTOBER 1991

**MALCOLM  
PIRNIE**

LEE COUNTY - FORT MYERS, FLORIDA  
 ENERGY RECOVERY FACILITY  
 TYPICAL CONSTRUCTION DETAIL OF  
 INTERMEDIATE OR DEEP MONITOR WELL

MALCOLM PIRNIE, INC.

REVISED FIGURE 11

Response 5:

Based upon previous soil borings completed on-site and local and regional geological descriptions, it is expected that the shallow monitoring wells will have a total depth of 15 to 20 feet and the intermediate monitoring wells will have a total depth of 60 to 80 feet. The shallow monitoring wells will have five foot lengths of screen, which will be set in the surficial aquifer. The intermediate monitoring wells will have 10 foot lengths of screen set in the sandstone aquifer below the Upper Hawthorn Confining Zone.

Comment 6:

**Please provide assurances that a site plan drawn to scale, showing monitor well locations (including identification numbers) and surface water sampling locations, will be provided after well installation.**

Response 6:

A site plan, drawn to scale, showing the surface water and groundwater sampling and monitoring locations including well identification numbers, ground elevations and top of PVC casing elevations will be provided after monitoring well installation. The site plan map will be submitted as part of the quarterly and annual sampling reports.

Comment 7:

**In regards to Section 4.3 concerning applicable criteria and standards, please note that the Department recently adopted Florida Administrative Code (F.A.C.) Rule 17-520, Ground Water Classes, Standards, and Exemptions; and F.A.C. Rule 17-522, Ground Water Permitting and Monitoring Requirements. These rules reflect cleanup and renumbering of portions of F.A.C. Rule 17-3, and F.A.C. Rule 17-28. Enclosed are copies of these rules for your reference.**

Response 7:

It is noted that the FDER has recently adopted Florida Administrative Code (F.A.C.) Rule 17-520 entitled Ground Water Classes, Standards, and Exemptions; and F.A.C. Rule 17-522 entitled Ground Water Permitting and Monitoring Requirements. All applicable sections of the two recently adopted Codes are hereby incorporated by reference into Section 4.3 entitled Applicable Criteria and Standards, of the Monitoring Plan. The classification of the aquifers on the site under the recently adopted F.A.C. 17-520.410 does not change and remains as the Class G-II designation. Standards for Class G-II groundwaters according to F.A.C. 17-520.420 are applicable.

**Comment 8:**

**Please provide assurances that the initial sampling of ground water monitoring wells, described in Section 4.4, will also include all Primary and Secondary Drinking Water Parameters as required by the Conditions of Certification. The specific parameters to be samples for are listed in F.A.C. Rules 17-550.310 and 17-550.320.**

**Please be aware that revisions to F.A.C. Rule 17-550, Drinking Water Standards, Monitoring, and Reporting have been adopted and include new and modified drinking water standards, effective January 1, 1993. By reference, these standards automatically become ground water standards. However, for existing facilities permitted to discharge to ground water, on or before August 1, 1992, F.A.C. Rule 17-520.420 provides two years to comply with the additional or more stringent standards. This provision becomes effective October 6, 1992.**

**Response 8:**

As required by the Conditions of Certification, the initial background groundwater sampling of the monitoring wells will include analysis for all Primary and Secondary Drinking Water parameters. F.A.C. 17-520.420 requires that groundwaters classified as Class G-II shall meet the primary and secondary drinking water quality standards established pursuant to the Florida Safe Drinking Water Act. The specific parameters listed in F.A.C. 17-550.310 entitled Primary Drinking Water Standards; and F.A.C. 17-550.320 entitled Secondary Drinking Water Standards will be analyzed during the initial background groundwater quality sampling of the monitoring wells.

It is noted that revisions to F.A.C. Rule 17-550 become effective January 1, 1993. All applicable parameters, as stated in F.A.C. 17-550, will be analyzed during the initial sampling of the groundwater. This includes proposed annual standards listed in Comment No. 9 below. The combined list of primary, secondary, and proposed water quality parameters to be analyzed during the initial background groundwater sampling event is as follows:



## INITIAL GROUNDWATER QUALITY SAMPLING PARAMETERS

PRIMARY DRINKING WATER STANDARDS		
INORGANICS		
Arsenic Barium Cadmium Chromium	Lead Mercury Nitrate (as N)	Selenium Silver Sodium
ORGANICS		
(a) Chlorinated hydrocarbons: Endrin (1,2,3,4,10,10-hexachloro-6,7-epoxy-1,4,4a,5,6,7,8,8a-octa-hydro-endo-endo-1,4,5,8-dimethano naphthalene) Lindane (1,2,3,4,5,6-hexachloro-cyclohexane, gamma isomer) Methoxychlor (1,1,1-trichloro-2,2-bis (p-methoxyphenyl) ethane) Toxaphene (C <sub>10</sub> H <sub>10</sub> C <sub>8</sub> -technical chlorinated camphene, 67-69 % chlorine)	(b) Chlorophenoxy: 2,4-D (2,4-dichlorophenoxyacetic acid) 2,4,5-IP, Silver (2,4,5-trichloro-phenoxypropionic acid) (c) Total trihalomethanes (the sum of the concentrations of bromodichloromethane, dibromochloromethane, tribromomethane(bromofom))	and trichloromethane (chloroform) (d) volatile organics Trichloroethene Tetrachloroethene Carbon tetrachloride (Tetrachloromethane) Vinyl chloride 1,1,1-trichloroethane 1,2-dichloroethane Benzene Ethylene dibromide p-dichlorobenzene 1,1-dichloroethene
<u>Turbidity</u> - Turbidity Units (NTU)	<u>Microbiological</u> - Coliform Bacteria	<u>Radionuclides</u> - Naturally occurring and Man-made radionuclides
SECONDARY DRINKING WATER STANDARDS		
Chloride Color Copper Corrosivity	Fluoride Foaming Agents Iron Manganese Odor	pH Sulfate Total Dissolved Solids Zinc
PROPOSED WATER QUALITY PARAMETERS (As stated in Comment No. 9)		
VOLATILE ORGANIC COMPOUNDS		
cis-1,2-Dichloroethylene 1,2-Dichloropropane Ethylbenzene Monochlorobenzene	o-Dichlorobenzene Styrene Toluene trans-1,2-Dichloroethylene	Xylenes (total) Dichloromethane 1,2,4-Trichlorobenzene 1,1,2-Trichloroethane
INORGANICS		
Cadmium Nickel Thallium Barium		

**Comment 9:**

In recognition of the current, and forthcoming standards mentioned above, the proposed annual water quality parameters for ground water monitoring wells should be reviewed and revised in consideration of the following parameters.

Volatile Organic Compounds

Inorganic Contaminants

cis-1,2-Dichloroethylene  
1,2-Dichloropropane  
Ethylbenzene  
Monochlorobenzene  
o-Dichlorobenzene  
Styrene  
Toluene  
trans-1,2-Dichloroethylene  
Xylenes (total)  
Dichloromethane  
1,2,4-Trichlorobenzene  
1,1,2-Trichloroethane

Cadmium  
Nickel  
Thallium  
Barium

Response 9:

As stated in the Monitoring Plan in Section 4.4, the annual groundwater sampling of the on-site monitoring wells will be analyzed for volatile and semi-volatile organics using EPA Methods 624/625. The volatile organic compounds listed in the above FDER comment No. 9 have been reviewed and are included as part of the standard EPA 624/625 methods. The inorganic contaminants listed (cadmium, nickel, thallium and barium) will be included in the annual groundwater sampling analyses.

Comment 10:

Please provide the proposed quarterly ground water quality monitoring parameters relative to Section 4.4.

Response 10:

The proposed quarterly groundwater quality sampling will include groundwater quality parameters required in the Power Plant Siting Act section PPSC XIV D.3.C. These parameters are listed below:

QUARTERLY GROUNDWATER QUALITY SAMPLING PARAMETERS

Iron	Selenium
Nitrates	TDS
Total Kjeldahl Nitrogen	Cadmium
Specific Conductance	Chromium
pH	Lead
Arsenic	Mercury

**Comment 11:**

**Please clarify the number of surface water monitoring locations referenced in Section 5.1. The text refers to more than one location, not identified on Figure 13.**

**Response 11:**

Water quality samples will be collected at one surface water monitoring location as part of the Monitoring Plan. This location will be the point of discharge from the storm water detention pond to the wetland area at the south end of the SWERF. The one location, as identified on Figure 13 of the Monitoring Plan, is the only surface water discharge point from the SWERF.

**Comment 12:**

**Please describe the refuse storage bunker referenced to in Section 3.2 as it may relate to being a potential pollution source at the facility. Also, please provide a brief description of other storage areas for chemicals and petroleum products relative to this issue.**

**Response 12:**

The design of the refuse storage pit will ensure that groundwater will not infiltrate into the pit and refuse leachate will not permeate from the pit. Construction will consist of reinforced concrete with a minimum wall thickness of approximately two feet and a minimum floor slab thickness of approximately three feet. Appropriate water stops shall be provided at all construction joints. Further, reinforcement shall be continuous through the construction joints to prevent joint separation. In addition, the exterior portions of the refuse pit below existing grade will be water proofed with bentonite panels.

For a description of other storage areas for chemicals or petroleum products, please refer to the Hazardous Communication Manual and Spill Prevention and Countermeasure Control Plan submitted by Ogden Martin on September 11, 1992.



# Florida Department of Environmental Regulation

South District • 2295 Victoria Avenue, Suite 364 • Fort Myers, Florida 33901

Lawton Chiles, Governor

Carol M. Browner, Secretary

COPY

October 2, 1992

John Isbister, CPG  
Malcolm Pirnie, Inc.  
One International Boulevard  
Mahwah, NJ 07495-0018

Re: Lee County - SW/GW  
Lee County Solid Waste Resource  
Energy Recovery Facility  
Fort Myers PPSC PA 90-30

Dear Mr. Isbister:

Our office has reviewed the ground water and surface water monitoring plan, for the referenced project, received September 2, 1992. Below are our comments and requests for additional information to evaluate the monitoring plan for this site.

- 1) The site-specific ground water flow direction derived from measurements made by Mortensen Engineering was determined to be southeasterly. The method and accuracy of the measurements do not appear adequate to reflect true site conditions in consideration of the regional data which suggests a northerly flow direction. Please provide site-specific ground water elevation information, obtained through reliable means, which defines the direction of flow at this location.
- 2) Site-specific hydrogeologic conditions should be established to determine its consistency with general information referenced from the Lee County Water Resources Management Project of October 1988 by James M. Montgomery, Inc. Please provide assurances that the rate of ground water flow at this location will be established as part of the ground water monitoring plan.
- 3) The background water quality presented in Section 3.1.3 is valuable information, however site-specific background conditions shall be established through the sampling and analysis of the upgradient on-site monitoring well as proposed in the monitoring plan.
- 4) The typical construction detail drawings of monitor wells are not consistent with the text. Of particular concern is the fine sand layer shown above the bentonite seal which would be located within the confining layer for intermediate depth wells. Please review the construction details and revise as necessary to resolve any inconsistencies.

Mr. John Isbister

October 2, 1992

Page 2.

- 5) Please indicate the anticipated total depth of both shallow and intermediate wells. Also, please indicate the length of well screen to be used for both well types.
- 6) Please provide assurances that a site plan drawn to scale, showing monitor well locations (including identification numbers) and surface water sampling locations, will be provided after well installation.
- 7) In regards to Section 4.3 concerning applicable criteria and standards, please note that the Department recently adopted Florida Administrative Code (F.A.C.) Rule 17-520, Ground Water Classes, Standards, and Exemptions; and F.A.C. Rule 17-522, Ground Water Permitting and Monitoring Requirements. These rules reflect cleanup and renumbering of portions of F.A.C. Rule 17-3, and F.A.C. Rule 17-28. Enclosed are copies of these rules for your reference.
- 8) Please provide assurances that the initial sampling of ground water monitoring wells, described in Section 4.4, will also include all Primary and Secondary Drinking Water Parameters as required by the Conditions of Certification. The specific parameters to be sampled for are listed in F.A.C. Rules 17-550.310 and 17-550.320.

Please be aware that revisions to F.A.C. Rule 17-550, Drinking Water Standards, Monitoring, and Reporting have been adopted and include *new and modified drinking water standards, effective January 1, 1993*. By reference, these standards automatically become ground water standards. However, for existing facilities permitted to discharge to ground water, on or before August 1, 1992, F.A.C. Rule 17-520.420 provides two years to comply with the additional or more stringent standards. This provision becomes effective October 6, 1992.

- 9) In recognition of the current, and forthcoming standards mentioned above, the proposed annual water quality parameters for ground water monitoring wells should be reviewed and revised in consideration of the following parameters.

Volatile Organic Compounds

cis-1,2-Dichloroethylene

1,2-Dichloropropane

Ethylbenzene

Monochlorobenzene

o-Dichlorobenzene

Styrene

Toluene

trans-1,2-Dichloroethylene

Xylenes (total)

Dichloromethane

1,2,4-Trichlorobenzene

1,1,2-Trichloroethane

Inorganic Contaminants

Cadmium

Nickel

Thallium

Barium

Mr. John Isbister  
October 2, 1992  
Page 3.

10) Please provide the proposed quarterly ground water quality monitoring parameters relative to Section 4.4.

11) Please clarify the number of surface water monitoring locations referenced in Section 5.1. The text refers to more than one location, not identified on Figure 13.

12) Please describe the refuse storage bunker referenced to in Section 3.2 as it may relate to being a potential pollution source at the facility. Also, please provide a brief description of other storage areas for chemicals and petroleum products relative to this issue.

Please direct your response concerning the above items to our office at the letterhead address. **If you have any questions about our comments please contact Jeff Gould at (813) 332 - 6975.** Your cooperation in this matter is appreciated.

Enclosures  
PRE/JGG/jg  
cc: D. Markley  
G. Minhaj  
D. Sessions

Sincerely,



Philip R. Edwards  
Director of  
District Management



COPY

*Florida Department of Environmental Regulation*

South District • 2295 Victoria Avenue, Suite 364 • Fort Myers, Florida 33901

Lawton Chiles, Governor

Carol M. Browner, Secretary

November 4, 1992

John Isbister, CPG  
Malcolm Pirnie, Inc.  
One International Boulevard  
Mahwah, NJ 07495-0018

Re: Lee County - SW/GW  
Lee County Solid Waste Resource  
Energy Recovery Facility  
Fort Myers PPSC PA 90-30  
Response to DER Comments

Dear Mr. Isbister:

Thank you for your letter dated October 15th in response to our comments concerning the August 1992 ground water and surface water monitoring plan for the referenced project. We have reviewed the additional information and determined that the responses adequately address the concerns identified in our letter dated October 2nd. No additional information is necessary to establish the conditions of monitoring for this facility based on the submittals.

We have no objection to the immediate installation of wells proposed in the plan to facilitate monitoring of the dewatering activities intended for this site. Upon completion of construction of the ground water monitoring system, please submit the information specified in XIV.D.3.c. of the Conditions of Certification for the monitoring wells. **If you have any questions concerning the above, please contact Jeff Gould at (813) 332-6975 or write to the letterhead address.** Your cooperation in this matter is appreciated.

Sincerely,

Philip R. Edwards  
Director of  
District Management

Enclosures

PRE/JGG/jg

cc: M. van der Heijden

D. Markley

D. Sessions

G. Minhaj