Karen L. Peters
Justin D. Steltenpohl
Squire, Sanders & Dempsey L.L.P.
Two Renaissance Square
40 North Central Avenue, Suite 2700
Phoenix, Arizona 85004-4441
(602) 528-4000

Attorneys for Gila Bend Power Partners, L.L.C.

BEFORE THE POWER PLANT AND

TRANSMISSION LINE SITING COMMITTEE

In the matter of the Application of Gila Bend Power Partners, L.L.C., or their assignee(s), in conformance with the requirements of Arizona Revised Statutes 40-360.01 *et seq.*, for a Certificate of Environmental Compatibility authorizing construction of a natural gas-fired, combined cycle generating plant, switchyard, and related facilities in the Town of Gila Bend, Maricopa County, Arizona located in the southwest quarter of Section 19, Township 5 South, Range 5 West, Gila and Salt River Base and Meridian.	Case No.: L-00000V-00-0106 **SUBMISSION OF SUPPLEMENT TO ORIGINAL APPLICATION FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY**

Gila Bend Power Partners, L.L.C., as Applicant, hereby submits to the Power Plant and Transmission Line Siting Committee the attached Supplemental Information (hereinafter the "Supplement") to its Application for a Certificate of Environmental Compatibility (hereinafter the "Original Application"), filed with the Arizona Corporation Commission on September 7, 2000.

The Supplement contains information that has been assembled since the Original Application was submitted. The following additions are included in the Supplement:

A. Air Quality Permit Application Addendum No. 1.

B. Summary of Aquifer Testing Activities.

C. Application for an Amendment to the General Plan and Application for a Change in Zoning for the Town of Gila Bend.

The Applicant believes these materials will be useful to the Committee in its consideration of the Original Application. For purposes of clarification, any references in the Original Application and accompanying exhibits to "PowerDevelopment Enterprises, Inc." as the project applicant should be to Gila Bend Power Partners, L.L.C.

RESPECTFULLY SUBMITTED this 2nd day of November, 2000.

SQUIRE, SANDERS & DEMPSEY L.L.P.

By _____

Karen L. Peters
Justin D. Steltenpohl
Squire, Sanders & Dempsey L.L.P.
Two Renaissance Square
40 North Central Avenue, Suite 2700
Phoenix, Arizona 85004-4441
(602) 528-4000

Attorneys for Applicant

ORIGINAL and 25 copies of the foregoing filed this 2nd day of November, 2000, with:

Arizona Corporation Commission
ATTN: Docket Control
1200 West Washington
Phoenix, Arizona 85003

COPY of the foregoing hand-delivered this 2nd day of November, 2000, to:

Janice M. Alward, Attorney
Arizona Corporation Commission
1200 West Washington Street
Phoenix, Arizona 85007

COPY of the foregoing mailed this
2nd day of November, 2000, to:

John Washburn
Gila Bend Power Partners, L.L.C.
5949 Sherry Lane, Suite 1880
Dallas, Texas 75225

BEFORE THE
POWER PLANT AND TRANSMISSION LINE SITING COMMITTEE

In the matter of the Application of Gila Bend Power Partners, L.L.C., or their assignee(s), in conformance with the requirements of Arizona Revised Statutes 40-360.01 *et seq.*, for a Certificate of Environmental Compatibility authorizing construction of a natural gas-fired, combined cycle generating plant, switchyard, and related facilities in the Town of Gila Bend, Maricopa County, Arizona located in the southwest quarter of Section 19, Township 5 South, Range 5 West, Gila and Salt River Base and Meridian.	Case No.: L-00000V-00-0106

APPLICATION FOR CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY

SUPPLEMENTAL INFORMATION

exhibit A

MALCOLM PIRNIE

Gila Bend Power Generation Station

Air Quality Permit Application Addendum No. 1

September, 2000

Submitted by:

Gila Bend Power Partners, L.L.C.
5949 Sherry Lane, Suite 1880
Dallas, Texas 75225

Prepared by:

Malcolm Pirnie, Inc.
432 N. 44th Street, Suite 400
Phoenix, Arizona 85008-7603

MALCOLM PIRNIE

MALCOLM PIRNIE, INC.
INDEPENDENT ENVIRONMENTAL ENGINEERS, SCIENTISTS & CONSULTANTS

September 25, 2000

Mr. Dale Lieb
Title V Air Permitting Manager
Air Quality Division
Maricopa County Environmental Services Department
1001 N. Central Avenue, Suite 150
Phoenix, Arizona 85004

Re: Gila Bend Power Generation Station
Addendum No. 1 to Air Quality Permit Application (V00-001)

Dear Mr. Lieb:

On behalf of the Gila Bend Power Partners, L.L.C, Malcolm Pirnie is submitting two copies of Addendum No. 1 to the Air Quality Permit Application (V00-001) submitted on March 31, 2000 for the Gila Bend Power Generation Station. Addendum No. 1 includes supplemental information requested by the Department's consultant (URS) as well as revisions to the Application due to the following changes:

- Business name
- Facility location
- Equipment
- Meteorological data
- Ambient air quality impact analyses

Please call me at (602) 231-5591 if you have any questions or need additional information.

Very truly yours,

MALCOLM PIRNIE, INC.

Jan C for

Gary H. Bacon, P.E.
Associate

Enclosures

c: Scott Bohning, USEPA (Region IX)
Steve Branoff, USEPA (Region IX)
Peter Lahm, US Forest Services
Tonnie Maniero, US Park Services
Shirley Pearson, URS
Bob Innamorati, GBPP
Pete Wright, GBPP
Bob Walther, IPT
Karen Peters, SSD
Gary Rogers, MPI
Jim Laughlin, MPT
Phyllis Diosey, MPI
Linda Micale, MPI
Chris Stenger, MPI

Air Quality
Permit Application
Addendum No. 1

Gila Bend Power Generation Station

September, 2000

GILA BEND POWER GENERATION STATION
AIR QUALITY PERMIT APPLICATION
ADDENDUM No.1

TABLE OF CONTENTS

INTRODUCTION

This addendum is prepared to supplement the previously submitted Air Quality Permit Application for the Gila Bend Power Generation Station dated March 2000. Section 1 "Additional Information" of this Application Addendum was prepared in response to the URS letter dated May 31, 2000.

Section 2 "Revisions" of this Application Addendum was prepared in response to facility modifications that have occurred since the original application submittal. The following list details changes.

- **Change in Business Name**: PowerDevelopment Enterprises, Inc. has formed another company named Gila Bend Power Partners, L.L.C.

- **Change in Plant Location** : The Plant will be relocated within the originally proposed Section 19 in Township 5 South, Range 5 West of the Gila and Salt River Base and Meridian, Maricopa County, Arizona.

- **Addition of Equipment**: One 356 MM BTU/hr rated duct will be added to each of the three Heat Recovery Steam Generators (HRSG). The power generation capacity will be increased to 845 megawatts from 750 megawatts due to the addition of duct burners.

- **Change in Equipment**: One 16,500-gpm, twelve-cell cooling tower will replace the three 181,800-gpm, four-cell cooling towers.

Appropriate changes to text, calculations, modeling, etc. have been made to the respective sections from the previous Air Quality Permit Application and inserted in Section 2 of this Application Addendum.

1.0 ADDITIONAL INFORMATION

URS, the reviewing consultant to the Department, requested additional information relative to the following questions through a letter dated May 31, 2000.

Q. Item No. 10.e : The fuel oil sulfur content and heating value were not provided.

A. The emergency generator and fire pumps will use #2 fuel oil with 0.05% sulfur content. A typical energy value for #2 fuel oil is 18,600 BTU per pound, which is approximately 130,388 BTU per gallon.

Q. Item No. 11.a-g : The type, name, model, size / capacity of the control equipment were not provided.

A. The final control equipment selection has not yet been made. The proposed control equipment are three selective catalytic reduction units, which are capable of controlling NOx to 3 ppm corrected to 15% oxygen. The above information should be sufficient for permitting considering the Department deemed other applications complete without selecting specific control equipment.

Q. Item No. 12.a-g : The stack descriptions for the emergency generator and fire pump were not provided.

A. The emergency generator and fire pump will each be equipped with a 6-inch diameter stack that will be 15 feet in height.

Q. Item No. 14.a : The applicable test methods were not identified.

A. The following table details air pollutants and their respective applicable test methods.

Air Pollutants	Method
NOx	EPA Method 7e
CO	EPA Method 10
PM10	EPA Method 5 and 202
VOC	EPA Method 25a and 18
Opacity	EPA Method 9

Q. Item No. 14.b : The identification, location and description of the continuous emission monitoring system (CEMS) were not included in the application.

A. The CEMS, which will be located on the base of turbine stacks, are capable of measuring and recording NOx, CO and O_2 hourly, 3-hour rolling average, and rolling 24-hour average.

Q. Item No.15 : The turbine, boiler and engine make, model and manufacturer information was not provided.

A. The final equipment selection has not yet been made. The following table details possible equipment and their specifications.

Equipment	No. of Units	Make	Model	Size	Type
Combustion Turbine	3	GE	MS7001FA	170 MW	Natural Gas Fired
HRSG	3	Deltek		1,000 ton	Flue-gas Driven
Steam Turbine	1	GE		300 MW	Steam Driven
Auxiliary Boiler	1	Cleaver Brooks		26 MM BTU/hr	Natural Gas Fired

Equipment	No. of Units	Make	Model	Size	Type
Emergency Generator	1	Caterpillar	3412	500 kw	Diesel Fired
Fire Pump	1	Caterpillar	3406	400 BHP	Diesel Fired
Cooling Tower	1	Marley		12 cells	Counter-flow

If any of the above equipment is substituted with other equipment, it will be equivalent in size, performance, emissions, etc.

Q. Item No. R210.301.4h : A site-specific list of the insignificant activities was not provided.

A. A list of site-specific insignificant activities is included in the Section 2.12 "List of Insignificant Activities" of this Application Addendum.

Q. Item No. R240.302.3 : Visibility impact analysis was not included.

A. A visibility impact analysis is included in the Section 2.10 "New Major Source Information" of this Application Addendum.

Q. Item No. 18.b.3 : The air impact analysis was completed however, not all the emission sources were included. Sources omitted included the emergency generator, the fire pump, and the cooling towers. Although the engines are listed on the insignificant activities list, Title V sources must list/describe the insignificant activities and include the emission from these activities. The emissions from the cooling tower are quantifiable according to the EPA AP-42 document. Therefore, we request a copy of the EPRI study from which the conclusion was drawn that the "PM-10 emissions from cooling towers are negligible."

A. Based on information provided by the Department, other power plant applications did not include emissions from the emergency diesel equipment such as generators and fire pumps in the air impact analysis and are not likely to be a large contributor to overall facility emissions. Therefore, air emissions from the emergency diesel equipment will not be included in the air impact analysis. The PM-10 emissions from cooling towers have been included in the revised air quality impact analysis. The PM-10 emissions were revised in accordance with the EPA AP-42 document and reflected in all the applicable sections of this Application Addendum.

2.0 REVISIONS

As noted in the Introduction, the previously submitted Air Quality Permit Application had to be modified in response to changes in business name and the proposed equipment. This section contains the modified text, figures, calculations, etc., which supersedes the corresponding information provided in the original application submittal.

2.1 STANDARD PERMIT APPLICATION FORM

There are two changes to the Standard Permit Application Form, which are listed below in details.

- Name of Owner has been changed from PowerDevelopment Enterprises, Inc. to Gila Bend Power Partners, L.L.C.

- Cooling Tower has been added to the Emission Sources Form as a source of PM-10.

This section supersedes the Standard Permit Application Form of the Application.

MARICOPA COUNTY
ENVIRONMENTAL SERVICES DEPARTMENT
DIVISION OF AIR POLLUTION CONTROL

1001 N. Central Ave., Ste 201
Phoenix, AZ 85004
(602) 506-6010

STANDARD PERMIT APPLICATION FORM

Internet Copy

(As required by A.R.S. § 49-480, and Chapter 3, Article 3, Arizona Administrative Code)

1. Permit to be issued to: (Business license name of organization that is to receive permit)
   Gila Bend Power Partners, L.L.C.
2. Mailing Address: 5949 Sherry Lane, Suite 1880
   City: Dallas State: TX ZIP: 75225
3. Plant Name (if different from item #1 above): Gila Bend Power Generation Station
4. Name (or names) of Owner or Operator: Gila Bend Power Partners, L.L.C.
   Phone: (214) 210-5080
5. Name of Owner's Agent: Not Applicable
   Phone: _____
6. Plant/Site Manager or Contact Person: Robert C. Walther
   Phone: (707) 528-8900
7. Proposed Equipment/Plant Location Address: 35400 West Sisson Road
   City: Gila Bend County: MARICOPA ZIP: 85337
   Indian Reservation (if applicable): Not Applicable
   Section/Township/Range: Section 19/ Township 5S/ Range 5w
   Latitude: 32 ° 58 ' 30 " Longitude: 11: ° 49 ' 15 " Elevation: 678 ft.
8. General Nature of Business: Electric Power Generation
   Standard Industrial Classification Code: _____
9. Type of Organization: ☑ Corporation ☐ Individual Owner ☐ Partnership
   ☐ Government Entity (Government Facility Code: _____)
   ☐ Other: _____
10. Permit Application Basis: ☑ New Source ☐ Revision ☐ Renewal of Existing Permit
    ☐ Portable Source ☐ General Permit (Check all that apply)
    For renewal or modification, include existing permit number: _____
    Date of Commencement of Construction or Modification: January, 2001
    Is **any** of the equipment to be leased to another individual or entity? ☐ Yes ☑ No
11. Signature of Responsible Official of Organization _____
    Official Title of Signer: _____
12. Typed or Printed Name of Signer: _____
    Date: _____ Phone Number: _____

11. Signature of Responsible Official of Organization _____

Official Title of Signer:

Gila Bend Power Partners, L.L.C.

By: PowerDevelopment Gila Bend, L.P., Member

By: PowerDevelopment Enterprises, L.P., G.P.

By: Robert A. Innamorati & Co., Inc., G.P.

By: _____
Robert A. Innamorati
Its: President

12. Typed or Printed Name of Signer: Robert A. Innamorati

Date: August 7, 2000 Phone Number: (214) 210-5080

COMPANY NAME & LOCATION Gila Bend Power Partners, L.L.C. - Gila Bend Power Generation Station, 35400 West Sisson Road, Gila Bend, AZ 85337

Addendum No. 1

EMISSION SOURCES

Date 08/04/00

Estimated "Potential to Emit" as per Rule 100
Review of applications and Issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		CHEMICAL COMPOSITION OF TOTAL STREAM	R. AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. (5)			STACK SOURCES (6)					NONPOINT SOURCES (7)	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME (2)	#/ hr. (3)	TONS/ YEAR (4)	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA			LENGTH (ft.)	WIDTH (ft.)
										DIA. (ft.)	VEL. (fps.)	TEMP. (°F)		
1	CTG1	Nox	24.700			330500	3649546	165	105	18	70	188		
2	CTG2 (same emission rate)	CO	69.800			330500	3649500	165	105	18	70	188		
3	CTG3 (same emission rate)	SO2	4.820			330500	3649454	165	105	18	70	188		
		VOC	10.800											
		PM10	32.660											
		PM	32.660											
		1-3 Butadiene		0.003										
		Acetaldehyde		0.293										
		Acrolein		0.047										
		Benzene		0.091										

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet
ADEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (A.A.C. R18-2-101)

GENERAL INSTRUCTIONS:

1. Indentify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits, and Emissions Inventory Questionnaire. Include fugitive emissions. Limit emission point number to eight (8) character spaces. For each emission point use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler, tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are O.K.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (NO_x), Sulfur Dioxide (SO_2), Volatile Organic Compounds (VOC), particulate matter (PM), particulate less than 10 microns (PM_{10}), etc. Abbreviations are O.K.
3. Pounds per hour (#/HR) is maximum potential emission rate expected by applicant.
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7. Dimensions of nonpoint sources as defined in R18-2-101.

COMPANY NAME & LOCATION Gila Bend Power Partners, L.L.C. - Gila Bend Power Generation Station, 35400 West Sisson Road, Gila Bend, AZ 85337

Addendum No. 1

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4	Auxiliary Boiler	Nox	3.110			330491	3649569	95	75	2	35.0	450		
		CO	3.950											
		SO2	0.030											
		VOC	0.420											
		PM10	0.260											
		PM	0.260											
		Formaldehyde		0.008										
		Hexane		0.201										
5	Cooling Tower	PM10	0.17			330468	3649691	50	0	30	30	70		
6	Cooling Tower	PM10	0.17			330457	3649691	50	0	30	30	70		

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet

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1	CTG1	Dichlorobenzene		0.002		330500	3649546	165		18	70.0	188		
2	CTG2 (same emission rate)	Ethylbenzene		0.234		330500	3649500	165		18	70	188		
3	CTG3 (same emission rate)	Formaldehyde		5.311		330500	3649454	165		18	70	188		
		Hexane		2.751										
		Naphthalene		0.011										
		PAHs		0.016										
		Propylenen Oxide		0.212										
		Toluene		0.96										
		Xylenes		0.468										

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet

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COMPANY NAME & LOCATION Gila Bend Power Partners, L.L.C. - Gila Bend Power Generation Station, 35400 West Sisson Road, Gila Bend, AZ 85337

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7	Cooling Tower	PM10	0.17			330446	3649691	50	0	30	30	70		
8	Cooling Tower	PM10	0.17			330435	3649691	50	0	30	30	70		
9	Cooling Tower	PM10	0.17			330424	3649691	50	0	30	30	70		
10	Cooling Tower	PM10	0.17			330413	3649691	50	0	30	30	70		
11	Cooling Tower	PM10	0.17			330468	3649707	50	0	30	30	70		
12	Cooling Tower	PM10	0.17			330457	3649707	50	0	30	30	70		
13	Cooling Tower	PM10	0.17			330446	3649707	50	0	30	30	70		
14	Cooling Tower	PM10	0.17			330435	3649707	50	0	30	30	70		
15	Cooling Tower	PM10	0.17			330424	3649707	50	0	30	30	70		
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REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS										
EMISSION POINT (1)		CHEMICAL COMPOSITION OF TOTAL STREAM	R. AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. (5)			STACK SOURCES (6)					NONPOINT SOURCES (7)	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME (2)	#/ hr. (3)	TONS/ YEAR (4)	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA DIA. (ft.)	EXIT DATA VEL. (fps.)	EXIT DATA TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
17	Diesel Generator	NOx	15.500			330454	3649592	15	2	0.5	130	792		
		CO	3.340											
		SO2	1.030											
		VOC	1.240											
		PM10	1.100											
18	Diesel Fire Pump	NOx	12.400			330500	3649638	15	2	0.5	65	792		
		CO	2.670											
		SO2	0.820											
		VOC	0.990											
		PM10	0.880											

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet
ADEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (A.A.C. R18-2-101)

GENERAL INSTRUCTIONS:

1. Indentify each emission point with a unique number for this plant site, consistent with emission point identification used on plot plan, previous permits, and Emissions Inventory Questionnaire. Include fugitive emissions. Limit emission point number to eight (8) character spaces. For each emission point use as many lines as necessary to list regulated air pollutant data. Typical emission point names are: heater, vent, boiler, tank, reactor, separator, baghouse, fugitive, etc. Abbreviations are O.K.
2. Components to be listed include regulated air pollutants as defined in R18-2-101. Examples of typical component names are: Carbon Monoxide (CO), Nitrogen Oxides (NO_x), Sulfur Dioxide (SO_2), Volatile Organic Compounds (VOC), particulate matter (PM), particulate less than 10 microns (PM_{10}), etc. Abbreviations are O.K.
3. Pounds per hour (#/HR) is maximum potential emission rate expected by applicant.
4. Tons per year is annual maximum potential emission expected by applicant, which takes into account process operating schedule.
5. As a minimum applicant shall furnish a facility plot plan as described in the filing instructions. UTM coordinates are required only if the source is a major source or is required to perform refined modeling for the purposes of demonstrating compliance with ambient air quality guidelines.
6. Supply additional information as follows if appropriate:
   (a) Stack exit configuration other than a round vertical stack. Show lenght and width for a rectangular stack. Indicate if horizontal discharge with a note.
   (b) Stack's height above supporting or adjacent structures if structure is within 3 "stack height above the ground" of stack.
7. Dimensions of nonpoint sources as defined in R18-2-101.

2.2 EXECUTIVE SUMMARY

The enclosed Executive Summary reflects the following four changes from the previous submittal.

- Business name was changed from PowerDevelopment Enterprises, Inc. to Gila Bend Power Partners, L.L.C.
- The Plant's generation capacity was changed from 750 MW to 845 MW.
- Three duct burners were added.
- One cooling tower replaced three cooling towers.

This section supersedes the Executive Summary of the Application.

EXECUTIVE SUMMARY

This document comprises the Clean Air Act Title V and PSD Air Quality Permit Application ("Application"), as required by Maricopa County Air Pollution Control Regulations ("County Rules"), Rules 200, 210, and 240. This Application was prepared by Malcolm Pirnie, Inc. ("MPI") on behalf of Gila Bend Power Partners, L.L.C ("GBPP") for the construction and operation of the Gila Bend Power Generation Station ("Facility").

GBPP is proposing to construct a nominal 845-megawatt combined-cycle electric power generation plant in Maricopa County. The Facility will be located approximately 70 miles southwest of Phoenix in the Town of Gila Bend, Arizona. The Facility's address is 35400 West Sisson Road, Gila Bend, Arizona 85337. The Facility will be located in an attainment area for all criteria pollutants and will be subject to the Title V and PSD regulations.

The Facility will consist of three combined-cycle combustion turbine generators ("CTGs"), three heat recovery steam generators ("HRSG") each with a duct burner, one steam turbine, one natural gas-fired auxiliary boiler, one emergency diesel generator, one diesel fire pump, one cooling tower, and ancillary equipment. The CTGs will be fired exclusively with natural gas.

This Application identifies, describes, and quantifies the regulated emission sources, including air pollution control devices. In addition, the Application references information used to determine regulatory applicability and the Facility's compliance status with the federal, state, and County requirements. The construction and operations at the Facility will comply with the applicable federal, state, and County regulations.

This Application is organized to correspond to the order in which the information requested in Appendix B (Standard Permit Application Form and Filing Instructions) of the County Rules is listed. A copy of the County's Appendix B is also included in Reference 1 of this Application.

2.3 DESCRIPTION OF FACILITY AND PROCESSES

This section notes the addition of duct burners and reduction in the number of cooling towers. In addition, Figure 1-1 and 1-2 were modified to reflect the changes in equipment locations. This section supersedes Section 1 of the Application.

1.0 DESCRIPTION OF FACILITY AND PROCESSES

1.1 Site Location

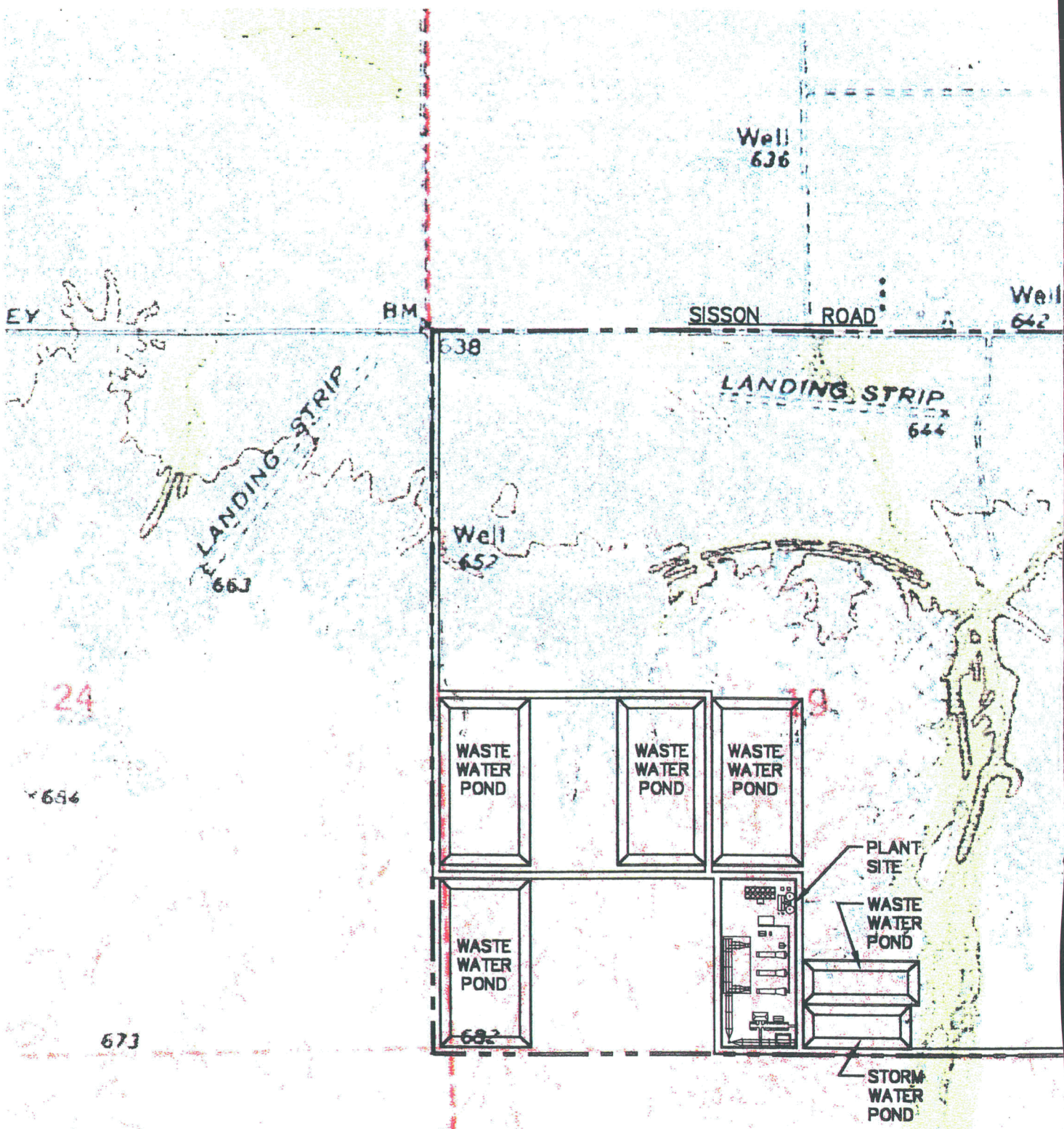
The Facility will be located approximately 70 miles southwest of Phoenix in the Town of Gila Bend, Arizona. The general coordinates of the site are 32° 58' 30" N latitude and 112° 49' 15" W longitude. The site is located north of Interstate 8 and just south of West Sisson Road. The Facility's address will be 35400 West Sisson Road, Gila Bend, Arizona 85337. A facility location map and site plan is shown in Figure 1-1 and 1-2, respectively.

1.2 Physical Description

The Facility will be situated on approximately 120 contiguous acres in Section 19 in Township 5 South, Range 5 West of the Gila and Salt River Base and Meridian, Maricopa County, Arizona. The proposed site is located in a sparsely populated region in Gila Bend, Arizona. A dirt road borders the site property to the west. Native desert borders the property to the south and east. Fallow agricultural land, including a former cotton gin and landing strip, borders the property to the north. Entrance to the site is from the bordering dirt road. The property across the dirt road is native desert. The land to the north of the property consists of abandoned agricultural property. These former cotton fields are now overgrown with Salt Cedars. Native desert borders the subject property to the south and east.

1.3 Employment

Total employment at the Facility will vary during operations, but is estimated to range between approximately 25 to 35 employees. The Facility is expected to operate 24 hours per day and seven days per week. The facility entrance will be attended at all times.


Well
636
SISSON ROAD
Well
642
638
LANDING STRIP
644
LANDING STRIP
663
Well
652
24
19
WASTE WATER POND
WASTE WATER POND
WASTE WATER POND
WASTE WATER POND
682
PLANT SITE
WASTE WATER POND
STORM WATER POND
696
673

INDUSTRIAL POWER TECHNOLOGY
2227 CAPRICORN WAY SUITE 101
SANTA ROSA, CALIFORNIA 95407
TEL: 707-528-8900/FAX: 707-528-8901

No.	Revisions	Date

GILA BEND POWER PROJECT

PRELIMINARY PROJECT CONFIGURATION

TS DESIGN	SS DRAWN	RW ENG.

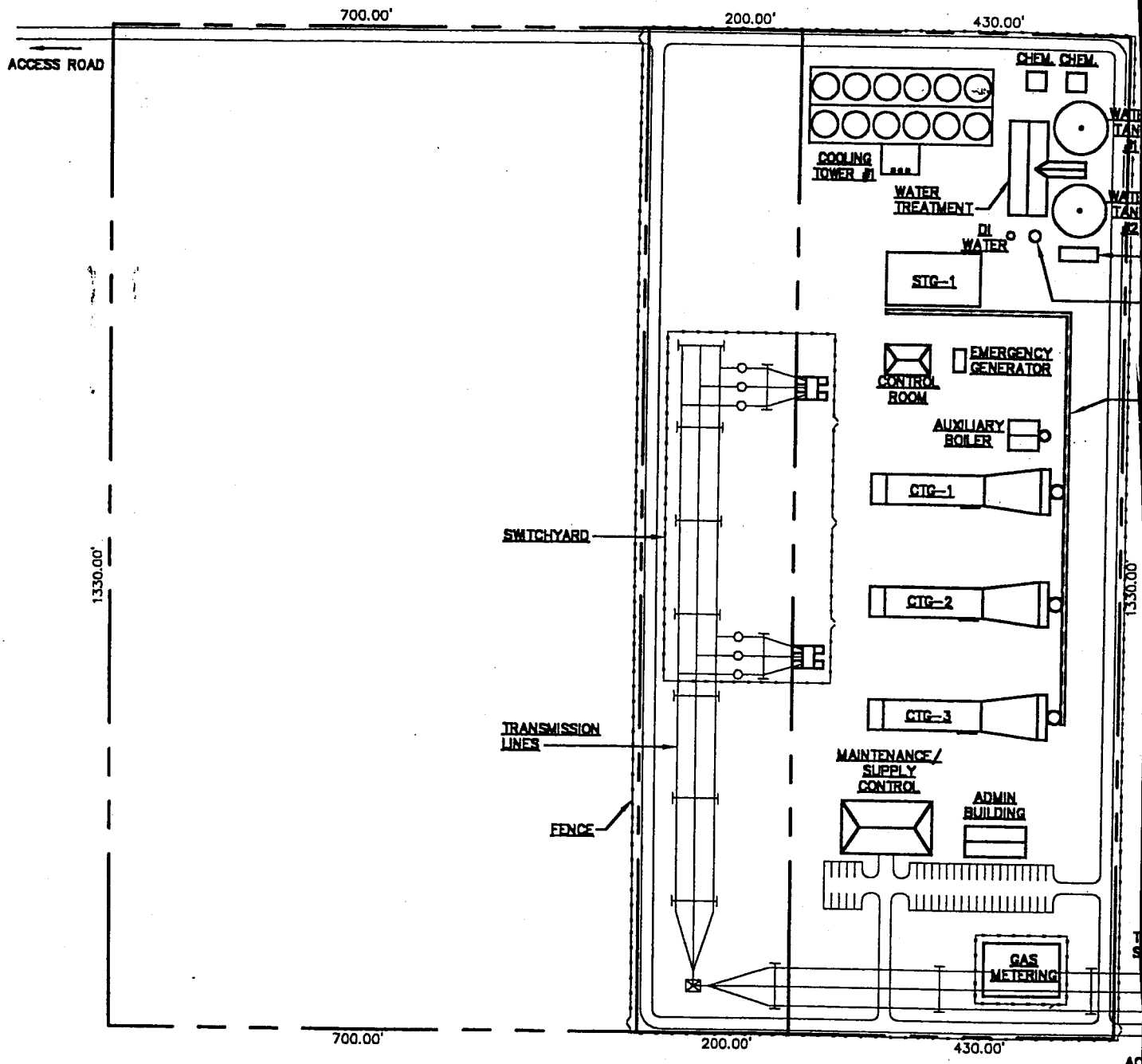
Job Number:	Date:
147100	8/30/00

Sheet Number

Figure 1-1

1 of 1 sheets

20000830.101617


700.00'
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430.00'
ACCESS ROAD
CHEM. CHEM.
COOLING TOWER #1
WATER TREATMENT
DI WATER
STG-1
EMERGENCY GENERATOR
CONTROL ROOM
AUXILIARY BOILER
CTG-1
CTG-2
CTG-3
SWITCHYARD
TRANSMISSION LINES
FENCE
MAINTENANCE/ SUPPLY CONTROL
ADMIN BUILDING
GAS METERING
1330.00'
700.00'
200.00'
430.00'

DIESEL FIRE PUMP

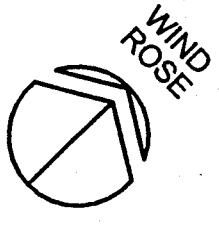
COOLING WATER TANK

PIPE RACK W/CATWALK ABOVE

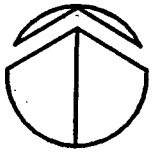
COOLING TOWER:	240'x100'x50'
CTG 1-3:	250'x60'x55'
CTG STACK:	18' DIA.x165'
AUX. BOILER BLDG.:	40'x40'x20'
AUX. BOILER STACK:	45'x31"
WATER TANK:	70' DIA.x40'
WATER TREATMENT BLDG.:	125'x50'x20'
CONTROLS ROOM:	40'x60'x20'
STG 1:	125'x70'x30'
MAINT./SUPPLY CONTROL:	120'x60'x30'
ADMIN. BLDG.:	80'x40'x25'
COOLING WATER TANK:	15' DIA.x15'
DI WATER TANK:	10' DIA.x10'

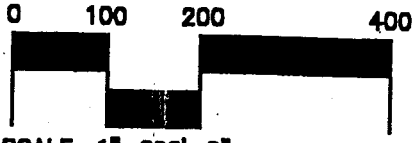
TO PALO VERDE SATELLITE SWITCHYARD

ACCESS ROAD



NORTH





SCALE: 1"=200'-0"

INDUSTRIAL POWER TECHNOLOGY

2227 CAPRICORN WAY SUITE 101
SANTA ROSA, CALIFORNIA 95407
TEL: 707-528-8900/FAX: 707-528-8901

No.	Revisions	Date

GILA BEND POWER PROJECT

PRELIMINARY SITE LAYOUT

DESIGN DRAWN ENG.

Job Number: 147100

Date: 8/30/00

Sheet Number

Figure 1-2

1 of 1 sheets

20000830.103008

1.4 Product/Process Description

The following are the major processes and equipment associated with the operation of the Facility:

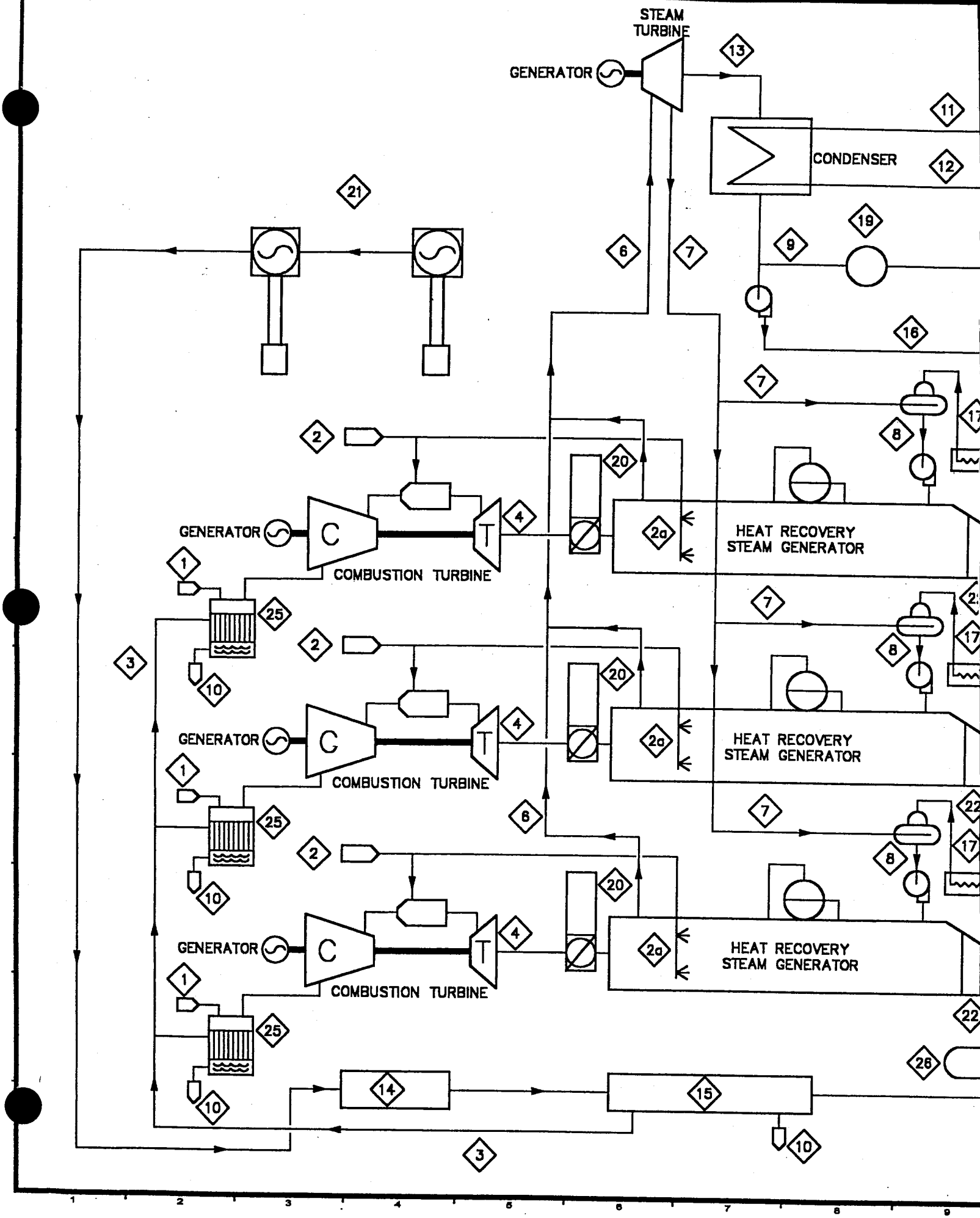
- Natural gas-fired combustion turbine generators (3)
- Heat recovery steam generators, each with a duct burner(3)
- Steam turbine (1)
- Natural gas-fired auxiliary boiler (1)
- Emergency diesel generator (1)
- Diesel fire pump (1)
- Cooling tower (1)

2.4 PROCESS FLOW DIAGRAM

This section documents the addition of duct burners and the reduction in the number of cooling towers. In addition, the referenced Figure 5-1 is modified to reflect equipment changes. This section supersedes Section 5 of the Application.

5.0 PROCESS FLOW DIAGRAM

The Facility will consist of three natural gas-fired combined cycle combustion turbine generators (CTGs), three heat recovery steam generators (HRSG) each with one duct burner, one steam turbine, one natural gas-fired auxiliary boiler, one emergency diesel generator, one diesel fire pump, and one cooling tower. In addition to the combustion turbines and engines, the Facility will include a balance of plant equipment and systems such as natural gas metering systems; natural gas handling systems; instrumentation and control systems; water treatment, storage and handling systems; transformers; and administration and warehouse/maintenance buildings. Water treatment equipment will be required to support the boiler feed water and coolant for the cooling tower. A preliminary process flow diagram for the Facility is presented in Figure 5-1.


STEAM TURBINE
GENERATOR
CONDENSER
HEAT RECOVERY STEAM GENERATOR
HEAT RECOVERY STEAM GENERATOR
HEAT RECOVERY STEAM GENERATOR
COMBUSTION TURBINE
COMBUSTION TURBINE
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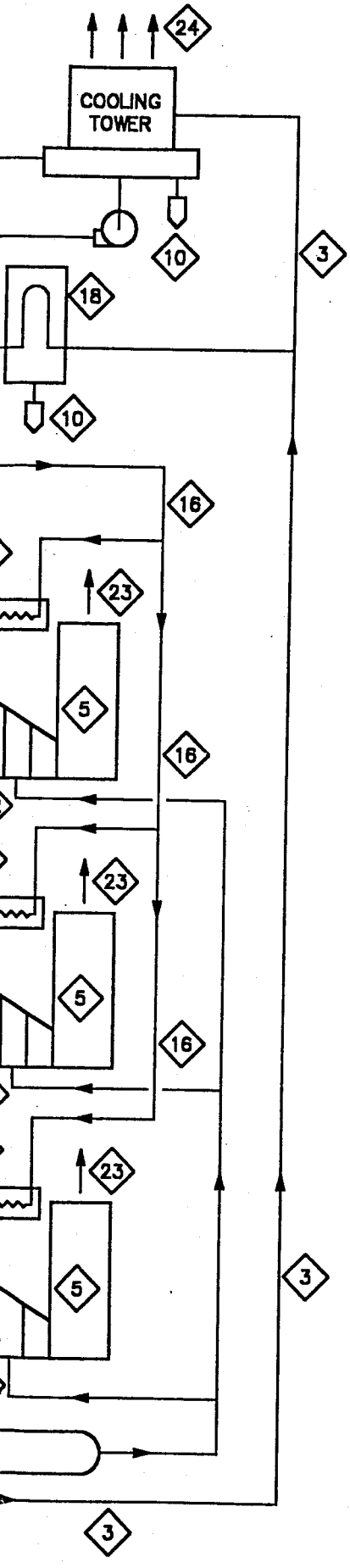


1. COMBUSTION TURBINE INLET AIR
2. COMBUSTION TURBINE FUEL
2a. DUCT BURNER
3. WATER PRIMARY TREATED
4. COMBUSTION TURBINE EXHAUST
5. HRSG STACK EXHAUST
6. HIGH PRESSURE STEAM FROM HSRG
7. DEAREATOR LOW PRESSURE STEAM
8. FEEDWATER AFTER DEAREARATOR
9. MAKE UP WATER
10. BLOWDOWN/WASTE WATER TO EVAPORATION PONDS
11. CONDENSER COOLING WATER IN
12. CONDENSER COOLING WATER OUT
13. STEAM TURBINE EXHAUST
14. RAW WATER TANKS
15. PRIMARY WATER TREATMENT
16. FEED WATER BEFORE FEED WATER HEATER
17. FEED WATER AFTER FEED WATER HEATER
18. RO SYSTEM
19. DI WATER STORAGE
20. EMERGENCY BY–PASS
21. DEEP WATER WELLS
22. SCR SECTION
23. FLUE GAS
24. COOLING TOWER EVAPORATION
25. INTAKE AIR EVAPORATIVE COOLER
26. AQUEOUS AMMONIA SYSTEM

INDUSTRIAL POWER TECHNOLOGY
2227 CAPRICORN WAY SUITE 101
SANTA ROSA, CALIFORNIA 95407
TEL: 707-526-8900/FAX: 707-526-8901

No.	Revisions	Date

GILA BEND POWER PROJECT

PROCESS FLOW DIAGRAM

TS DESIGN	SS DRAWN	RW ENG.

Job Number:	Date:
147100	8/30/00

Sheet Number

Figure 5-1

1 of 1 sheets

20000830.1102851

2.5 EMISSION RELATED INFORMATION

This section includes the addition of duct burners and the reduction in the number of cooling towers. In addition, Table 7-1 Emission Source Summary reflects emission changes due to these equipment changes. Also, Section 7.3 was revised to state the insignificant activities list will be facility-specific. This section supersedes Section 7 of the Application.

7.0 EMISSIONS-RELATED INFORMATION

7.1 Basis for Estimating Air Emissions

The Facility's air emission estimates were based on manufacturer's and supplier's emission factors as well as USEPA's AP-42 factors. Table 7-1 summarizes the hourly and annual air emissions from the significant emission sources.

7.2 Significant Emission Sources

The sources of regulated air emissions from the Facility that are required to be included in the Application include:

- 3 CTGs (includes 3 combustion turbines, 3 duct burners, 3 HRSGs, and 1 steam turbine)
- 1 auxiliary boiler (26 MMBtu/hr)
- 1 diesel generator (500kW)
- 1 diesel fire pump (400 BHP)
- 1 cooling tower (12 cells)

7.3 Insignificant Emission Sources

The Department has classified various activities associated with electric utility facilities as insignificant. Reference 2 includes a list of insignificant activities for the facility-specific operations. In addition, all relevant insignificant activities listed in County Rule 200, Section 3.3.3(c) are also incorporated herein by reference.

Table 7-1 Emission Source Summary [1]

Regulated Pollutants	Combustion Turbines[2]		Auxiliary Boiler		Diesel [3] Generator		Diesel Fire[3] Pump		Cooling Towers		Facility Total	
	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)	(lb/hr)	(tpy)
NOx	74.1	324.6	3.1	13.6	15.5	3.9	12.4	3.1	0	0	105.1	345.2
CO	209.5	917.4	4.0	17.3	3.3	0.8	2.7	0.7	0	0	219.4	936.3
SO2	14.5	63.3	0.0	0.14	1.0	0.3	0.8	0.2	0	0	16.3	63.9
VOC [4]	32.4	141.9	0.4	1.84	1.2	0.3	1.0	0.3	0	0	35.1	144.3
PM10	98.1	429.3	0.3	1.2	1.1	0.3	0.9	0.2	2.07	9.05	102.5	440.1
TSP	98.1	429.3	0.3	1.2	1.1	0.3	0.9	0.2	4.14	18.1	104.5	449.2
HAPs	(tpy)		(tpy)		(tpy)		(tpy)		(tpy)		(tpy)	
Acetaldehyde	0.88		--		0.001		Trace		0		0.88	
Benzene	0.27		Trace		0.001		Trace		0		0.27	
Ethylbenzene	0.70		--		--		--		0		0.70	
Formaldehyde	15.93		0.008		0.002		Trace		0		15.94	
Hexane	8.46										8.46	
Naphthalene	0.03		Trace		Trace		Trace		0		0.03	
PAH's	0.05		--		--		--		0		0.05	
Propylene Oxide	0.64		--		--		--		0		0.64	
Toluene	2.87		Trace		Trace		Trace		0		2.87	
Xylenes	1.41		--		Trace		Trace		0		1.41	
Total HAPs	22.56		0.21		0.01		0.00		0		31.41	

[1] Emission estimates are based on the calculations and assumptions included in Reference 4.
[2] Emission estimates include duct burners.
[3] Diesel generator and fire pump annual emissions are based 500 hours per year.
[4] VOC emissions from each source include the HAP emissions.

2.6 DESCRIPTION OF PROCESS AND CONTROL EQUIPMENT

This section notes an increase in power generation capacity, addition of duct burners, and reduction in the number of cooling towers. In addition, this section contains information regarding storage vessels used for storing fuel oil and chemicals, which previously was not described. This section supersedes Section 11 of the Application.

11.0 DESCRIPTION OF PROCESS AND CONTROL EQUIPMENT

As described in Section 1 of this Application, the Facility will consist of three natural gas-fired CTGs, three HRSGs each with one duct burner, one steam turbine, one natural gas-fired auxiliary boiler, one emergency diesel generator, one diesel fire pump, and one cooling tower. Table 11-1 summarizes the type, make, model, and capacity of this process equipment. In addition to the combustion turbines and engines, the Facility will include a balance of plant equipment and systems such as natural gas metering systems; natural gas handling systems; instrumentation and control systems; water treatment, storage and handling systems; transformers; and administration and warehouse/maintenance buildings. Water treatment equipment will be required to support the boiler feed water and coolant for the cooling tower.

TABLE 11-1
PROCESS AND CONTROL EQUIPMENT

Equipment Name	# of Units	Make	Model	Size or Production Capacity	Type
CT	3	GE	MS700IFA	170 MW	Combined-cycle
Duct Burners	3			356 MMBTU/hr	Natural gas-fired low NOx
HRSG	3	Deltek		1,000 ton	Fluegas-driven
Steam Turbine	1	GE		300 MW	Steam-driven
Auxiliary Boiler	1	Cleaver Brooks		26 MMBtu/hr	Natural gas-fired
Emergency Generator	1	Caterpillar	3412	500 kw	Diesel-fired
Fire Pump	1	Caterpillar	3406	400 BHP	Diesel-fired
Cooling Tower	1	Marley		12 cells	Counter-flow

11.1 Combustion Turbines

The three combined-cycle combustion turbine generators are fired exclusively with natural gas. Each CTG package will incorporate a GE MS7001FA (or equivalent) combustion turbine. At full load operations, nitrogen oxide (NO_x) emissions at the CTG exhaust will be controlled to a level of 3 ppmvd corrected to 15 percent O_2 using a combination of selective catalytic reduction (SCR) and Dry Low NO_x (DLN) combustion.

The energy consumption and production of each CTG are summarized in Table 11-2. Hourly production rates are dependent on operating and ambient conditions such as loading, ambient temperature, and relative humidity. The production rates are based on full output of the Facility at the ambient conditions noted. The normal combined output of the Facility will be approximately 845 MW.

TABLE 11-2

SUMMARY OF ENERGY PRODUCTION DESIGN CRITERIA
GILA BEND POWER GENERATION STATION

Number of units	3
Natural gas operation ➢ Nominal Maximum Electrical Capacity ➢ Energy Input (HHV)	 181.2 MW each 1,546 MMBtu/hr each

The combustion turbines will be designed to operate continuously 24 hours per day, with each turbine potentially operating every day of the year. The turbines are not expected to operate less than 70 percent of base load for significant periods of time.

11.2 Heat Recovery Steam Generators

In addition to the CTGs, the Facility will operate three heat recovery steam generators (HRSGs). The HRSGs will take advantage of the hot exhaust gases from the combustion turbines to produce high pressure steam, which will then power the steam turbine to produce electricity. The Facility will operate three duct burners, one in each HRSG, to supplement steam generation. The duct burners will be natural gas fired low-NOx burners.

11.3 Steam Turbine

The facility will operate one steam turbine, which will be driven by the steam produced by the HRSGs. There are no emissions generated from the steam turbine because there is no fuel combustion.

11.4 Selective Catalytic Reduction System

The HRSGs will each be fitted with a SCR system, which will be used as an add-on emission control system for NO_X emissions. Operating time will parallel turbine operations and will be based on average annual ambient conditions. This system will be discussed further in the BACT Analysis.

11.5 Auxiliary Boiler

The Facility will utilize an auxiliary boiler with a rated heat input of 26 MMBtu/hr to augment turbine start-up. The boiler will fire natural gas exclusively and will be permitted to operate 8,760 hours per year.

11.6 Emergency Diesel Generator and Diesel Fire Pump

The emergency diesel generator and the diesel fire pump will be used as backup systems in the event that there is a power outage. The emergency diesel generator is rated at 500 kW and the diesel fire pump is rated at 400 BHP. These internal combustion engines will be limited to a maximum annual operation of 500 hours. These emission units are considered exempt according to County Rule 200.

11.7 Cooling Tower

The Facility will utilize one cooling tower, comprising 12 cells. The cooling tower function will provide cool water to the condensing steam turbine. The tower will be a mechanical draft counter-flow design.

11.8 Construction Activities

It is estimated that construction of the Facility will take approximately 24 months. The construction activities during that period will include:

- Set up of temporary construction trailers and field management office.
- Set up of temporary utilities.
- Preparation of construction roads and parking.
- Use of site preparation and construction equipment such as diesel powered earth movers and auxiliary equipment.
- Building construction.
- Connection to existing utilities.

- Surface coating.
- Welding.
- Plant testing and cleaning.

11.9 Storage Vessels

Table 11-3 includes a summary of storage tanks proposed for storing fuel oil and process chemicals at the facility.

TABLE 11-3
STORAGE TANK SUMMARY

Material	# of Tanks	Approximate Capacity (gal)
Diesel Fuel	2	150
Ammonia (aqueous)	1	20,000
Sulfuric Acid Solution (or equivalent)	1	6,000
Sodium Hydroxide Solution (or equivalent)	1	6,000
Sodium Sulfate Solution (or equivalent)	1	6,000

Additional on-site chemical storage may become necessary for the water treatment system. The types and quantities of chemicals requiring storage will be known after the detailed water treatment system design has been completed. Any additional storage tanks needed will be permitted as required by Maricopa County regulations.

2.7 STACK INFORMATION

This section reflects changes in exhaust gas velocity due to addition of duct burners and added stack information for the diesel-fired emergency generator and fire pump. This section supersedes Section 12 of the Application.

12.0 STACK INFORMATION

All relevant information for the significant emission sources such as identification number, location, exit gas temperature, exit gas velocity, height, and inside dimension is provided in the Emission Sources tables of the Department's Standard Application Forms included in this Application.

TABLE 12-1
STACK INFORMATION

Source ID	Description	Bldg. Dimensions	Exhaust Gas Temp (°F)	Exhaust Gas Velocity (ft/sec)	Stack Height (ft)	Stack ID (ft)
1	CT-1	(1)	188	70	165	18
2	CT-2	(1)	188	70	165	18
3	CT-3	(1)	188	70	165	18
4	Aux. Boiler	(1)	450	35	95	2
5-16	Cooling Tower	(1)	70	30	50	30
17	Diesel Generator	(1)	792	130	15	0.5
18	Diesel Fire Pump	(1)	792	65	15	0.5

Notes: (1) Refer to Figure 1-2 (site plan) for all building dimensions.

2.8 SITE DIAGRAM

This section reflects changes in the closest distance between equipment (Combustion Turbine 1) and property boundary (eastern fence line). This section supersedes Section 13 of the Application.

13.0 SITE DIAGRAM

A facility location plan (Figure 1-1) and site plan (Figure 1-2) for the Facility is provided in Section 1 of this Application. The plans include the following information:

- Property boundaries.
- Adjacent streets and roads.
- Directional arrow indicating "North".
- Ground elevation of 678 feet above mean sea level (msl).
- Closest distance between equipment (Combustion Turbine 1) and property boundary (east) of approximately 100 feet at the eastern fence line of the Facility.
- Equipment layout showing the major process areas.
- Relative location of emission sources.
- Location of emission points.
- Location of air pollution control equipment.

2.9 COMPLIANCE CERTIFICATION

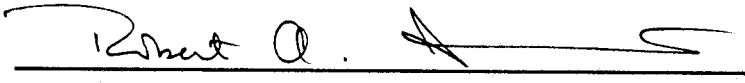
This section reflects changes in the business name and supersedes Section 17 of the Application.

17.0 COMPLIANCE CERTIFICATION

I certify under penalty of law that the enclosed documents and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on information and belief formed after my reasonable inquiry, the statements and information in the documents submitted are true, accurate and complete.

I further certify under penalty of law that, to the best of my knowledge and belief, my facility is in continuous compliance with all applicable federal, state, and Maricopa County requirements. I also certify that I will ensure that my facility continues to comply with all requirements that apply.

Responsible Official: Mr. Robert A. Innamorati

Signature: 

Title: Gila Bend Power Partners, L.L.C.
By: PowerDevelopment Gila Bend, L.P., Member
By: PowerDevelopment Enterprises, L.P., G.P.
By: Robert A. Innamorati & Co., Inc., G.P.
By: Robert A. Innamorati
Its: President

Date: August 28, 2000

2.10 NEW MAJOR SOURCE INFORMATION (RULE 240)

This section includes visibility impact and nitrogen deposition analyses for the Class II areas, which are located within 50 km, as Mr. Peter Lahm (FLM) and Ms. Shirley Pearson (URS) requested. This section supersedes Section 18 of the Application.

18.0 NEW MAJOR SOURCE INFORMATION (RULE 240)

18.1 Gila Bend Power Generation Project Source Classification

The Facility, a nominal 845 megawatt combined-cycle electric power generation plant, will be located approximately 70 miles southwest of Phoenix in the Town of Gila Bend, Arizona. It will be located in an attainment area for all conventional pollutants.

The Facility is a Categorical Source, a fossil fuel-fired steam electric plant and combined cycle gas turbines of more than 250 MM BTU per hour rated heat input, as defined by the County Rule 240 Section 202. It also has a potential to emit more than 100 tons per year for NOx, CO and PM_{10}. Since the Facility is classified as a Categorical Source which has potential to emit more than 100 tons per year of conventional air pollutants, it is a new major source as defined in the County Rule 240 Section 210.

A new major source in an attainment area must demonstrate an ability to comply with provisions of Prevention of Significant Deterioration (PSD) in the County Rule 240. The following sections will discuss requirements for the Facility as listed in Item 18.b of the Maricopa County Permit Application Filing Instructions.

18.2 Rule 240 Requirements in an Attainment Area

The applicable requirements and compliance method are listed in Section 20 – Additional Requirements.

18.3 Best Available Control Technology Applicability and Analysis

The Facility will emit more than significant emission levels as defined in the County

Rule 100 for NOx, CO, SO2, PM10, and VOC. Table 7-1 (Emission Source Summary) summarizes the projected emissions for the Facility. PSD requires Best Available Control Technology (BACT) for all conventional pollutants exceeding the significant emission levels. Reference 5 (BACT Analysis) includes the required BACT determinations.

18.4 Ambient Air Quality Analysis

Reference 6 (PSD Modeling Protocol) includes the protocol used in the ambient air impact modeling and Reference 7 (Ambient Air Quality Analysis) describes the analysis and summarizes the results.

18.5 Visibility Impact Analysis

Mr. Peter Lahm, the local Federal Land Manager (FML) representative, requested a visibility impact analysis for Class II areas that are located within 50 kilometers of the Facility. The Class II areas within 50 kilometers of the Facility are listed below:

- Woolsey Peak Wilderness
- Signal Mountain Wilderness
- North Maricopa Mountains Wilderness
- South Maricopa Mountains Wilderness

A Level 2 visibility impact screening analysis was performed using VISCREEN, a plume visual impact screening model, and following the methods outlined in the *Workbook For Plume Visual Impact Screening And Analysis* (USEPA 1992).

The most important input for a Level 2 screening analysis is the meteorological conditions: the worst-case wind direction and speed and atmospheric stability. Two years of

Pacificorp meteorological data was used to prepare tables of joint frequency of occurrence of wind speed, wind direction, and stability class. On the basis of location of Class II areas, the Facility, observer and topography, the wind direction sector that transports emissions closest to a given Class II area observer point was selected so that the frequency of occurrence of impact could be assessed. To find the worst-case meteorological conditions, the dispersion condition that has a $\sigma_y\sigma_z u$ product with a cumulative probability of 1 percent was determined excluding the conditions with transit time of more than 12 hours.

Another important input to the screening analysis was the background visual range. As the FLM requested, the background visual range of 225 kilometers was used for the analysis.

Currently, there are not any established screening criteria for Class II areas. The default screening criteria for Class I areas were used in the VISCREEN output. The four Class II area visibility impact screening results exceeded the Class I criteria. These results indicate that there may be a potential to impact visibility from the Facility's emissions. However, these screening results are based on extremely conservative screening methods and conditions that occur less than 4 days per year. It is probable that more refined modeling would not result in a significant visibility impact in the nearby Class II areas. The VISCREEN output for the four Class II areas are included in the Reference 7.

The nearest Class I area (Superstitions Wilderness Area) is located more than 120 kilometers from the Facility. Therefore, there are no anticipated impacts from the Facility on visibility in any Class I areas.

18.6 Nitrate Deposition on Class II Wilderness Areas

In addition to the visibility impact analysis, the FLM requested a nitrate deposition

analysis for Class II areas that are located within 50 kilometers of the Facility. Table 18-1 shows the resulting nitrate deposition for each of the four Class II areas. The method to estimate deposition from NO_2 concentration at a discreet receptor is described in the Interagency Workgroup on Air Quality Modeling (IWAQM) Phase I Report (USEPA, 1993).

Table 18-1

Nitrate Deposition

Class II Areas	Annual NO2 Concentration ($\mu g/m^3$)	Nitrate Deposition (kg/hectare)
Woolsey Peak	0.05263	1.14
Signal Mountain	0.10029	2.17
North Maricopa Mountains	0.07558	1.63
South Maricopa Mountains	0.05307	1.15

The method used provides conservative deposition estimates because the ISCST3 used to model NO_2 concentrations, a Gaussian plume model, does not actually remove any mass from the plume. There are no established significance levels to compare the above nitrate depositions, but the impacts seem minimal considering the conservative estimation method and its results.

2.11 ADDITIONAL REQUIREMENTS

This section notes the visibility impact analysis performed for the Class II areas and supersedes Section 20 of the Application.

20.0 ADDITIONAL REQUIREMENTS

20.1 Rule 210 - Title V Permit Provisions

In addition to required items from the "Standard Permit Application Form and Filing Instructions for Maricopa County", there are several items listed below that must be addressed.

- **Federal delayed compliance orders or consent decrees**: The Facility is a new source. There is no Federal delayed compliance orders or consent decrees.
- **The list of insignificant activities**: Reference 2 includes the list of insignificant activities.
- **Emission Trading Information**: The Facility is not requesting terms and conditions allowing for the trading of emissions increases and decreases.
- **A Copy of Application for EPA Region IX**: A copy of the application will be submitted to the US EPA Region IX.
- **Confidential Trade Information**: There is no confidential information.
- **Applicable MACT**: The Facility is not a listed NESHAP operation. No MACT is applicable.

20.2 Rule 240 - Permits For New Major Sources And Major Modification

In addition to the above requirements, the Rule 240 also requires the following items listed below.

- **Air Impact Analysis for Any Geographical Area**: The analysis is done in accordance with the Rule 240, Section 303.
- **More Stringent Rule Required**: Applicable sections from County Rule 360 and Regulation III of the County rules do not overlap any operation. Therefore, there

is no conflict with more stringent rule requirement.

- **Visibility Impact Analysis:** Section 18.5 "Visibility Impact Analysis" of this Application Addendum describes the analyses performed.
- **GEP Stack Height**: Stack height in excess of GEP stack height and any other dispersion technique will not affect the degree of emission limitation required for control of any pollutant.
- **Fugitive Dust Emission**: The facility will comply with the Rule 310 – Fugitive Dust Sources and Rule 311 - Particulate Matter from Process Industry. The Rule 316 – Nonmetallic Mineral Mining and Processing is not applicable.
- **Lead emission**: Lead emissions are estimated to be less than five tons per year.

2.12 LIST OF INSIGNIFICANT ACTIVITIES

This section lists the insignificant activities specific to the Facility's operations. This section supersedes Reference 2 of the Application.

LIST OF INSIGNIFICANT ACTIVITIES

Activities
A. Size-Based Exemptions 1. Stationary reciprocating internal combustion engines of 250 or less aggregate horsepower, with no individual internal conbustion engine exceeding 50 horsepower. 2. Stationary reciprcating internal combustion engines that are emergency or standby units and are operated less that 500 hours per year.
B. Labortories and Pilot Plants 1. Noncommercial (in-house) experimental and analytical laboratory equipment which emit less than 3 pounds of VOC's per day and are bench scale in nature including quality control/quality assurance laboratories supporting an electric utility facility, and reseach and development labortories.
C. Storage and Distribution 1. Chemical Storage and Process Holding Tanks a. Chemical storage tanks and storage areas. b. Process holding tanks. 2. Storage of butane, propane, or liquified petroleum gas. 3. Petroleum product storage tanks containing the following substances: a. Diesel fuels and fuel oils b. Lubricating oil c. Transformer oil d. Used oil e. Fuel storage and dispensing equipment operated solely for company-owned vehicles where the individual storage tank capacity is 250 gallons or less. 4. Piping and storage systems for natural gas, propane, and liquified petroleum gas. 5. Piping of fuel oils, used oil and transformer oil. 6. Storage and handling of drums or other transportable containers where the containers are sealed during storage (including containers of RCRA waste and used oil). 7. Storage tanks of any size containing exclusively soaps, detergents, waxes, greases, aqueous salt solutions, aqueous acid solutions, or aqueous caustic solutions at ambient temperatures.

LIST OF INSIGNIFICANT ACTIVITIES

Activities
D. Water and Wastewater Treatment 1. Water treatment or storage systems for boiler and feedwater. 2. Storage of chemicals (not exempted by C 7 above) associated with water and wastewater treatment where the water is treated for comsumption and/or use within the permitted facility. 3. The collection, transmission, liquid treatment, and solids treatment processes at domestic wastewater and sewage treatment works, or treatment facilityes, including septic tank systems, which treat only domestic type wastewater and sewage.
E. Office/Administrative 1. Housekeeping activities and associated products used for cleaning purposes, including collecting spilled and accumulated materials at the source, including operation of fixed vacuum cleaning systems specifically for such purposes. 2. Air conditioning, cooling, heating or ventilating equipment of less than 500,000 Btu/hour not designed to remove air contaminants generated by or released from associated or other equipment. 3. General office activities, such as paper shredding, copying, photographic activities, and blueprinting, but not to include incineration. 4. Rest room facilities and associated cleanup operations, and stacks or vents used to prevent the escape of sewer gases through plumbing traps. 5. Smoking rooms and areas 6. Use of consumer products, including hazardous substances as that term is defined in the Federal Hazardous Substances Act (15 U.S.C. 1261 et. seq.) where the product is used at a source in the same manner as normal consumer use. 7. Vacuum cleaning systems where the system is used exclusively for industrial or commercial purposes.
F. Groundskeeping 1. Landscaping and site housekeeping equipment. 2. Fugitive emissions from landscaping activities. 3. Use of pesticides, fumigants, and herbicides. 4. Groundskeeping activities and products.

LIST OF INSIGNIFICANT ACTIVITIES

Activities
G. Burning
1. Fire fighting activities and training conducted at the source in preparation for fighting fires.
2. Flares used to indicate danger.
H. Roadways (Sources must comply with Maricopa county Rule 310 for Open Fugitive Dust Sources)
1. Activities associated with the construction, repair or maintenance of roads or other paved or open ares, including operation of street sweepers, vacuum trucks, spray trucks and other vehicles related to the control of fugitive emissions of such roads or other areas.
2. Unpaved public and private roadways, except for haul roads located within a stationary source site boundary (pertains to regularly trafficked roadways, will vary according to facility).
3. Road and lot paving operations at commercial and industrial facilities.
4. Street and parking lot striping.
5. Fugitive dust emissions from the operation of a passenger vehicle (car, pickup truck or van).
I. Miscellaneous
1. Cafeterias, kitchens, and other facilities used for preparing food or beverages primarily for consumption at the source.
2. Equipment using water, water and soap or detergent for purposes of cleaning or finishing.
3. Construction and disturbance of surface ares for purposes of land development.
4. Activities at a source associated with the maintenance, repair or dismantlement of an emission unit or other equipment installed at the source, including preparation for maintenance, repair or dismantlement and preparation for subsequent startup, including preparation of a shutdown vessel for entry, replacement of insulation, welding and cutting, and steam purging of a vessel prior to startup; also includes maintenance, repair or dismantlement of buildings, utility lines, pipelines, wells, excavations, earthworks and other structures that do not constitute an emission unit (sources must comply with all applicable requirements).
5. Containers, reservoirs, or tanks used exclusively in dipping operations to coat objects with unheated oils, waxes, or greases.
6. Activities directly used in the diagnosis and treatment of disease, injury or other medical condition.
7. Manually operated equipment that is used for buffing, polishing, carving, cutting, drilling, machining, routing, sanding, sawing, surface grinding or turning and associated with venting hoods.
8. Wood working equipment with an aggregate horsepower of 50 or less.

LIST OF INSIGNIFICANT ACTIVITIES

Activities
I. Miscellaneous (continued)
9. Individual points of emission or activities as follows: a. Individual sampling points, analyzers, and process instrumentation, whose operation may result in emissions. b. Individual test equipment that is transportable or activities within a facility established for testing units prior to sale or for purposes of research. c. Property maintained individual flanges, valves, pump seals, pressure relief valves and other individual components that have the potential for leaks.
10. Brazind, soldering, or welding operations.
11. Battery recharging areas.
12. Aerosol can usage.
13. Plastic pipe welding.
14. Acetylene, butane, and propane torches.
15. Architecutural painting and associated surface coating using an aggregate of not more that one gallon per day for maintenance purposes at industrial or commercial facilities.
16. Steam vents, condenser vents and boiler blowdown.
17. Equipment used exclusively for portable steam cleaning with an aggregate heat input of less that 2,000,000 BTU per hour.
18. Blast-cleaning equipment with an aggregate heat input of less than 2,000,000 BTU per hour using a suspension of abrasive in water and any exhaust system or collector serving them exclusively.
19. Surface impoundments, such as evaporation ponds and storm water ponds.
20. Pump/motor oil reservoirs, such as gear box lubrication.
21. Transformer vents.
22. Lubricating system reservoirs.
23. Hydraulic system reservoirs.
24. Adhesive use which is not related to production.
25. Caulking operations which are not part of a production process.
26. Electric motors.
27. Cathodic protection systems.

LIST OF INSIGNIFICANT ACTIVITIES

Activities
I. Miscellaneouns (continued)
28. Corona (the arc, halo, or light from high voltage lines power poles, and insulators which emits ozone).
29. Freon recovery equipment.
30. Soil gas sampling.
31. Filter draining.
32. General vehicle maintenance and servicing activities at the source.
33. Station transformers.
34. Circuit breakers.
35. Generation unit gas vents (solenoid valves that vent uncombusted natural gas from generation units).
36. Storage cabinets for flammable products.
37. Unheated, non-conveyerized, cleaning or coating equipment that does not include control enclosures: with an open surface area of one square meter or less and an internal volume of 350 liters or less, having an organic solvent loss of three gallons per day of less, or, using only organic solvents with an initial boiling point of 302 degrees F or greater and having an organic solvent loss of three gallons per day or less, or; using materials with a VOC content of two percent or less by volume.

2.13 ACID RAIN PROGRAM – CERTIFICATE OF PRESENTATION

This section contains a revised Certificate of Representation Form to reflect the change in the business name. This section replaces only the first page of the form in the Reference 3 of the Application.

United States
Environmental Protection Agency
Acid Rain Program

OMB No. 2060-0258

Certificate of Representation

For more information, see instructions and refer to 40 CFR 72.24

This submission is: [X] New [ ] Revised (revised submissions must be completed in full; see instructions)

This submission includes combustion or process sources under 40 CFR part 74 [ ]

STEP 1
Identify the source by plant name, State, and ORIS code.

Plant Name	State	ORIS Code
Gila Bend Power Generation Station	AZ	*

* Will provide ORIS Code ans Unit IDs when received from EIA.

STEP 2
Enter requested information for the designated representative.

Name: Robert A. Innamorati	
Address: Gila Bend Power Partners, L.L.C. 5949 Sherry Lane, Suite 1880 Dallas, TX 75225	
Phone Number: (214) 210-5080	Fax Number: (214) 210-5079
E-mail address (if available)	

STEP 3
Enter requested information for the alternate designated representative, if applicable.

Name: Not Available	
Phone Number	Fax Number
E-mail address (if available)	

STEP 4
Complete Step 5, read the certifications, and sign and date. For a designated representative of a combustion or process source under 40 CFR part 74, the references in the certifications to "affected unit" or "affected units" also apply to the combustion or process source under 40 CFR part 74 and the references to "affected source" also apply to the source at which the combustion or process source is located.

I certify that I was selected as the designated representative or alternate designated representative, as applicable, by an agreement binding on the owners and operators of the affected source and each affected unit at the source.

I certify that I have given notice of the agreement, selecting me as the 'designated representative' for the affected source and each affected unit at the source identified in this certificate of representation, in a newspaper of general circulation in the area where the source is located or in a State publication designed to give general public notice.

I certify that I have all necessary authority to carry out my duties and responsibilities under the Acid Rain Program on behalf of the owners and operators of the affected source and of each affected unit at the source and that each such owner and operator shall be fully bound by my actions, inactions, or submissions.

I certify that I shall abide by any fiduciary responsibilities imposed by the agreement by which I was selected as designated representative or alternate designated representative, as applicable.

I certify that the owners and operators of the affected source and of each affected unit at the source shall be bound by any order issued to me by the Administrator, the permitting authority, or a court regarding the source or unit.

Where there are multiple holders of a legal or equitable title to, or a leasehold interest in, an affected unit, or where a utility or industrial customer purchases power from an affected unit under life-of-the-unit, firm power contractual arrangements, I certify that:

I have given a written notice of my selection as the designated representative or alternate designated representative, as applicable, and of the agreement by which I was selected to each owner and operator of the affected source and of each affected unit at the source; and

Allowances and the proceeds of transactions involving allowances will be deemed to be held or distributed in proportion to each holder's legal, equitable, leasehold, or contractual reservation or entitlement or, if such multiple holders have expressly provided for a different distribution of allowances by contract, that allowances and the proceeds of transactions involving allowances will be deemed to be held or distributed in accordance with the contract.

The agreement by which I was selected as the alternate designated representative, if applicable, includes a procedure for the owners and operators of the source and affected units at the source to authorize the alternate designated representative to act in lieu of the designated representative.

2.14 EMISSION RATE CALCULATIONS

This section contains revised emission rate calculation tables, which have been adjusted to reflect the equipment changes. The two specific changes that affected emission rates are the addition of three 356 MM BTU/hr duct burners and reduction in the number of cooling tower to one. This section replaces only the respective tables in Reference 4 and 5 of the Application.

APPENDIX TABLE A-1
EMISSIONS SUMMARY TABLE

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

(All emissions based on data obtained by Industrial Power Technology, unless otherwise noted)

Parameters	Single Combustion Turbine								Auxiliary Boiler	Diesel Generator	Diesel Fire Pump	Cooling Towers
Load Condition	Base - 100%			Base - 100%			75%		105%	100%	100%	
Duct Firing	Off	Off	Off	On	On	On	Off	Off	–	–	–	–
Ambient Temperature, F	13	66.3	121	13	66.3	121	13	66.3				
Fuel Type	Natural Gas									Diesel Fuel		
Power Output, kW	181,200	170,600	166,506	181,200	170,600	166,506	135,900	121,200	–	500kW	400 BHP	
Heat Input, (LHV) MMBtu/hr	1,546	1,579	1,671	1,874	1,912	2,027	1,346	1,234	26	5.6	3	
Operating Time, hrs/yr	8,760								8,760	500		8,760
Emissions:												
NOx, ppm	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0				
NOx, lb/MMBtu	0.0129	0.012	0.0111	0.0132	0.0121	0.0111	0.0123	0.0122	0.12	–	–	–
Total NOx as NO2, lb/hr	20.0	19.0	18.5	24.7	23.1	22.6	16.5	15.0	3.11	15.5	12.4	
Total NOx as NO2, TPY	87.6	83.2	81.0	108.2	101.1	98.9	72.3	65.7	13.62	3.88	3.1	
CO, lb/MMBtu	0.0328	0.0301	0.0278	0.0373	0.0343	0.0316	0.0301	0.304	0.152	–	–	
Total CO, lb/hr	50.7	47.6	46.5	69.8	65.6	64.0	40.5	37.6	3.95	3.34	2.67	
Total CO, TPY	222.1	208.3	203.5	305.8	287.1	280.5	177.2	164.5	17.3	0.83	0.67	
SO2, lb/MMBtu	0.0026	0.0023	0.0022	0.0026	0.0024	0.0022	0.0023	0.0024	0.001	–	–	–
Total SO2, lb/hr	4.00	3.70	3.65	4.82	4.52	4.41	3.15	2.9	0.03	1.03	0.82	
Total SO2, TPY	17.3	16.2	16	21.1	19.8	19.3	13.8	12.7	0.13	0.26	0.21	
VOC, ppm (methane)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4				
VOC, lb/MMBtu	0.0019	0.0018	0.0016	0.0058	0.0053	0.0049	0.0017	0.0018	0.016	–	–	
Total VOC, lb/hr	2.9	2.8	2.7	10.8	10.2	10.0	2.3	2.2	0.42	1.24	0.99	
Total VOC, TPY	12.8	12.1	11.9	47.3	44.7	43.7	10.2	9.5	1.84	0.31	0.248	
TSP, lb/MMBtu	0.018	0.018	0.017	0.017428	0.017079	0.016113	0.021	0.023	0.0102			
TSP, lb/hr	28.00	28.00	28.00	32.66	32.66	32.66	28.00	28.00	0.26	1.1	0.88	4.14
% that is PM10	100%								100%	100%	100%	50%
Total PM10 Portion, lb/hr	28.00	28.00	28.00	32.66	32.66	32.66	28.00	28.00	0.26	1.1	0.88	2.07
TSP, TPY	122.6	122.6	122.6	143.1	143.1	143.1	122.6	122.6	1.16	0.28	0.22	18.1
PM10 Portion, TPY	122.6	122.6	122.6	143.1	143.1	143.1	122.6	122.6	1.16	0.28	0.22	9.05
Stack Parameters:												
Base Elevation, ft	678											
Site Pressure, psia	14.46											
Height, ft	165								95	–	–	50
Diameter, ft	18								2			30.3
Flow@Base Load, lb/hr	3,718,000	3,506,000	3,437,000	3,733,000	3,520,000	3,451,000	2,967,000	2,766,000	–			
Flow@Base Load, acfm	996,043	926,936	932,656	1,069,301	1,015,505	1,025,460	776,039	706,870	6,597			1,297,919
Exhaust Temp., F	216	205	221	188	191	209	200	183	450			70
Velocity, fps	65.2	60.7	61.1	70	66.5	67.2	50.8	46.3	35			30.0/cell

Note:
(1) Concentration reflects NOx emissions from SCR technology for the CT
(2) Emissions were calculated using drift to circulating water ratio of 0.0005% and a TDS of 10,000 ppm.
(3) According to AP-42, Chapter 3, all PM emissions for uncontrolled natural gas combustion and diesel industrial engines are considered less than 1 micrometer, and therefore 100% is considered PM10.
(4) Combustion turbine particulate emissions take into account the backend emissions as referred to in the EPA Method 5 testing protocol for combustion turbines.
(5) Emissions are based on firing pipeline quality natural gas.

APPENDIX TABLE A-2
MAXIMUM HAZARDOUS AIR POLLUTANT (HAP) CALCULATIONS

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

				CT Generators (Total)	Duct Burners (Total)	Auxiliary Boiler	Diesel Emergency Generator	Diesel Fire Pump	Facility Total HAPs Emissions
Annual Operation				8,760 hrs/yr	8,760 hrs/yr	8,760 hrs/yr	500 hrs/yr		
Fuel Type					Natural Gas				–
Heat Input (HHV)				1,671 MMBtu/hr	356 MMBtu/hr	26 MMBtu/hr	5.6 MMBtu/hr	3.0 MMBtu/hr	
Number of Units				3	3	1	1	1	
HAPs Emitted	Emission Factors from Natural Gas-Fired Turbines (lb/MMBtu)	Emission Factors from Natural Gas Combustion (lb/MMBtu)	Diesel Engines Uncontrolled Emission Factors (lb/MMBtu)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)
1,3-Butadiene	4.30E-07	–	3.91E-05	0.009	–	–	trace	trace	0.009
2-Methylnaphthalene	–	2.35E-08	–	–	Trace	Trace	–	–	0.000
Acetaldehyde	4.00E-05	–	7.67E-04	0.878	–	–	0.001	trace	0.879
Acrolein	6.40E-06	–	9.25E-05	0.141	–	–	trace	trace	0.141
Benzene	1.20E-05	2.06E-06	9.33E-04	0.263	0.010	Trace	0.001	trace	0.274
Dichlorobenzene	–	1.18E-06	–	–	0.006	Trace	–	–	0.006
Ethylbenzene	3.20E-05	–	–	0.703	–	–	–	–	0.703
Fluoranthene	–	2.94E-09	–	–	Trace	Trace	–	–	0.000
Fluorene	–	2.75E-09	–	–	Trace	Trace	–	–	0.000
Formaldehyde	7.10E-04	7.35E-05	1.18E-03	15.589	0.344	0.008	0.002	trace	15.943
Hexane	–	1.76E-03	–	–	8.255	0.201	–	–	8.456
Naphthalene	1.30E-06	5.98E-07	8.48E-05	0.029	0.003	Trace	trace	trace	0.031
PAHs	2.20E-06	–	–	0.048	–	–	–	–	0.048
Phenanathrene	–	1.67E-08	–	–	Trace	Trace	–	–	0.000
Propylene	–	–	2.58E-03	–	–	–	0.004	0.002	0.006
Propylene Oxide	2.90E-05	–	–	0.637	–	–	–	–	0.637
Pyrene	–	4.90E-09	–	–	Trace	Trace	–	–	0.000
Toluene	1.30E-04	3.33E-06	4.09E-04	2.854	0.016	Trace	0.001	trace	2.871
TMA	–	–	–	–	–	–	–	–	0.000
Xylenes	6.40E-05	–	2.85E-04	1.405	–	–	trace	trace	1.405
Total				22.557	8.632	0.209	0.008	0.002	31.409

Note:
(1) Emissions factors obtained from the 7/98 AP-42 for Natural Gas Combustion (External Combustion Sources)
(2) Only the significant emission factors were taken from the list of Speciated Organic Compounds.
(3) Emission factor is based on AP-42 Table 3.1-3, Emission Factors for Hazardous Air Pollutants From Natural Gas-Fired Stationary Gas Turbines. 4/2000

Calculation Equation:

Annual Emissions (tpy):
(Heat Input)(Emission Factor)(Hours of Operation)(No. of Units)(ton/2,000 lb)

APPENDIX TABLE A-4
COOLING TOWER EMISSION CALCULATIONS

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

Potential Cooling Tower Emission Calculations

Circulating Water Flow (gpm)	Water Density (lbs/gal)	Percent Drift from Coolant (%)	Assumed TDS [1] (PPM)	Estimated PM-10 Emissions [1] (lbs/ hr)
165,000	8.345	0.0005	10,000	**2.07**

Note:
(1) It is assumed that 50% of TDS is PM-10.

APPENDIX TABLE A-5
Controlled Estimated
Maximum emission Data Set

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

(All emissions based on data obtained by Industrial Power Technology, unless otherwise noted)

Parameters	CTG (Per Unit)	Auxiliary Boiler	Diesel Generator	Diesel Fire Pump	Cooling Tower	Total Facility Annual Emissions
Load Condition	Base -100%	--	--	--	--	--
Duct Firing	On					
Ambient Temperature, F	13.00					
Fuel Type	Natural Gas		No. 2 Fuel Oil			
Power Output, kW	181,200		500 kW	400 BHP		
Heat Input, (LHV) MMBtu/hr	1,874	26	5.6	3		
Operating Time, hrs/yr	8,760	8,760	500		8760	
Emissions:						
NOx, ppm	3.00				--	--
NOx, lb/MMBtu	0.01	0.12				
Total NOx as NO2, lb/hr	24.70	3.11	15.5	12.4		
Total NOx as NO2, TPY	108.2	13.62	3.88	3.1		345.2
CO, lb/MMBtu	0.04	0.152				--
Total CO, lb/hr	69.82	3.95	3.34	2.67		
Total CO, TPY	305.8	17.3	0.83	0.67		936.3
SO2, lb/MMBtu	0.00	0.001				--
Total SO2, lb/hr	4.82	0.03	1.03	0.82		
Total SO2, TPY	21.1	0.13	0.26	0.21		63.9
VOC, ppm (methane)	1.40					--
VOC, lb/MMBtu	0.01	0.016				
Total VOC, lb/hr	10.80	0.42	1.24	0.99		
Total VOC, TPY	47.3	1.84	0.31	0.248		144.3
TSP, lb/MMBtu	0.02	0.0102				--
TSP, lb/hr	32.70	0.26	1.1	0.88	4.14	
% that is PM10	1.00	100%	100%	100%	50%	
Total PM10 Portion, lb/hr	32.70	0.26	1.1	0.88	2.07	
TSP, TPY	143.10	1.16	0.28	0.22	18.1	449.2
PM10 Portion, TPY	143.10	1.16	0.28	0.22	9.05	440.1
Stack Parameters:						
Base Elevation, ft	678.00					
Site Pressure, psia	14.46					
Height, ft	165.00	95	--	--	50	--
Diameter, ft	18.00	2			30.3	
Flow@Base Load, lb/hr	3,733,000.00	--			--	
Flow@Base Load, acfm	1,069,301.00	6,597			1,297,919	
Exhaust Temp., F	188.00	450			70	
Velocity, fps	70.00	35			30.0/cell	

Note:
(1) Emissions were calculated using drift to circulating water ratio of 0.0005% and a TDS of 10,000 ppm.
(2) Total Emissions includes the total emissions for three turbines, three duct burners, three cooling towers, one auxiliary boiler, one diesel generator, and one diesel fire pump.

2.15 BACT ANALYSIS

This section contains the revised Table 5-1 and cooling tower subsection, which reflect the emission changes from the cooling tower due to design alterations including recirculation water rate, drift eliminator efficiency, and number of cooling towers. In addition, this section now includes a NOx incremental cost analysis for reducing the emission level from 3 ppm to 2.5 ppm (adjusted to 15% oxygen). This section replace only the respective table and pages in Reference 5 of the Application.

TABLE 5-1
SUMMARY OF PROPOSED BACT

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

Emission Unit	Emissions Limit and Basis				
	TSP/PM_{10}	SO_2	NO_X	CO	VOC
Natural Gas-Fired Combustion Turbines:					
Emission Rate	0.023 lbs/MMBtu	0.003 lbs/MMBtu	3.0 ppmvd @ 15% O_2	17.0 ppmvd @ 15% O_2	1.4 ppmvw @ 15% O_2
Proposed BACT	Use of natural gas, and good combustion practices/design	Use of Natural Gas	DLN Combustion and SCR	Good combustion practices/design	Good combustion practices/design
Natural Gas-Fired Auxiliary Boiler:					
Emission Rate	0.0102 lbs/MMBtu	0.001 lbs/MMBtu	0.12 lbs/MMBtu	0.152 lbs/MMBtu	0.016 lbs/MMBtu
Proposed BACT	Good Combustion Practice/Design	Use of Natural Gas	Low NO_X Burner	Good Combustion Practice/Design	Good Combustion Practice/Design
Emergency Diesel Generator:					
Emission Rate	1.1 lb/hr	1.1 lb/hr	15.5 lb/hr	3.34 lb/hr	1.24 lb/hr
Proposed BACT	Good Engine Design	Very Low Sulfur Fuel	Good Engine Design	Good Engine Design	Good Engine Design
Diesel Fire Pump:					
Emission Rate	0.9 lb/hr	0.82 lb/hr	12.4 lb/hr	2.7 lb/hr	1.0 lb/hr
Proposed BACT	Good Engine Design	Very Low Sulfur Fuel	Good Engine Design	Good Engine Design	Good Engine Design
Cooling Tower:					
Emission Rate	2.07 lb/hr	N/A	N/A	N/A	N/A
Proposed BACT	Drift Eliminators				

5.8.6 Total Suspended Particulates/PM_{10}

Control technologies available for TSP and PM_{10} include filters such as particulate traps, proper engine design, and fuel additives and/or modifications. Because the uncontrolled emission rates of TSP and PM_{10} are estimated to be only 0.9 lbs/hr, any particulate controls will be prohibitively expensive. Therefore, proper engine design is proposed as BACT for particulate emissions from the diesel fire pump. The proposed BACT will not have any expected adverse environmental or energy impacts.

5.9 COOLING TOWER

5.9.1 Background

The cooling tower will be multi-celled, mechanical draft, counterflow type with an associated liquid drift. This drift is a source of particulate emission, caused by dissolved and suspended solids inherently contained within the liquid droplets. The water droplets then will evaporate allowing the particulates to agglomerate.

The annual operating time is expected to be 8,760 hours. The BACT determination for particulates is discussed below.

5.9.2 Total Suspended Particulates/ PM_{10}

There are no technically feasible alternatives that can be installed on the cooling tower, which specifically reduce particulate emissions; however, cooling towers are typically designed with drift elimination features. The drift eliminators are specially designed baffles that collect and remove condensed water droplets in the air stream. These drift eliminators, according to a review of the EPA's RBLC, can reduce drift to 0.0015 percent to 0.004 percent of cooling water flow, which reduces particulate emissions.

Therefore the use of drift eliminators to attain an emission rate of 2.07 lbs/hr is proposed as BACT for cooling tower PM-10 emissions. The proposed BACT will not have any expected adverse environmental or energy impacts.

5.10 PROPOSED COMPLIANCE DEMONSTRATION METHODS

The proposed compliance demonstration methods, including the averaging period, compliance method, and frequency, are shown in Table 5-5. The compliance methods include the initial performance testing and continuous emissions monitoring.

5.11 NOx INCREMENTAL COST ANALYSIS

Introduction

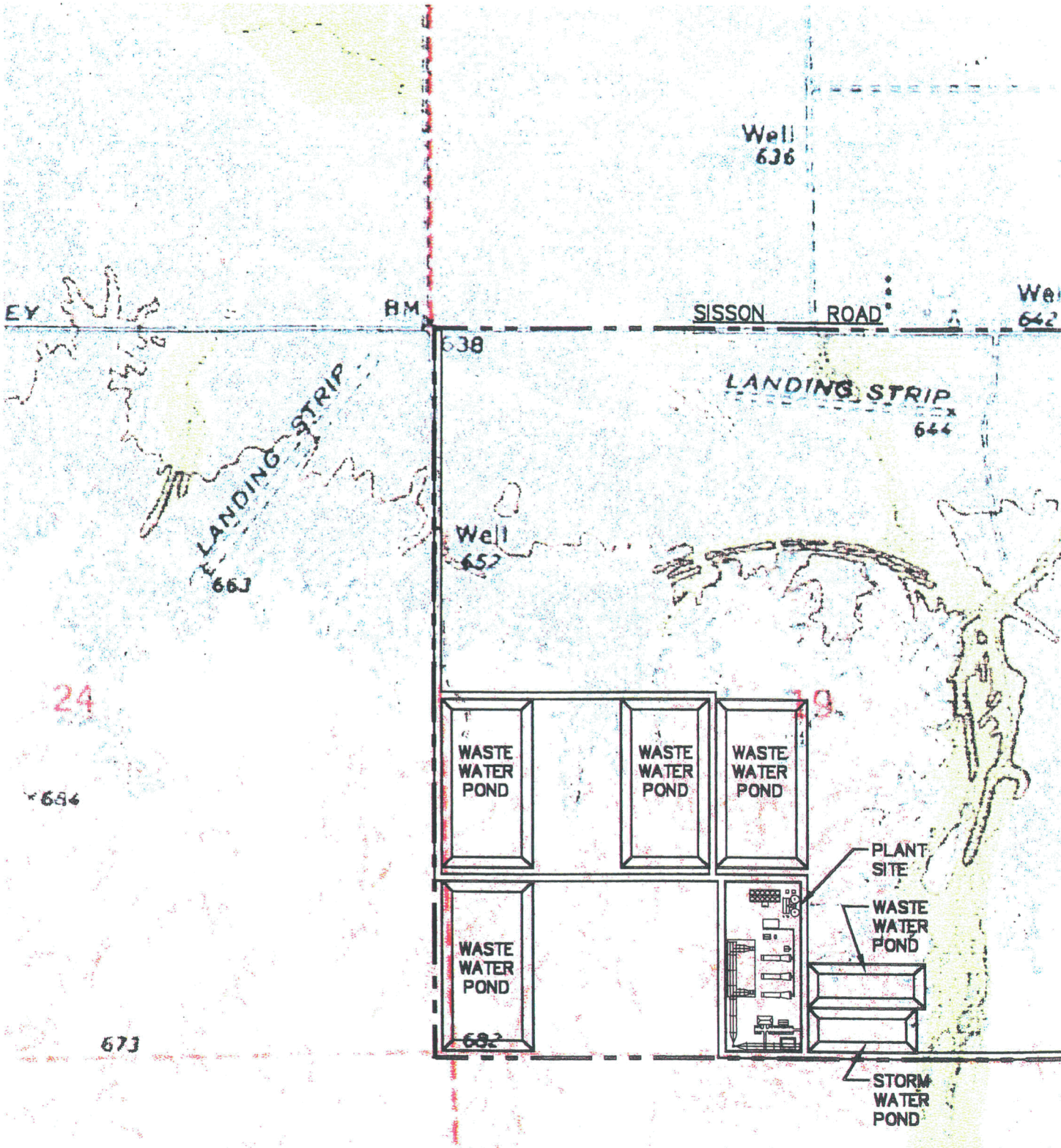
As the Department requested, the following summarizes the incremental cost analysis for reducing the Gila Bend Power Generation Station's nitrogen oxides (NOx) from 3.0 ppm to 2.5 ppm. Tables 1 through 6 provide the details of the incremental cost analysis.

- Table 1 – Capital Cost Analysis for Selective Catalytic Reduction Unit (SCR), 3 ppm limit
- Table 2 – Annualized Cost Analysis for SCR, 3 ppm
- Table 3 – Capital Cost Analysis for SCR, 2.5 ppm
- Table 4 – Annualized Cost Analysis for SCR, 2.5 ppm
- Table 5 – Incremental Capital Cost Analysis for SCR, 2.5 ppm minus 3 ppm
- Table 6 – Incremental Annualized Cost Analysis for SCR, 2.5 ppm minus 3 ppm

Summary of Cost Analysis

The incremental annualized cost contained in Table 6 includes 5 percent risk of the SCONOX annualized cost (approximately $4,300,000) as a contingency cost. This cost is included to account for the event that a 2.5 ppm NOx limitation cannot be achieved by SCR and must substitute SCR with SCONOX. The contingency cost only contains a 5% risk of not achieving 2.5 ppm NOx limitation.

The incremental annualized cost associated with reducing NOx emissions down to 2.5 ppm is approximately $300,850. The NOx emissions would be reduced by 18 tons per year (16.7% reduction) by decreasing the outlet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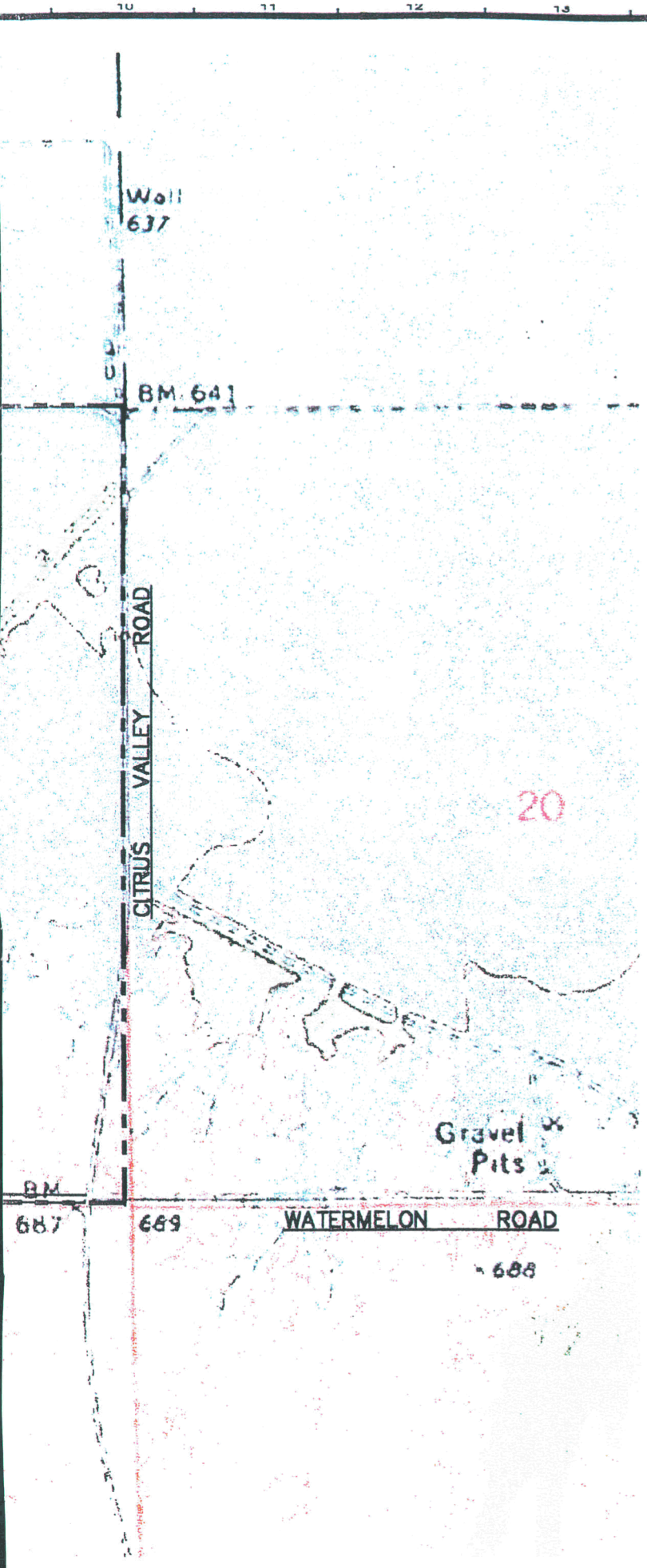
STORM WATER POND



INDUSTRIAL POWER TECHNOLOGY
2227 CAPRICORN WAY SUITE 101
SANTA ROSA, CALIFORNIA 95407
TEL: 707-528-8900/FAX: 707-528-8901

No.	Revisions	Date

GILA BEND POWER PROJECT

PRELIMINARY PROJECT CONFIGURATION

TS	SS	RW
DESIGN	DRAWN	ENG.

Job Number: 147100

Date: 8/30/00

Sheet Number

Figure 1-1

1 of 1 sheets

20000830.101617

concentration to 2.5 ppm. The resulting incremental cost per ton of NOx removed is approximately $16,700.

Since the incremental cost analysis will be used to determine the Best Available Control Technology for the Facility, it is important to also consider other factors as well as economic impacts.

Other BACT Factors

As a first step in a top-down analysis, all available control options should be identified. For the incremental cost analysis, the only available control technologies considered are dry low NOx turbines combined with SCR units at emission level of 2.5 ppm and 3.0 ppm.

As a second step, the control options should be evaluated for technical feasibility with respect to the source-specific factors. The first reason for considering the 2.5 ppm option as technically infeasible is that the level of control has not been demonstrated. There are no known sources of similar size (845 MW plant firing supplementary duct burners) demonstrating compliance with 2.5 ppm using SCR. The *New Source Review Workshop Manual* notes, "For example, in cases where the level of control in a permit is not expected to be achieved in practice (e.g., a source has received a permit but the project was cancelled, or every operating source at that permitted level has been physically unable to achieve compliance with the limit), and supporting documentation showing why such limits are not technically feasible is provided, the level of control (but not necessarily the technology) may be eliminated from further consideration." Lack of compliance demonstrations with a 2.5 ppm NOx limit implies the level of control is physically not possible to achieve in practice.

The second reason is the 2.5 ppm option is not technically feasible is that Continuous Emissions Monitors (CEMs) have a +/- 0.5 ppm accuracy limitation. It is stated in the *New Source Review Workshop Manual*, "If the reviewing authority determines that there is no economically reasonable or technologically feasible way to accurately measure the emissions, and hence to impose an enforceable emissions standard, it may require the source to use design, alternative equipment, work practices or operational standards to reduce emissions of the pollutant to the maximum extent." It is not technologically feasible to accurately measure the emissions reduction (0.5 ppm) if CEMs have a +/- 0.5 ppm accuracy limitation.

A technically feasible control option has to be both available and applicable. "Available" is defined as a control option that can be obtained through commercial channels or is otherwise available within the common sense meaning of the term. "Applicable" is defined as a control option that can reasonably be installed and operated on the source type under consideration. While the dry low NOx turbines and SCR system capable of 2.5 ppm NOx may be considered available, this control option is not applicable. This control option cannot be reasonably installed and operated at the Facility. As previously stated, there are no known sources similar in size that demonstrated compliance with 2.5 ppm using a dry low NOx turbine combined with SCR unit.

Conclusion

In conclusion, the dry low NOx turbine and SCR system capable of 2.5 ppm NOx is not a technically feasible control option in addition to the high cost of additional NOx removal ($16,700 per ton). Therefore, the dry low NOx turbine combined with a SCR unit to control NOx emissions to 3 ppm represents and meets all BACT requirements.

TABLE 1 CAPITAL COST
SCR at 3 ppm for a Combined CycleCombustion Turbine System
Gila Bend Power Generation Project
Gila Bend, Arizona

Basis: 1.) General cost information provided by ABB Alstom Power.
2.) EPA Control Technologies for HAP, Table 4.3-3 Annual Cost Factors (pg-4-16)
3.) 8,760 hours of operation per year

Direct Costs	Total	Factors
Purchased Equipment Costs		
Catalyst/ Reactor System & Auxiliary Equipment	$1,172,000	Cost Estimate, (EC1)
Instrumentation	$117,200	0.10 *EC1
Sales Taxes	$35,160	0.03 *EC1
Freight	$93,760	0.08 *EC1
Purchased Equipment Cost, (PEC)	$1,418,120	
Direct Installation Costs		
Foundation & Supports	$141,812	0.10 PEC
Handling & Erection	$198,537	0.14 PEC
Piping & Electrical	$85,087	0.06 PEC
Installation for Ductwork	$14,181	0.01 PEC
Painting	$14,181	0.01 PEC
Direct Installation Cost, (DI)	$453,798	
Total Direct Cost, DC	$1,871,918	PEC+DI
Indirect Costs (installation)		
Engineering	$141,812	0.10 PEC
Construction and Field Expenses	$70,906	0.05 PEC
Contractor Fees	$141,812	0.10 PEC
Start-up	$28,362	0.02 PEC
Performance Tests	$14,181	0.01 PEC
Contingences	$70,906	0.05 PEC
Total Indirect Cost, (IC)	$467,980	
Total Capital Cost, Year 2000 dollars (TCC) = DC + IC	**$2,339,898**	

TABLE 2 ANNUAL COSTS
SCR at 3 ppm for a Combined CycleCombustion Turbine System
Gila Bend Power Generation Project
Gila Bend, Arizona

Basis: 1.) General cost information provided by ABB Alstom Power.
2.) EPA Control Technologies for HAP, Table 4.2-8 Annual Cost Factors (pg-4-9)
3.) 8,760 hours of operation per year

Total Capital Cost, (TCC):	$2,339,898	
Direct Annal Costs		Factors
Utilities		
Energy Penalty	$165,080	(4,127,011 kW)($0.04kW)steam consumption
Catalyst Replacement	$246,667	every 3 years
Operating Labor		
Operator	$76,650	($30.00 /hr)(3.5hrs/shift)(shift/12hrs)(8,760hrs)
Supervisor	$11,498	15% of operator labor
Maintenance		
Labor	$21,900	($30.00 /hr)(1hrs/shift)(shift/12hrs)(8,760hrs)
Materials	$21,900	100% of maintenance labor
Replacement Parts		
Other	$117,200	(10%)(EC1)
Indirect Annual Costs		
Administrative	$46,798	2% of TCC
Property Taxes	$23,399	1% of TCC
Insurance	$23,399	1% of TCC
Capital Recovery	$333,149	0.1424 TCC
Total Annual Cost	$1,087,639	

TABLE 3 CAPITAL COST
SCR at 2.5 ppm for a Combined CycleCombustion Turbine System
Gila Bend Power Generation Project
Gila Bend, Arizona

Basis: 1.) General cost information provided by ABB Alstom Power.
2.) EPA Control Technologies for HAP, Table 4.3-3 Annual Cost Factors (pg-4-16)
3.) 8,760 hours of operation per year

Direct Costs	Total	Factors
Purchased Equipment Costs		
Catalyst/ Reactor System & Auxiliary Equipment	$1,326,571	Cost Estimate, (EC1)
Instrumentation	$132,657	0.10 *EC1
Sales Taxes	$39,797	0.03 *EC1
Freight	$106,126	0.08 *EC1
Purchased Equipment Cost, (PEC)	$1,605,151	
Direct Installation Costs		
Foundation & Supports	$160,515	0.10 PEC
Handling & Erection	$224,721	0.14 PEC
Piping & Electrical	$96,309	0.06 PEC
Installation for Ductwork	$16,052	0.01 PEC
Painting	$16,052	0.01 PEC
Direct Installation Cost, (DI)	$513,648	
Total Direct Cost, DC	$2,118,799	PEC+DI
Indirect Costs (installation)		
Engineering	$160,515	0.10 PEC
Construction and Field Expenses	$80,258	0.05 PEC
Contractor Fees	$160,515	0.10 PEC
Start-up	$32,103	0.02 PEC
Performance Tests	$16,052	0.01 PEC
Contingences	$80,258	0.05 PEC
Total Indirect Cost, (IC)	$529,700	
Total Capital Cost, Year 2000 dollars (TCC) = DC + IC	**$2,648,499**	

TABLE 4 ANNUAL COSTS
SCR at 2.5 ppm for a Combined CycleCombustion Turbine System
Gila Bend Power Generation Project
Gila Bend, Arizona

Basis: 1.) General cost information provided by ABB Alstom Power.
2.) EPA Control Technologies for HAP, Table 4.2-8 Annual Cost Factors (pg-4-9)
3.) 8,760 hours of operation per year

Total Capital Cost, (TCC):	$2,648,499	
Direct Annal Costs		Factors
Utilities		
Energy Penalty	$177,695	(4,442,371 kW)($0.04kW)steam consumption
Catalyst Replacement	$246,667	every 3 years
Operating Labor		
Operator	$76,650	($30.00 /hr)(3.5hrs/shift)(shift/12hrs)(8,760hrs)
Supervisor	$11,498	15% of operator labor
Maintenance		
Labor	$21,900	($30.00 /hr)(1hrs/shift)(shift/12hrs)(8,760hrs)
Materials	$21,900	100% of maintenance labor
Replacement Parts		
Other	$132,657	(10%)(EC1)
Indirect Annual Costs		
Administrative	$52,970	2% of TCC
Property Taxes	$26,485	1% of TCC
Insurance	$26,485	1% of TCC
Capital Recovery	$377,087	0.1424 TCC
Total Annual Cost	$1,171,993	

TABLE 5 INCREMENTAL CAPITAL COST
Combined CycleCombustion Turbine System
Gila Bend Power Generation Project
Gila Bend, Arizona

Basis: 1.) General cost information provided by ABB Alstom Power.
2.) EPA Control Technologies for HAP, Table 4.3-3 Annual Cost Factors (pg-4-16)
3.) 8,760 hours of operation per year

Direct Costs	Total	Factors
Purchased Equipment Costs		
Catalyst/ Reactor System & Auxiliary Equipment	$154,571	2.5 ppm - 3 ppm
Instrumentation	$15,457	2.5 ppm - 3 ppm
Sales Taxes	$4,637	2.5 ppm - 3 ppm
Freight	$12,366	2.5 ppm - 3 ppm
Purchased Equipment Cost, (PEC)	$187,031	
Direct Installation Costs		
Foundation & Supports	$18,703	2.5 ppm - 3 ppm
Handling & Erection	$26,184	2.5 ppm - 3 ppm
Piping & Electrical	$11,222	2.5 ppm - 3 ppm
Installation for Ductwork	$1,870	2.5 ppm - 3 ppm
Painting	$1,870	2.5 ppm - 3 ppm
Direct Installation Cost, (DI)	$59,850	
Total Direct Cost, DC	$246,881	PEC+DI
Indirect Costs (installation)		
Engineering	$18,703	2.5 ppm - 3 ppm
Construction and Field Expenses	$9,352	2.5 ppm - 3 ppm
Contractor Fees	$18,703	2.5 ppm - 3 ppm
Start-up	$3,741	2.5 ppm - 3 ppm
Performance Tests	$1,870	2.5 ppm - 3 ppm
Contingences	$9,352	2.5 ppm - 3 ppm
Total Indirect Cost, (IC)	$61,720	
Total Capital Cost, Year 2000 dollars (TCC) = DC + IC	**$308,601**	

TABLE 6 INCREMENTAL ANNUALIZED COSTS
Combined CycleCombustion Turbine System
Gila Bend Power Generation Project
Gila Bend, Arizona

Basis: 1.) General cost information provided by ABB Alstom Power.
2.) EPA Control Technologies for HAP, Table 4.2-8 Annual Cost Factors (pg-4-9)
3.) 8,760 hours of operation per year

Total Capital Cost, (TCC):	$308,601	
Direct Annual Costs		Factors
Utilities		
Energy Penalty	$12,614	2.5 ppm - 3 ppm
Catalyst Replacement	$0	
Operating Labor		
Operator	$0	
Supervisor	$0	
Maintenance		
Labor	$0	
Materials	$0	
Replacement Parts		
Other	$15,457	(10%)(EC1)
Contingencies*	$216,500	
Indirect Annual Costs		
Administrative	$6,172	2% of TCC
Property Taxes	$3,086	1% of TCC
Insurance	$3,086	1% of TCC
Capital Recovery	$43,938	0.1424 TCC
Total Annual Cost	$300,853	

2.16 PSD MODELING PROTOCOL

This section contains the revised PSD modeling protocol dated August 4, 2000, which was approved by the Department September 6, 2000. This protocol supersedes the previous Reference 6 materials in the Application.

MALCOLM PIRNIE

PREVENTION OF SIGNIFICANT DETERIORATION (PSD) MODELING PROTOCOL SUPPLEMENT

GILA BEND POWER GENERATION STATION

Prepared for:
GILA BEND
POWER PARTNERS, L.L.C.

Submitted by:
MALCOLM PIRNIE, INC.
432 N. 44TH STREET
SUITE 400
PHOENIX, ARIZONA 85008

3962-001

August 4, 2000

MALCOLM PIRNIE

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MALCOLM PIRNIE

EXECUTIVE SUMMARY

Power Development Enterprises, Inc. is proposing to construct a nominal 840-megawatt combined cycle, natural gas fired electric power generation facility in Maricopa County, Arizona. The facility, the Gila Bend Power Generation Station, will be located approximately 60 miles southwest of Phoenix in the town of Gila Bend, Arizona. The proposed power generation facility will be a new major source and will be subject to the Prevention of Significant Deterioration (PSD) regulations contained in 40 CFR Part 52.21. As part of the permit application process, the PSD regulations require modeling of air pollutant emissions from the proposed facility to evaluate ambient air quality impacts. This modeling protocol contains information on the proposed modeling approach including a description of the site, model input data, meteorological data, and other assumptions and information that will be used to complete the modeling analysis.

1.1 SITE DESCRIPTION

The proposed location of the Gila Bend Power Generation Station (Facility) is in southwestern Arizona approximately 70 miles southwest of Phoenix in Maricopa County. The site is located in Gila Bend north of Interstate 8 and just south of the Citrus Valley. The general coordinates of the site are 32° 58' 30" N latitude and 112° 49' 15" W longitude. A map showing the proposed site location is provided as Figure 1-1 Facility Location.

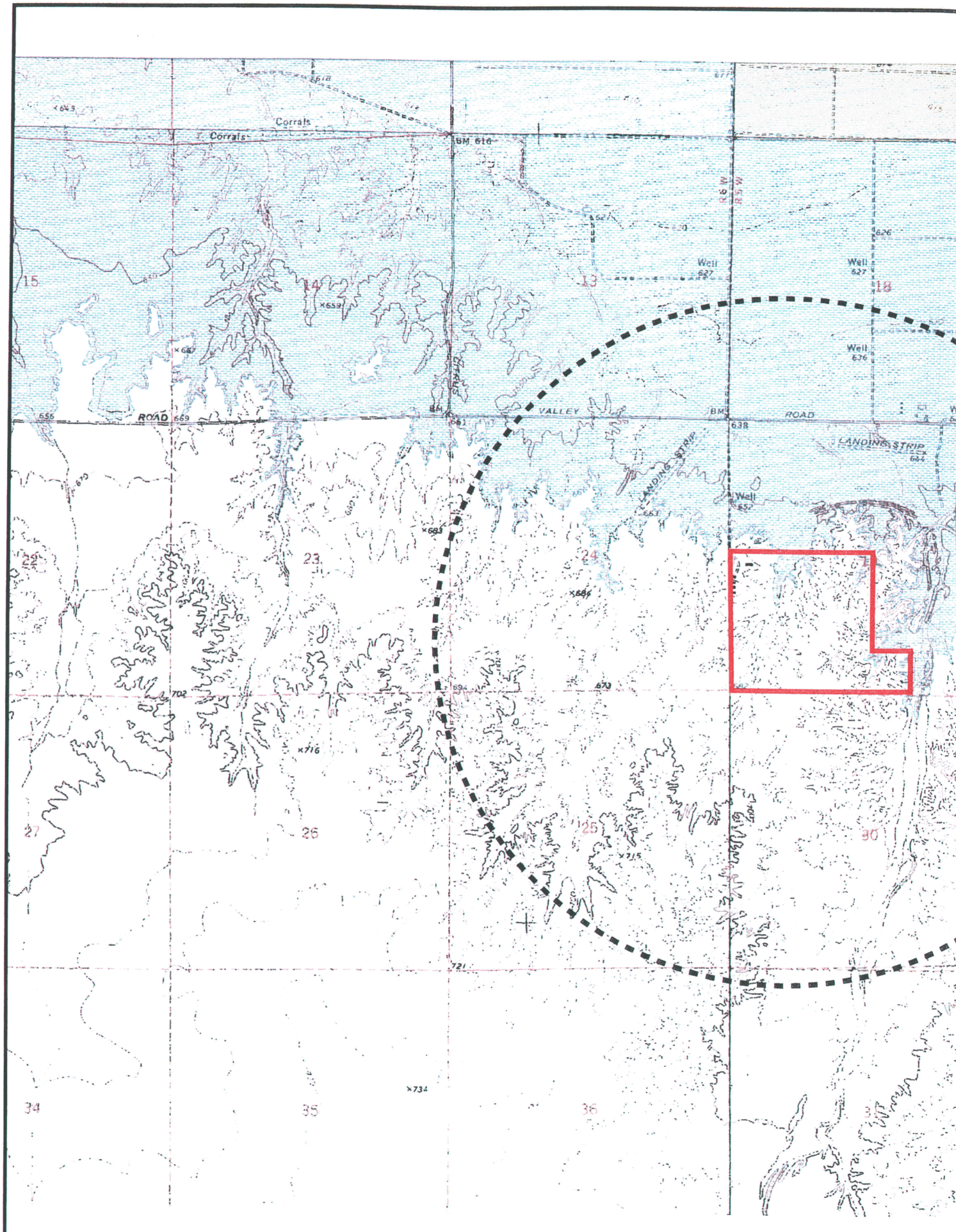
1.2 PROJECT DESCRIPTION

Power Development Enterprises, Inc. is proposing to construct a nominal 840-megawatt combined cycle electric power generation facility in Maricopa County, Arizona. The Facility will be located approximately 70 miles southwest of Phoenix in the town of Gila Bend, Arizona.

Upon completion, the Facility will consist of three combined cycle combustion turbine generators (CTG), three duct burners, three heat recovery steam generators (HRSG), one natural gas-fired auxiliary boiler, one emergency diesel generator, one diesel fire pump, cooling towers and ancillary equipment. The CTG's will be fired exclusively with natural gas.

1.3 APPLICATION FORMS

The applicable application forms are included at the end of this section.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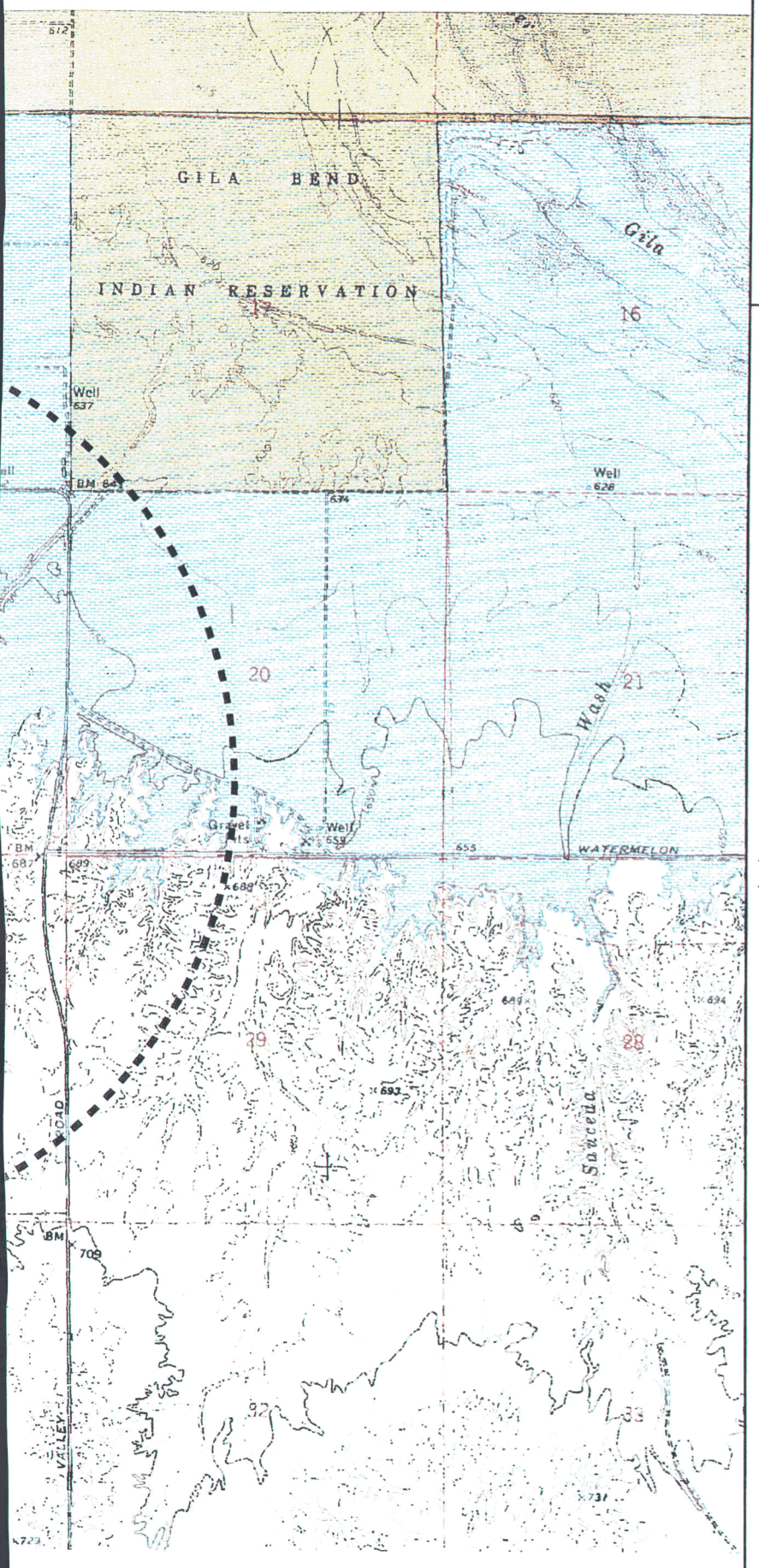

Gila Bend
2km Radius Map
Figure 5-1

General Reference Features

- Minor Arterials
- Railroad
- Two Mile Radius
- Project Site Location

Land Status Ledgend

- Gila Bend Indian Reservation
- Lands subject to inundation
- Private Lands

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0 0.5 1
Miles

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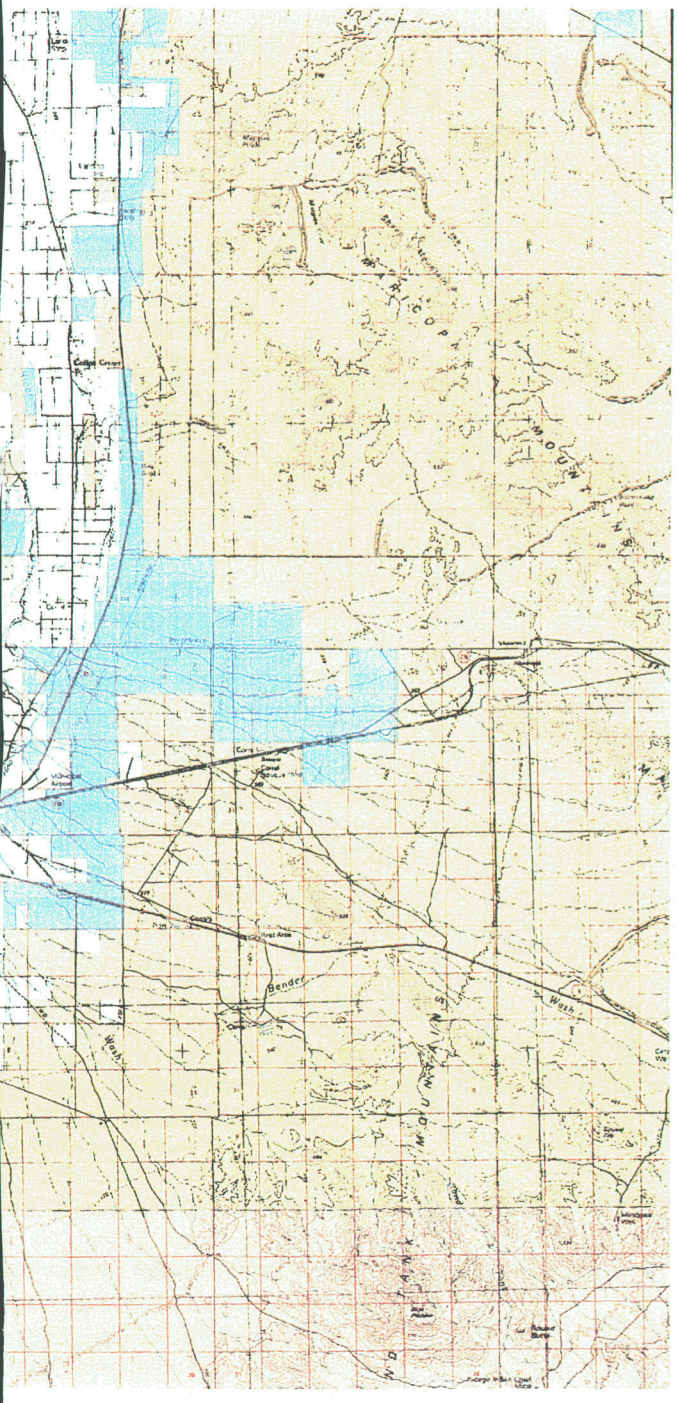
DENDORA
VALLEY
PAINTED ROCKS STATE PARK
GILA BEND

Gila Bend
10km Radius Map
Figure 5-2



General Reference Features

- Major Arterials
- Minor Arterials
- Railroad
- Ten kilometer Radius
- Project Site Location

Land Status Ledgend

- Native Lands
- Private Lands
- State Lands
- Military Reservation
- State Wildlife Area

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COMPANY NAME & LOCATION **Power Development Enterprises, Inc. - Gila Bend Power Generation Station, 35400 West Sisson Road, Gila Bend, AZ 85337**

EMISSION SOURCES

Date 08/04/00

Estimated "Potential to Emit" as per Rule 100
Review of applications and Issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS										
EMISSION POINT (1)		CHEMICAL COMPOSITION OF TOTAL STREAM	R. AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. (5)			STACK SOURCES (6)					NONPOINT SOURCES (7)	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME (2)	#/ hr. (3)	TONS/ YEAR (4)	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA DIA. (ft.)	EXIT DATA VEL. (fps.)	EXIT DATA TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
1	CTG1	Nox	24.700			330500	3649546	165	105	18	70	188		
2	CTG2 (same emission rate)	CO	69.800			330500	3649500	165	105	18	70	188		
3	CTG3 (same emission rate)	SO2	4.820			330500	3649454	165	105	18	70	188		
		VOC	10.800											
		PM10	32.660											
		PM	32.660											
		1-3 Butadiene		0.003										
		Acetaldehyde		0.393										
		Acrolein		0.047										
		Benzene		0.091										

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet
ADEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (A.A.C. R18-2-101)

GENERAL INSTRUCTIONS:

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7. Dimensions of nonpoint sources as defined in R18-2-101.

COMPANY NAME & LOCATION **Power Development Enterprises, Inc. - Gila Bend Power Generation Station, 35400 West Sisson Road, Gila Bend, AZ 85337**

EMISSION SOURCES

Date 08/04/00

Estimated "Potential to Emit" as per Rule 100
Review of applications and Issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS										
EMISSION POINT (1)		CHEMICAL COMPOSITION OF TOTAL STREAM	R. AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. (5)			STACK SOURCES (6)					NONPOINT SOURCES (7)	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME (2)	#/ hr. (3)	TONS/ YEAR (4)	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA			LENGTH (ft.)	WIDTH (ft.)
										DIA. (ft.)	VEL. (fps.)	TEMP. (°F)		
1	CTG1	Dichlorobenzene		0.002		330500	3649546	165		18	70.0	188		
2	CTG2 (same emission rate)	Ethylbenzene		0.234		330500	3649500	165		18	70	188		
3	CTG3 (same emission rate)	Formaldehyde		5.311		330500	3649454	165		18	70	188		
		Hexane		2.751										
		Naphthalene		0.011										
		PAHs		0.016										
		Propylenen Oxide		0.212										
		Toluene		0.96										
		Xylenes		0.468										

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet
ADEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (A.A.C. R18-2-101)

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7. Dimensions of nonpoint sources as defined in R18-2-101.

COMPANY NAME & LOCATION Power Development Enterprises, Inc. - Gila Bend Power Generation Station, 35400 West Sisson Road, Gila Bend, AZ 85337

EMISSION SOURCES

Date 08/04/00

Estimated "Potential to Emit" as per Rule 100
Review of applications and Issuance of permits will be expedited by supplying all necessary information on this Table.

REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		CHEMICAL COMPOSITION OF TOTAL STREAM	R. AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. (5)			STACK SOURCES (6)					NONPOINT SOURCES (7)	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME (2)	#/ hr. (3)	TONS/ YEAR (4)	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA DIA. (ft.)	EXIT DATA VEL. (fps.)	EXIT DATA TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
4	Auxiliary Boiler	Nox	3.110			330491	3649569	95	75	2	35.0	450		
		CO	3.950											
		SO2	0.030											
		VOC	0.420											
		PM10	0.260											
		PM	0.260											
		Formaldehyde		0.008										
		Hexane		0.201										
5	Cooling Tower	PM10	0.47			330468	3649691	50	0	30	30	70		
6	Cooling Tower	PM10	0.47			330457	3649691	50	0	30	30	70		

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet
ADEQ STANDARD CONDITIONS ARE 293K AND 101.3 KILOPASCALS (A.A.C. R18-2-101)

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EMISSION SOURCES

Date 08/04/00

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REGULATED AIR POLLUTANT DATA					EMISSION POINT DISCHARGE PARAMETERS									
EMISSION POINT (1)		CHEMICAL COMPOSITION OF TOTAL STREAM	R. AIR POLLUTANT EMISSION RATE		UTM COORDINATES OF EMISSION PT. (5)			STACK SOURCES (6)					NONPOINT SOURCES (7)	
NUMBER	NAME	REGULATED AIR POLLUTANT NAME (2)	#/ hr. (3)	TONS/ YEAR (4)	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA DIA. (ft.)	EXIT DATA VEL. (fps.)	EXIT DATA TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
7	Cooling Tower	PM10	0.470			330446	3649691	50	0	30	30	70		
8	Cooling Tower	PM10	0.470			330435	3649691	50	0	30	30	70		
9	Cooling Tower	PM10	0.470			330424	3649691	50	0	30	30	70		
10	Cooling Tower	PM10	0.470			330413	3649691	50	0	30	30	70		
11	Cooling Tower	PM10	0.470			330468	3649707	50	0	30	30	70		
12	Cooling Tower	PM10	0.470			330457	3649707	50	0	30	30	70		
13	Cooling Tower	PM10	0.470			330446	3649707	50	0	30	30	70		
14	Cooling Tower	PM10	0.470			330435	3649707	50	0	30	30	70		
15	Cooling Tower	PM10	0.470			330424	3649707	50	0	30	30	70		
16	Cooling Tower	PM10	0.470			330413	3649707	50	0	30	30	70		

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 676 feet
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NUMBER	NAME	REGULATED AIR POLLUTANT NAME (2)	#/ hr. (3)	TONS/ YEAR (4)	ZONE	EAST (Mtrs)	NORTH (Mtrs)	HEIGHT ABOVE GROUND (feet)	HEIGHT ABOVE STRUC. (feet)	EXIT DATA DIA. (ft.)	EXIT DATA VEL. (fps.)	EXIT DATA TEMP. (°F)	LENGTH (ft.)	WIDTH (ft.)
17	Diesel Generator	NOx	15.500			330454	3649592	8	2	0.5	130	792		
		CO	3.340											
		SO2	1.030											
		VOC	1.240											
		PM10	1.100											
18	Diesel Fire Pump	NOx	12.400			330500	3649638	8	2	0.5	65	792		
		CO	2.670											
		SO2	0.820											
		VOC	0.990											
		PM10	0.880											

GROUND ELEVATION OF FACILITY ABOVE MEAN SEA LEVEL 678 feet
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7. Dimensions of nonpoint sources as defined in R18-2-101.

2.1 SOURCE DESIGNATION

The Facility is a new major source of air pollutant because it is a categorical source and emits more than 100 tons per year of criteria pollutants. The Facility will utilize combined cycle gas turbines of more than 250 million BTU per hour rated heat input, which is a category source. In addition, emissions from the Facility will be more than 100 tons per year for NOx, CO and PM10.

2.2 AREA CLASSIFICATIONS

The proposed location of the Facility is currently in an attainment area for all criteria pollutants.

2.3 BASELINE DATES

2.3.1 Major Source Baseline Date

Major source baseline date for PM_{10}, SO2 and NO2 are listed in Table 2-1.

2.3.2 Trigger Date

Trigger date for PM_{10}, SO2 and NO2 are listed in Table 2-1.

2.3.3 Minor Source Baseline Date

Minor source baseline date for PM, SO2 and NO2 are listed in Table 2-1.

TABLE 2-1 BASELINE DATES			
Pollutants	**Major Source Baseline Date**	**Trigger Date**	**Minor Source Baseline Date**
PM_{10}	**1/6/1975**	**8/7/1977**	**3/3/1980**
SO2	**1/6/1975**	**8/7/1977**	**3/3/1980**
NO2	**2/8/1988**	**2/8/1988**	**1/20/1993**

2.4 BASELINE AREA

The baseline area for the Facility is the Maricopa County Air Quality District.

2.5 INCREMENT CONSUMPTION AND EXPANSION

The PSD increment consumption has begun as the applicable baseline date has already been set. The amount of PSD increment that has been consumed in a PSD area is determined from the emissions increases and decreases which have occurred from sources since the applicable baseline date.

3.1 PRE-APPLICATION AIR QUALITY MONITORING

Based on the significance modeling, the maximum ground-level concentrations will be compared to the PSD *de minimis* monitoring concentrations (pre-application air quality monitoring exemption levels) listed in Table 3-1. If the significance modeling indicates that the resulting concentrations from the proposed emission increase are below the PSD *de minimis* monitoring level, then a waiver from pre-application air quality monitoring will be requested.

TABLE 3-1
PSD *DE MINIMIS* MONITORING LEVELS

Pollutant	Averaging Period	De Minimis Monitoring Concentration (ug/m^3)
SO_2	24-hour	13
PM_{10}	24-hour	10
TSP	24-hour	10
NO2	Annual	14
CO	8-hour	575

3.2 POST-CONSTRUCTION AIR QUALITY MONITORING

The Air Quality Division of the Maricopa County Environmental Services Department may require post-construction monitoring after the PSD application has been thoroughly reviewed. The post-construction monitoring may be required if there is a valid reason, such as (1) when the NAAQS are

threatened, and (2) when there are uncertainties in the databases for modeling.

3.3 METEOROLOGICAL MONITORING

Meteorological data needed for model input as part of the air quality analysis will not be site specific data from on-site monitoring. The meteorological data, which is representative of the atmospheric dispersion and climatological conditions at the Facility site, will be from a nearby meteorological station (Pacificorp Station).

3.4 BACKGROUND CONCENTRATION

It is anticipated that results from the modeling analysis will be below the PSD significance levels for all pollutants, therefore a NAAQS analysis will most likely not be required. However, if a NAAQS analysis is required, Malcolm Pirnie will coordinate with Maricopa County to designate appropriate background concentrations for the analysis.

4.1 SOURCE EMISSIONS INVENTORY

A summary of the emission estimates for the pollutants for which modeling will be performed is presented in Table A-5. The modeling analysis will include an assessment of emissions from the three combustion turbines with heat recovery steam generators while firing three duct burners, three cooling towers and the auxiliary boiler. Other facility emission units including the emergency diesel generator, and diesel fire pump will be included in the modeling analysis for short-term averaging periods (1-hour, 3-hour, and 8-hour) based on their typical operating schedules.

The diesel emergency generator and diesel fire pump will be used on a limited basis in emergency situations. Limited testing of this equipment will also occur periodically.

4.1.1 THE NAAQS INVENTORY

The NAAQS Inventory will be conducted if the Facility's impacts exceed the EPA significant impact levels; thereby requiring a full impact analysis. This inventory will include all nearby sources within a distance from the Facility equal to the Significant Impact Area (SIA) plus 50 kilometers. The sources will be modeled as part of the NAAQS full impact analysis. Once the impact area(s) is determined, Malcolm Pirnie will coordinate with Maricopa County to determine which emissions inventories from stationary sources within the area will be used.

4.1.2 THE INCREMENT INVENTORY

The PSD increment inventory will be prepared if the Facility impacts exceed the EPA significant impact levels; thereby requiring a full impact analysis. The increment inventory will include all PSD sources and any increment-affecting sources within a calculated distance from the Facility equal to the SIA plus 50 kilometers. Malcolm Pirnie will work with Maricopa County to determine which stationary sources to include in the increment inventory for the multi-source analysis.

4.1.3. NONCRITERIA POLLUTANTS INVENTORY

Noncriteria air pollutant emissions data are provided in Table A-2.

APPENDIX TABLE A-1
EMISSIONS SUMMARY TABLE

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

(All emissions based on data obtained by Industrial Power Technology, unless otherwise noted)

Parameters	Single Combustion Turbine								Auxiliary Boiler	Diesel Generator	Diesel Fire Pump	Cooling Towers
Load Condition	Base - 100%			Base - 100%			75%		105%	100%	100%	
Duct Firing	Off	Off	Off	On	On	On	Off	Off	--	--	--	--
Ambient Temperature, F	13	66.3	121	13	66.3	121	13	66.3				
Fuel Type	Natural Gas									Diesel Fuel		
Power Output, kW	181,200	170,600	166,506	181,200	170,600	166,506	135,900	121,200	--	500kW	400 BHP	
Heat Input, (LHV) MMBtu/hr	1,546	1,579	1,671	1,874	1,912	2,027	1,348	1,234	26	5.6	3	
Operating Time, hrs/yr	8,760								8,760	500		8,760
Emissions:												
NOx, ppm	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		--	--	--
NOx, lb/MMBtu	0.0129	0.012	0.0111	0.0132	0.0121	0.0111	0.0123	0.0122	0.12			
Total NOx as NO2, lb/hr	20.0	19.0	18.5	24.7	23.1	22.6	16.5	15.0	3.11	15.5	12.4	
Total NOx as NO2, TPY	87.6	83.2	81.0	108.2	101.1	98.9	72.3	65.7	13.62	3.88	3.1	
CO, lb/MMBtu	0.0328	0.0301	0.0278	0.0373	0.0343	0.0316	0.0301	0.304	0.152	--	--	
Total CO, lb/hr	50.7	47.6	46.5	69.8	65.6	64.0	40.5	37.6	3.95	3.34	2.67	
Total CO, TPY	222.1	208.3	203.5	305.8	287.1	280.5	177.2	164.5	17.3	0.83	0.67	
SO2, lb/MMBtu	0.0026	0.0023	0.0022	0.0026	0.0024	0.0022	0.0023	0.0024	0.001	--	--	--
Total SO2, lb/hr	4.00	3.70	3.65	4.82	4.52	4.41	3.15	2.9	0.03	1.03	0.82	
Total SO2, TPY	17.3	16.2	16	21.1	19.8	19.3	13.8	12.7	0.13	0.26	0.21	
VOC, ppm (methane)	1.4	1.4	1.4	1.4	1.4	1.4	1.4	1.4		--	--	
VOC, lb/MMBtu	0.0019	0.0018	0.0016	0.0058	0.0053	0.0049	0.0017	0.0018	0.016			
Total VOC, lb/hr	2.9	2.8	2.7	10.8	10.2	10.0	2.3	2.2	0.42	1.24	0.99	
Total VOC, TPY	12.8	12.1	11.9	47.3	44.7	43.7	10.2	9.5	1.84	0.31	0.248	
TSP, lb/MMBtu	0.018	0.018	0.017	0.017428	0.017079	0.016113	0.021	0.023	0.0102			
TSP, lb/hr	28.00	28.00	28.00	32.66	32.66	32.66	28.00	28.00	0.26	1.1	0.88	11.14
% that is PM10	100%								100%	100%	100%	50%
Total PM10 Portion, lb/hr	28.00	28.00	28.00	32.66	32.66	32.66	28.00	28.00	0.26	1.1	0.88	5.57
TSP, TPY	122.6	122.6	122.6	143.1	143.1	143.1	122.6	122.6	1.16	0.28	0.22	48.8
PM10 Portion, TPY	122.6	122.6	122.6	143.1	143.1	143.1	122.6	122.6	1.16	0.28	0.22	24.4
Stack Parameters:												
Base Elevation, ft	678											
Site Pressure, psia	14.46											
Height, ft	165								95	--	--	50
Diameter, ft	18								2			30.3
Flow@Base Load, lb/hr	3,718,000	3,506,000	3,437,000	3,733,000	3,520,000	3,451,000	2,967,000	2,766,000	--			
Flow@Base Load, acfm	996,043	926,936	932,656	1,069,301	1,015,505	1,025,460	776,039	706,870	6,597			1,297,919
Exhaust Temp., F	216	205	221	188	191	209	200	183	450			70
Velocity, fps	65.2	60.7	61.1	70	66.5	67.2	50.8	46.3	35			30.0/cell

Note:

(1) Concentration reflects NOx emissions from SCR technology for the CT

(2) Emissions were calculated using drift to circulating water ratio of 0.003% and a TDS of 12,000 ppm. Also calculations are based on a single cooling tower per turbine with 4 cells per coooling tower.

(3) According to AP-42, Chapter 3, all PM emissions for uncontrolled natural gas combustion and diesel industrial engines are considered less than 1 micrometer, and therefore 100% is considered PM10.

(4) Combustion turbine particulate emissions take into account the backend emissions as referred to in the EPA Method 5 testing protocol for combustion turbines.

(5) Emissions are based on firing pipeline quality natural gas.

APPENDIX TABLE A-2
MAXIMUM HAZARDOUS AIR POLLUTANT (HAP) CALCULATIONS

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

				CT Generators (Total)	Duct Burners (Total)	Auxiliary Boiler	Diesel Emergency Generator	Diesel Fire Pump	Facility Total HAPs Emissions
Annual Operation				8,760 hrs/yr	8,760 hrs/yr	8,760 hrs/yr	500 hrs/yr		
Fuel Type				Natural Gas					--
Heat Input (HHV)				1,671 MMBtu/hr	356 MMBtu/hr	26 MMBtu/hr	5.6 MMBtu/hr	3.0 MMBtu/hr	
Number of Units				3	3	1	1	1	
HAPs Emitted	Emission Factors from Natural Gas-Fired Turbines (lb/MMBtu)	Emission Factors from Natural Gas Combustion (lb/MMBtu)	Diesel Engines Uncontrolled Emission Factors (lb/MMBtu)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)	Annual Emissions (TPY)
1,3-Butadiene	4.30E-07	--	3.91E-05	0.009	--	--	trace	trace	0.009
2-Methylnaphthalene	--	2.35E-08	--	--	Trace	Trace	--	--	0.000
Acetaldehyde	4.00E-05	--	7.67E-04	0.878	--	--	0.001	trace	0.879
Acrolein	6.40E-06	--	9.25E-05	0.141	--	--	trace	trace	0.141
Benzene	1.20E-05	2.06E-06	9.33E-04	0.263	0.010	Trace	0.001	trace	0.274
Dichlorobenzene	--	1.18E-06	--	--	0.006	Trace	--	--	0.006
Ethylbenzene	3.20E-05	--	--	0.703	--	--	--	--	0.703
Fluoranthene	--	2.94E-09	--	--	Trace	Trace	--	--	0.000
Fluorene	--	2.75E-09	--	--	Trace	Trace	--	--	0.000
Formaldehyde	7.10E-04	7.35E-05	1.18E-03	15.589	0.344	0.008	0.002	trace	15.943
Hexane	--	1.76E-03	--	--	8.255	0.201	--	--	8.456
Naphthalene	1.30E-06	5.98E-07	8.48E-05	0.029	0.003	Trace	trace	trace	0.031
PAHs	2.20E-06	--	--	0.048	--	--	--	--	0.048
Phenanathrene	--	1.67E-08	--	--	Trace	Trace	--	--	0.000
Propylene	--	--	2.58E-03	--	--	--	0.004	0.002	0.006
Propylene Oxide	2.90E-05	--	--	0.637	--	--	--	--	0.637
Pyrene	--	4.90E-09	--	--	Trace	Trace	--	--	0.000
Toluene	1.30E-04	3.33E-06	4.09E-04	2.854	0.016	Trace	0.001	trace	2.871
TMA	--	--	--	--	--	--	--	--	0.000
Xylenes	6.40E-05	--	2.85E-04	1.405	--	--	trace	trace	1.405
Total				22.557	8.632	0.209	0.008	0.002	31.409

Note:
(1) Emissions factors obtained from the 7/98 AP-42 for Natural Gas Combustion (External Combustion Sources)
(2) Only the significant emission factors were taken from the list of Speciated Organic Compounds.
(3) Emission factor is based on AP-42 Table 3.1-3, Emission Factors for Hazardous Air Pollutants From Natural Gas-Fired Stationary Gas Turbines. 4/2000

Calculation Equation:

Annual Emissions (tpy):
(Heat Input)(Emission Factor)(Hours of Operation)(No. of Units)(ton/2,000 lb)

APPENDIX TABLE A-5
Controlled Estimated
Maximum emission Data Set

GILA BEND POWER GENERATION PROJECT
GILA BEND, ARIZONA

(All emissions based on data obtained by Industrial Power Technology, unless otherwise noted)

Parameters	CTG (Per Unit)	Auxiliary Boiler	Diesel Generator	Diesel Fire Pump	Cooling Tower	Total Facility Annual Emissions
Load Condition	Base -100%	--	--	--	--	--
Duct Firing	On					
Ambient Temperature, F	13.00					
Fuel Type	Natural Gas		No. 2 Fuel Oil			
Power Output, kW	181,200		500 kW	400 BHP		
Heat Input, (LHV) MMBtu/hr	1,874	26	5.6	3		
Operating Time, hrs/yr	8,760	8,760	500		8760	
Emissions:						
NOx, ppm	3.00				--	--
NOx, lb/MMBtu	0.01	0.12				
Total NOx as NO2, lb/hr	24.70	3.11	15.5	12.4		345.2
Total NOx as NO2, TPY	108.2	13.62	3.88	3.1		--
CO, lb/MMBtu	0.04	0.152				936.3
Total CO, lb/hr	69.82	3.95	3.34	2.67		--
Total CO, TPY	305.8	17.3	0.83	0.67		63.8
SO2, lb/MMBtu	0.00	0.001				--
Total SO2, lb/hr	4.82	0.03	1.03	0.82		144.3
Total SO2, TPY	21.1		0.26	0.21		--
VOC, ppm (methane)	1.40	0.13				
VOC, lb/MMBtu	0.01	0.016				
Total VOC, lb/hr	10.80	0.42	1.24	0.99		
Total VOC, TPY	47.3	1.84	0.31	0.248		
TSP, lb/MMBtu	0.02	0.0102				
TSP, lb/hr	32.70	0.26	1.1	0.88	11.44	--
% that is PM10	1.00	100%	100%	100%	50%	
Total PM10 Portion, lb/hr	32.70	0.26	1.1	0.88	5.57	
TSP, TPY	143.10	1.16	0.28	0.22	48.8	577.4
PM10 Portion, TPY	143.10	1.16	0.28	0.22	24.4	504.2
Stack Parameters:						
Base Elevation, ft	678.00					
Site Pressure, psia	14.46					
Height, ft	165.00	95	--	--	50	--
Diameter, ft	18.00	2			30.3	
Flow@Base Load, lb/hr	3,733,000.00	--			--	
Flow@Base Load, acfm	1,069,301.00	6,597			1,297,919	
Exhaust Temp., F	188.00	450			70	
Velocity, fps	70.00	35			30.0/cell	

Note:
(1) Emissions were calculated using drift to circulating water ratio of 0.003% and a TDS of 12,000 ppm.
(2) Total Emissions includes the total emissions for three turbines, three duct burners, three cooling towers, one auxiliary boiler, one diesel generator, and one diesel fire pump.

5.1 REGIONAL TOPOGRAPHY

The proposed facility is located in southwestern Arizona. The site elevation is approximately 670 feet (204 meters) above mean sea level (msl). A review of the United States Geological Survey (USGS) quadrangle map for the area indicates that terrain elevations vary from approximately 610 feet to 720 feet within a 3-kilometer radius of the site. The surrounding terrain at distances greater than 10 kilometers from the site consists of various mountain ranges including the Gila Bend Mountains to the north, the Maricopa Mountains to the northeast, the Sauceda and Sand Tank Mountains to the south, and the Painted Rock Mountains to the west.

Two topographic maps showing areas 2 and 10 kilometers in radius surrounding the proposed site location are provided as Figure 5-1 and 5-2. These maps show applicable wilderness areas, Indian Reservations, and national monuments.

5.1.1 Simple Terrain

The terrain surrounding the proposed facility within a 3-kilometer radius is generally flat with isolated elevated terrain and depressions. The site elevation is approximately 670 feet above mean sea level (msl) and terrain elevations vary from approximately 610 feet to 720 feet within a 3-kilometer radius of the site. This indicates the presence of simple terrain in the general vicinity of the site.

5.1.2 Intermediate Terrain

Intermediate Terrain is discussed in Section 5.1.3 of this protocol.

5.1.3 Complex Terrain

Intermediate and complex terrain is present only at distances greater than 10 kilometers from the site. The ISCST3 modeling analysis will use the complex terrain model, COMPLEX1, to calculate ambient air concentrations in simple, intermediate, and complex terrain in accordance with EPA guidance.

5.2 REGIONAL CLIMATOLOGY

Climate for Gila Bend is typical for Southwestern Arizona, warm and dry. There are more than 300 days of sunshine and only 5.5 inches of rain per year. The average yearly high and low temperatures for the area are 90 °F and 55 °F degrees, respectively. Average yearly relative humidity is 32 %. Average yearly wind speed is 11 mph.

5.3 REGIONAL METEOROLOGY

5.3.1 Surface Meteorology

The ISCST3 model requires the use of hourly surface measurements of wind speed and direction, temperature, mixing heights, and stability in the RAMMET format. For the Gila Bend Power Generation Station site, surface data from Pacificorp Station will be used. This data consists of surface data collected at the Gila Bend Municipal Airport from 1994 - 1995, and upper air (mixing height) data collected at the National Weather Service (NWS) station in Tucson, Arizona from 1994-1995. The Pacificorp surface data was collected for a prospective permitting project. According to the Panda Gila

River PSD/Title V Application, the data were gathered in accordance with the U.S. Environmental Protection Agency *On-Site Meteorological Program Guidance for Regulatory Modeling Applications* (USEPA, 1993a). The meteorological tower was located approximately 7.8 miles east from the proposed Gila Bend Power Generation Station site.

5.3.1.1 Wind Speed and Wind Directions

Pacificorp windrose (1994-1995) showing wind speeds and directions are included at the end of this section. The general wind directions is from the west with the average wind speeds ranging from 2 to 3 meters per second.

5.3.1.2 Stability Class

The following table provides a stability class summary for the Pacificorp Station. The meteorological data for the two-year period indicate that stability class 4 (neutral stability) is the predominant stability class.

STABILITY CLASS SUMMARY – PACIFICORP STATION (1994-1995)

Stability Class *	1	2	3	4	5	6
Frequency, %	9	10	14	33	24	10

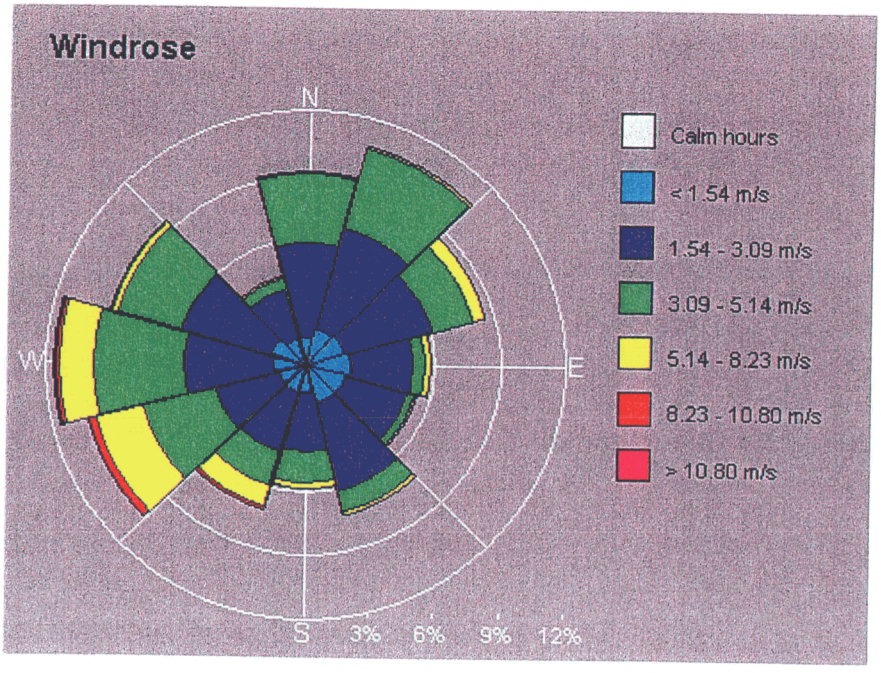
* Stability classes correspond to the following Pasquill-Gifford stability categories:

1 - A (extremely unstable)
2 - B (unstable)
3 - C (slightly unstable)
4 - D (neutral)
5 - E (slightly stable)
6 - F (stable)

5.3.1.3 Data Capture

According to the Panda Gila River PSD/Title V Application, the

Pacificorp Station Windrose (1994-1995)



Pacificorp surface meteorological data capture rate (1994-1995) is greater than 90 percent.

5.3.1.4 Treatment of Calms

The default, "calm wind processing", option will be used for treatment of calms. Section 6.2 (Model Input Defaults/Options) provides detailed information regarding calm wind processing.

5.3.2 Upper Air Data

The upper air (mixing height) data was collected at the NWS station in Tucson, Arizona from 1994 - 1995.

6.1 MODELING SELECTION

The USEPA Guideline on Air Quality Models describes appropriate models and techniques for use in regulatory applications. These models vary depending upon source types, receptor terrain elevations, and averaging times. Model selection is based upon consideration of each of these characteristics for a given project.

For this analysis, the modeling must determine impacts from multiple point sources in simple and complex terrain and for short-term and annual averaging periods. Therefore, the preferred model based on EPA guidance is the most recent version of the Industrial Source Complex model in the Short-Term mode, known as ISCST3 (version 00101).

6.1.1 Screen Modeling

This section is not applicable.

6.1.2 Refined Screen Modeling

The section is not applicable.

6.1.3 Refined Modeling

The ISCST3 model will be used.

6.2 MODEL INPUT DEFAULTS/OPTIONS

The ISCST3 model contains a number of user-specified options. Following USEPA guidance, the "regulatory default" switch will be selected,

which includes buoyancy-induced dispersion, final plume rise, the effects of stack-dip downwash, and calm wind processing. In addition, ISCST3 will employ different dispersion coefficients into the model depending on the land-use classification of the surrounding area. As described in Section 6.3, an analysis was performed which determined that the area around the site was rural; therefore, the rural dispersion coefficients will be selected in the model.

6.3 RURAL/URBAN CLASSIFICATION

6.3.1 Land Use Classification

The proposed plant site is located in a sparsely populated region in Gila Bend, Arizona. The land to the north of the property consists of abandoned agricultural fields and a landing strip. These former cotton fields are now overgrown with Salt Cedars. Native desert borders the property to the south and east. Entrance to the site is from the west on the bordering dirt road. The property across the dirt road is native desert.

6.3.2 Rural vs. Urban

An initial review of USGS topographic maps of the site indicate that the surrounding area is rural. However, for modeling purposes, a detailed land-use classification analysis (suggested by Irwin[1]) will be performed to

[1] J.S. Irwin, *Proposed criteria for Selection of Urban Versus Rural Dispersion Coefficients (Draft Staff Report)*. Meteorology and Assessment Division, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina. Docket Number A-80-46, II-B-8 1978.

determine if the site is considered urban or rural. This criteria is outlined below:

- Classify the land use within a 3-km radius from the proposed facility using the meteorological land-use typing scheme proposed by Auer[2].
- If the land use Types I1, I2, C1, R2, and R3 account for 50 percent or more of the area located within 3 km of the source, the area should be considered urban for modeling purposes. Otherwise, the area should be considered rural.

6.4 RECEPTOR NETWORK

6.4.1 Coarse Receptors

The modeling analysis will be performed with a coarse Cartesian receptor grid extending from the center of the site, with 1-kilometer spacing. The extent of the grid will be based upon the distance to maximum impacts.

6.4.2 Medium Receptors

Although maximum impacts are not expected to occur near to the Facility, a medium Cartesian receptor grid will be modeled. The grid will extend approximately 1 kilometer from the edge of the site fenceline with 200-meter spacing.

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[2] August H. Auer, Jr. "*Correlation of Land Use and Cover with Meteorological*

6.4.3 Fine Receptors

The locations of maximum impacts will be further refined with smaller Cartesian receptor grids centered on the coarse grid or medium grid maximum impact receptor location. The refined receptor grids will extend a minimum of 1 kilometer out from the coarse or medium grid receptor points, at 100-meter spacing.

6.4.4 Tight Receptors

Tight receptors will not be used.

6.4.5 Discrete Receptors

Although maximum impacts are not expected to occur near to the Facility, discrete receptors will be placed along the Facility fenceline at approximately 50-meter spacing.

6.4.6 Class I Receptors

Class I Receptors will not be used since there are no Class I areas within 100 kilometers of the site.

6.4.7 Nonattainment Area Boundary Receptors

Nonattainment area boundary receptors will not be used.

6.5 RECEPTOR ELEVATIONS

Terrain heights for the course and medium grid receptors will be obtained from 1-minute USGS digital elevation maps (DEMs). Terrain

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Anomalies," Journal of Applied Meteorology. 17(5): 636-643 1978.

heights for the fine grid receptors and fenceline receptors will be obtained from 7.5-minute USGS DEMs.

6.6 SOURCE CHARACTERIAZATION

6.6.1 Point Sources

The proposed facility will have the potential to emit VOC, SO_2, NO_x, CO, and PM_{10} from three combustion turbines, three duct burners, auxiliary boiler, three cooling towers, emergency generator, and fire pump. The combustion turbines and duct burners will release emissions to the atmosphere through three separate exhaust stacks. The auxiliary boiler has a single exhaust stack. Each cooling tower has four exhaust stacks. Lastly, the emergency generator and fire pump each has a single exhaust stack.

For conservatism, "worst-case" stack parameters from a modeling perspective will be used to conduct the modeling analysis. To determine the worst case conditions of the combustion turbines, modeling will be performed for each of the operating loads with the respective emission rates and stack parameters. The operating load that generates the highest off-site impact will be used in subsequent analysis. If needed, this analysis will be performed for the duct burners, cooling towers and /or the auxiliary boiler.

6.6.2 Area Sources

This section is not applicable.

6.6.3 Volume Sources

This section is not applicable.

6.6.4 Line Sources

This section is not applicable.

6.6.5 Mobile Sources

This section is not applicable.

6.6.6 Open Pit/Pit Retention

This section is not applicable.

6.6.7 Dry Deposition

This section is not applicable.

6.7 SOURCE LOCATIONS AND PARAMETERS

Source locations and parameters, which includes UTM coordinates of emission points, base elevation, stack height, height above structure, diameters, velocity, temperature, are provided in the Emission Sources Sheets in Section 1 of this protocol.

6.8 BUILDING WAKE DOWNWASH AND GEP

The ISCST3 model has the ability to include the effects of building wakes on the dispersion of plumes released from facility stacks. A software package using USEPA Building Profile Input Program (BPIP), will be used to determine the potential effects of on-site and nearby structures. The program requires the input of the horizontal, lateral, and vertical extent of

each building, as well as, the source-specific parameters of facility stacks. These data will be used to calculate the predominant building dimensions associated with each emission source at wind directions of every 10 degrees. This output will be used by the ISCST3 model in determining downwash effects on the dispersion of plumes.

7.1 PRELIMINARY ANALYSIS

The preliminary analysis will model potential Facility emissions of SO_2, NO_x, CO and PM_{10}. The results of this preliminary analysis will be compared to Class II significant impact levels. If the impacts are below the levels, then no further analysis is required. If the impacts are above the levels, then a full impact analysis must be performed which includes emissions from the Facility, existing off-site sources and any secondary emissions associated with the Facility.

7.1.1 Preliminary Impact Determination

Facility impacts will be determined within a 50-kilometer radius around the site. If the results are below the significant impact levels than the analysis is complete, and a full impact analysis will not be required.

7.1.2 Sources Within Area of Impact

The modeling analysis will include an assessment of emissions from the three combustion turbines with heat recovery steam generators while firing three duct burners, three cooling towers and the auxiliary boiler. In addition, emergency diesel generator and diesel fire pump will be included in the modeling analysis for short-term averaging periods (1-hour, 3-hour, and 8-hour) based on their typical operating schedules.

Section 4.1 (Source Emissions Inventory) provides additional detailed information.

7.1.3 Sources Omitted

All of the major pieces of equipment are included in the modeling analysis. There are not any major pieces of equipment omitted from the source emissions.

7.1.4 Significant Impacts

Results from the preliminary analysis compared to significant ambient impact levels will provide the following information:

- If a full impact analysis is needed,
- Impact area for a full impact analysis is determined,
- If the ambient monitoring data requirement can be waived.

7.2 FULL IMPACT ANALYSIS

A full impact analysis is required for any pollutant for which the Facility's estimated pollutant concentrations exceed prescribed significant ambient impact levels. This analysis expands the preliminary analysis in that it considers emissions from the Facility, existing sources and any secondary emissions associated with the Facility. A full impact analysis is not expected for the Facility at this time.

7.2.1 The NAAQS Analysis

To be performed at a later date if a full impact analysis is required.

7.2.2 The Increment Analysis

To be performed at a later date if a full impact analysis is required.

7.2.3 AAAQG Pollutant Analysis

Since the combustion turbines will operate using natural gas, emissions of hazardous air pollutants (HAP) from the proposed facility are expected to be minimal. A breakdown of individual and total HAP emissions from the proposed facility will be provided in the PSD permit application submittal to Maricopa County. If emissions of any single HAP are above the major source threshold of 10 tons per year, then a HAP assessment will be conducted. As appropriate, modeling results will be compared with Arizona Ambient Air Quality Guidelines to evaluate compliance.

8.1 GROWTH ANALYSIS

Growth analysis for the Facility will be performed only if a full impact analysis is required by Maricopa County. Growth analysis estimates the secondary emissions, which is a projection of the associated industrial, commercial, and residential source growth that will occur within the area due to the Facility. This information is used in a full impact analysis.

8.2 SOILS AND VEGETATION ANALYSIS

Ambient concentrations of criteria pollutants below the secondary national ambient air quality standards will not result in harmful effects for most types of soils and vegetation. If the estimated concentrations exceed the secondary national ambient air quality standards, soils and vegetation analysis will be conducted.

8.3 VISIBILITY IMPAIRMENT ANALYSIS

In the visibility impairment analysis, the Facility is concerned with impacts that occur within the area affected by the estimated emissions. Components of a visibility impairment analysis are:

- a determination of the visual quality of the area;
- an initial screening of emission sources to assess the possibility of visibility impairment; and
- if warranted, a more in-depth analysis involving computer models.

8.3.1 Level One Screening

The level 1 visibility screening analysis is a series of conservative calculations designed to identify those emission sources that have an unlikely potential of adversely affecting visibility. The VISCEEN model is proposed for this first level screening analysis. Calculated values relating source emissions to visibility impacts are compared to a standardized screening value. Those sources with calculated values greater than the screening cirteria are said to have potential visibility impairments. If potential visibility impairments are indicated, then the Level 2 analysis is required.

8.3.2 Level Two Screening

Level two screening will be conducted only if required by Maricopa County.

8.3.3 Level Three Screening

Level three screening will be conducted only if required by Maricopa County.

8.4 CONCLUSIONS

Only a Level 1 visibility screening is proposed for additional impact analysis at this time. Level 2 and 3 screening will be conducted as they become required by Maricopa County.

There is not a plan to conduct growth analysis or soils and vegetation analysis. A growth analysis will be conducted if a full impact analysis

becomes necessary. A soils and vegetation analysis will be conducted if the estimated criteria pollutant concentrations exceed the secondary NAAQs.

SECTION 9.0
CLASS I IMPACT ANALYSIS

The PSD program provides for extra protection for pristine areas of the United States, such as national parks, forests, and wildlife refuges. These areas (Class I Areas) have lower ambient air quality thresholds with respect to significance levels and allowable impacts. A Class I Area impact analysis is conducted to predict ambient impacts at Class I Areas located near a proposed facility. Because there are no Class I Areas within 100 kilometers of the proposed Facility site, a Class I Area impact analysis will not be completed. However, the Federal Land Manager (FLM) may require that additional analyses be completed to address impacts at nearby Class II Wilderness Areas located within 50 kilometers of the site. If necessary, these analyses will be completed based on future discussions and negotiations with the FLM and Maricopa County.

SECTION 10.0
REFERENCES

References were provided throughout this protocol.

SECTION 11.0
APPENDICES

A completed ADEQ Air Quality Permit Application – Refined Modeling Protocol Checklist is attached as an Appendix.

ADEQ Air Quality Permit Application – Refined Modeling Protocol Checklist

Is the Requirement Sufficiently Addressed? (✓ one)			Refined Modeling Protocol Comments (Headings and Chapters should be labeled as follows:)
Yes	No	N/A	
✓			Executive Summary
✓			ADEQ Completeness Checklist
			1.0 Introduction
✓			1.1 Site Description
✓			1.2 Project Description
✓			1.3 Application Forms
			2.0 Regulatory Status
✓			2.1 Source Designation
✓			2.2 Area Classifications
✓			2.3 Baseline Dates
✓			2.3.1 Major Source Baseline Date
✓			2.3.2 Trigger Date
✓			2.3.3 Minor Source Baseline Date
✓			2.4 Baseline Area
✓			2.5 Increment Consumption and Expansion
			3.0 Ambient Data Requirements
✓			3.1 Pre-Application Air Quality Monitoring
✓			3.2 Post-Construction Air Quality Monitoring
✓			3.3 Meteorological Monitoring
✓			3.4 Background Concentrations
			4.0 Emissions Inventory
✓			4.1 Source Emissions Inventory
✓			4.1.1 The NAASQ Inventory
✓			4.1.2 The Increment Inventory
✓			4.1.3 Noncriteria Pollutants Inventory

ADEQ Air Quality Permit Application – Refined Modeling Protocol Checklist

			5.0 Topography, Climatology, and Meteorology
✓			5.1 Regional Topography
✓			5.1.1 Simple Terrain
✓			5.1.2 Intermediate Terrain
✓			5.1.3 Complex Terrain
✓			5.2 Regional Climatology
✓			5.3 Regional Meteorology
✓			5.3.1 Surface Meteorology
✓			5.3.1.1 Wind Speed and wind Direction
✓			5.3.1.2 Stability Class
✓			5.3.1.3 Data Capture
✓			5.3.1.4 Treatment of Calms
✓			5.3.2 Upper Air Data
			6.0 Modeling Analysis Design
✓			6.1 Modeling Selection
		✓	6.1.1 Screen Modeling
✓			6.1.2 Refined Screen Modeling
		✓	6.1.3 Refined Modeling
✓			6.2 Model Input Defaults/Options
✓			6.3 Rural/Urban Classification
✓			6.3.1 Land Use Classification
✓			6.3.2 Rural Vs Urban
✓			6.4 Receptor Network
✓			6.4.1 Coarse Receptors
		✓	6.4.2 Medium Receptors
✓			6.4.3 Fine Receptors
		✓	6.4.4 Tight Receptors
✓			6.4.5 Discrete Receptors

ADEQ Air Quality Permit Application – Refined Modeling Protocol Checklist

		✓	6.4.6 Class I Receptors
		✓	6.4.7 Nonattainment Area Boundary Receptors
✓			6.5 Receptor Elevations
✓			6.6 Source Characterization
✓			6.6.1 Point Sources
		✓	6.6.2 Area Sources
		✓	6.6.3 Volume Sources
		✓	6.6.4 Line Sources
		✓	6.6.5 Mobile Sources
		✓	6.6.6 Open Pit/Pit Retention
		✓	6.6.7 Dry Deposition
✓			6.7 Source Locations and Parameters
✓			6.8 Building Wake Downwash and GEP
			7.0 Dispersion Modeling Impact Analysis
✓			7.1 Preliminary Analysis
✓			7.1.1 Preliminary Impact Determination
✓			7.1.2 Sources Within Area of Impact
✓			7.1.3 Sources Omitted
✓			7.1.4 Significant Impacts
✓			7.2 Full Impact Analysis
✓			7.2.1 The NAAQS Analysis
✓			7.2.2 The Increment Analysis
✓			7.2.3 AAAQG Pollutant Analysis
			8.0 Additional Impact Analysis
✓			8.1 Growth Analysis
✓			8.2 Soils and Vegetation Analysis
✓			8.3 Visibility Impairment Analysis
✓			8.3.1 Level One Screening

ADEQ Air Quality Permit Application – Refined Modeling Protocol Checklist

✓			8.3.2 Level Two Screening
✓			8.3.3 Level Three Screening
✓			8.4 Conclusions
			9.0 Class Impact Analysis
		✓	9.1 Class I Increments
		✓	9.2 Air Quality Related Values
		✓	9.2.1 Flora and Fauna
		✓	9.2.2 Water
		✓	9.2.3 Acid Deposition
		✓	9.3 Visibility Impact Analysis
✓			10.0 References
✓			11.0 Appendices
		✓	Minutes from pre-application meetings
		✓	Copies of all correspondence

2.17 AMBIENT AIR QUALITY ANALYSIS

This section contains a new ambient air quality analysis as a result of equipment changes and modification to equipment locations. In addition, this section contains computer output for the visibility impact modeling analysis. This section supersedes the Reference 7 materials in the Application.

7.1 INTRODUCTION

As a proposed new major source of air pollution to be located in an attainment area, the proposed Gila Bend Power Generation Station (GBPGS) is subject to the Prevention of Significant Deterioration (PSD) regulations prescribed under 40 CFR Part 52.21. As part of the permitting process, the PSD regulations require an assessment of the ambient air quality impacts resulting from the proposed facility's operations. To address these requirements, an air quality analysis has been completed and is described in the sections below.

The proposed GBPGS will be located approximately 70 miles southwest of Phoenix in the town of Gila Bend, Arizona. This area is currently in attainment with all established National Ambient Air Quality Standards (NAAQS). The pollutants emitted by the facility subject to review under the PSD regulations, and for which NAAQS have been established, are nitrogen dioxide (NO_2), carbon monoxide (CO), sulfur dioxide (SO_2), and particulate matter (PM_{10}). Therefore, an air quality analysis was performed for each of these pollutants. Additionally, an analysis was performed for emissions of formaldehyde (HCHO) from the proposed facility to evaluate compliance with Arizona Ambient Air Quality Guidelines (AAAQGs).

A revised modeling protocol dated August 4, 2000 was submitted and approved by the Maricopa County Environmental Services Department, Air Quality Division on September 6, 2000. The revised modeling protocol, as presented in Reference 6 of this Application Addendum No. 1, was developed to outline dispersion modeling procedures in accordance with the Guideline on Air Quality Models (40 CFR 51, Appendix W) and the New Source Review Workshop Manual (USEPA, 1990).

The New Source Review Workshop Manual (USEPA, 1990) describes two levels of modeling analyses required for NSR/PSD applicants: preliminary and

refined. The preliminary analysis (or significance analysis) is conducted to estimate impacts on ambient air quality from the proposed source alone. Results from the preliminary analysis are used to determine if a refined (full impact) analysis is necessary and to then define the significant impact region for the full impact analysis. A full impact analysis is performed for each pollutant that exceeds its PSD significant impact level. The full impact analysis is more complex than the preliminary analysis because it considers the combined impact due to emissions from the proposed source, existing sources in the impact area, and growth (industrial, residential, and commercial) that accompanies the new source.

7.2 CLASS II AREA ANALYSIS

The sections presented below describe the methodology used and summarize the results obtained from the Class II area modeling analysis completed for the proposed GBPGS.

7.2.1 Model Selection

The EPA Guideline on Air Quality Models describes appropriate models and techniques for use in regulatory applications depending upon source types, receptor elevations, and building downwash potential and averaging times. Model selection should be based upon consideration of each of these characteristics for a given project. For the GBPGS, the modeling addresses impacts from point sources in simple and complex terrain and for short-term and annual averaging periods. Therefore, the Industrial Source Complex model in the short-term mode, known as ISCST3 (version 00101) was used as recommended by EPA.

The ISCST3 model requires four basis types of input data including source data, meteorological data, receptor data, and model options. Each type of input data used in the modeling effort is described in the sections below.

7.2.2 Source Data

The GBPGS will consist of three-combined cycle combustion turbine generators (CTGs) with duct burners, one cooling tower, and one auxiliary boiler. The combustion turbine generators, the duct burners, and the auxiliary boiler will be fired exclusively with natural gas. Other emission sources planned for use at the facility include one emergency diesel generator and one diesel fire pump. The emergency diesel generator and diesel fire pump were not included in the modeling analysis since they will be used on a limited basis in emergency situations. A site plan showing the layout of the proposed equipment at the site is presented in Section 1.0 of this Application Addendum No. 1 in Figure 1-2.

The proposed GBPGS will have the potential to emit various criteria air pollutants including NO_x, CO, SO_2, PM_{10}, and also smaller quantities of hazardous air pollutants (HAPs). For purposes of comparison to the PSD significance level and for conservatism, NO_x emissions from the turbines are assumed to convert entirely to NO_2 in the atmosphere. Modeling was performed for each of the four criteria pollutants to identify the maximum predicted concentrations for comparison with established significant impact levels. Also, since potential emissions of formaldehyde from the proposed facility will exceed major HAP source levels (10 tons per year), a modeling analysis was completed to evaluate facility compliance with established AAAQGs for formaldehyde.

Table 7-1 summarizes the source data used for the modeling analysis including stack parameters and emission rates. The stack parameters and emission rates used represent conservative, "worst-case" values from a modeling

TABLE 7-1

MODELING INPUT DATA

GILA BEND POWER GENERATION STATION
GILA BEND, ARIZONA

Stack Parameters & Emission Rates	Combustion Turbine (3 units) NOx, CO, SO2	Combustion Turbine (3 units) PM10	Combustion Turbine (3 units) HCHO	Cooling Tower (1 unit, 12 cells)	Auxiliary Boiler (1 unit)
Stack Height, ft	165	165	165	50	95
Stack Diameter, ft	18	18	18	30	2
Temperature (deg. F)	188	183	209[1] 183[2]	70	450
Exit Velocity (ft/s)	70	46.3	67.2[1] 46.3[2]	30	35

	EMISSION RATES PER UNIT (LB/HR)		
POLLUTANT	Combustion Turbine (3 units)	Cooling Towers (1 unit, 12 cells)	Auxiliary Boiler (1 unit)
CO	69.8	NA	3.95
NO_x	24.7	NA	3.11
SO_2	4.8	NA	0.03
PM_{10}	28	2.07	0.26
HCHO	1.2[1] 0.88[2]	NA	0.002

Notes:
1. "Worst-case" formaldehyde stack temperature, stack exit velocity, and emission rate for the 1-hour significance analysis.
2. "Worst-case" formaldehyde stack temperature, stack exit velocity, and emission rate for the 24-hour and the annual significance analyses.

perspective considering all proposed operating load conditions. The stack parameters and emission rates for the "worst-case" condition are based on turbine performance values for different ambient air temperatures. A screening analysis was conducted to determine the "worst-case" load/temperature scenario using both years of meteorological data for each pollutant.

7.2.3 Meteorological Data

Based on guidance from the Department and USEPA Region IX, the meteorological data, which is representative of the atmospheric dispersion and climatological conditions at the facility site, is from a nearby meteorological station (Pacificorp station). This data consists of surface data collected at the Gila Bend Municipal Airport from 1994 -1995, and upper air (mixing height) data collected at the National Weather Service (NWS) Station in Tucson, Arizona from 1994 - 1995. According to the Panda Gila River PSD/Title V Application, the data were gathered in accordance with the U.S. Environmental Protection Agency *On Site Meteorological Program Guidance for Regulatory Modeling Applications* (USEPA 1993a). The meteorological tower was located approximately 7.8 miles east from the proposed Gila Bend Power Generation Site.

7.2.4 Receptor Data

Coarse, medium, and fine Cartesian receptor grids were used to complete the Class II area impact analysis. To define the receptor grid size, an initial analysis was performed using a coarse grid and a medium grid. The coarse grid extended out 20 kilometers in each direction from the proposed site location with receptor spacing of 1 kilometer. The medium grid extended out 3 kilometers in each direction from the proposed site location with receptor spacing of 200 meters. Terrain elevations were derived from 7.5-minute United States

Geological Survey (USGS) digital elevation models (DEMs) for Gila Bend, Smurr, Theba, Cotton Center, Citrus Valley East, and Citrus Valley West, Arizona. Two years of meteorological data from the Pacificorp station (Gila Bend Municipal Airport) was used in this analysis (as discussed above in Section 7.2.3). The results obtained from the initial analysis indicate that maximum impacts occur either at the facility's fenceline or within 10 kilometers from the site.

Based on results from the initial coarse grid and medium grid analysis and to ensure that the locations of maximum impacts were identified, fine grids (minigrids) were added to the model setup. The minigrids centered on coarse grid or medium grid maximum impact receptor locations. If the location of maximum impact was located in the coarse grid, the minigrid extended out 1 kilometer in each direction from the point of maximum impact. If the location of the maximum impact was located in the medium grid, the minigrid extended out 200 meters in each direction from the point of maximum impact. Receptor spacing of 100 meters was used for all minigrid receptors. Similar to the coarse grid and medium grid set-up, terrain elevations for the minigrid receptors were derived from 7.5-minute USGS DEMs for Gila Bend, Smurr, Theba, Cotton Center, Citrus Valley East, and Citrus Valley West, Arizona. In addition to the grids discussed above, discrete receptors were placed along the proposed facility's fenceline using 50-meter spacing. The terrain elevations for the fenceline receptors were also derived from the 7.5-minute USGS DEMs for Gila Bend, Smurr, Theba, Cotton Center, Citrys Valley East, and Citrus Valley West, Arizona.

The results from the coarse, medium, and fine grid analyses indicate that all maximum predicted impacts occur within 1.2-kilometers of the proposed site location with the exception of 1-hour impacts from CO and formaldehyde, and 3-hour impacts from SO_2. These impacts are predicted to occur at receptors located within 10 kilometers of the site.

7.2.5 Model Control Options/BPIP Analysis

The ISCST3 model contains certain user-specified options. Following USEPA guidance, the regulatory-default options were selected by not selecting the user-specified options. These default options include buoyancy-induced dispersion, final plume rise, the effects of stack-dip downwash, and calm wind processing. The switch for "missing data processing" was selected since site specific meteorological data was used which had some data missing. According to the Panda Gila River PSD/Title V Application, the Pacificorp surface meteorological data capture rate (1994-1995) is greater than 90 percent.

The proposed plant site (as shown in Section 1.0, Figure 1-1 of this Application Addendum No. 1) is located in Gila Bend, Arizona. This area in southwestern Arizona (70 miles southwest of Phoenix) is a sparsely populated rural area with fallow agricultural land covering the majority of the area in the vicinity of the site. Since the area around the proposed site is predominantly rural, the rural option was selected for the modeling.

The ISCST3 model also has the ability to include effects of building wakes on the dispersion of plumes released from exhaust stacks using the Building Profile Input Program (BPIP) (USEPA, 1993). BPIP incorporates building downwash guidance into a computer program that calculates building heights (BH) and projected building widths (PBW). When an emission source height is less than the Good Engineering Practice (GEP) stack height and the source is located within a region of building influence, direction-specific building dimensions are included in the modeling analysis for calculating wake and downwash concentrations. Since the proposed stack heights are below GEP stack heights, an analysis of building downwash and wake effects was conducted.

To determine whether potential building downwash effects might occur, the combustion turbines and other structures to be located at the site were evaluated. All structures of sufficient size (heights greater than or equal to 40 percent of the stack heights) were incorporated into the model. BPIP was utilized to determine the direction-specific downwash data, which were then included as part of the ISCST3 modeling.

7.2.6 Cavity Analysis

A cavity effect analysis was performed for the GBPGS using the EPA-approved SCREEN3 model. Dimensions of the on-site structures were input into the SCREEN3 model to obtain cavity heights and cavity distances. Then, emission stacks with heights below the predicted cavity heights and located within the cavity zones were identified and SCREEN3 was used to determine cavity effects for these stacks. Results from the cavity analysis indicate that cavity effects will not occur beyond the fenceline. Therefore, cavity effect concentration values were not considered in determining maximum impacts for the proposed facility.

7.2.7 Class II Area Analysis Results

A Class II area preliminary modeling analysis was completed to determine maximum facility impacts on ambient air quality for comparison with the established PSD significance levels. Coarse, medium, and fine grid model runs were executed to identify the maximum impacts for all pollutants and averaging periods considering two years of meteorological data.

Table 7-2 presents a summary of the maximum impacts for the GBPGS along with the PSD significance level for each pollutant of concern. Detailed results tables for each pollutant, averaging period, and years examined are

TABLE 7-2

CLASS II AREA MODELING ANALYSIS RESULTS

GILA BEND POWER GENERATION STATION
GILA BEND, ARIZONA

POLLUTANT	AVERAGING PERIOD	MAXIMUM PREDICTED IMPACT ($\mu g/m^3$)	PSD CLASS II AREA SIGNIFICANCE LEVEL ($\mu g/m^3$)
NO_2	Annual	0.49	1
CO	8-hr	16.3	500
	1-hr	40.7	2000
SO_2	Annual	0.042	1
	24-hr	0.35	5
	3-hr	2.00	25
PM_{10}	Annual	0.43	1
	24-hr	5.17	5

included in Appendix F. As shown in Table 7-2, the maximum predicted impacts are below the PSD significance levels for all pollutants and averaging periods of concern. Therefore, a full impact modeling analysis is not required in accordance with PSD modeling guidance.

An analysis was also completed to evaluate compliance with AAAQGs established for formaldehyde based on three averaging periods. As shown in Table 7-3, maximum predicted impacts are below the AAAQGs for each averaging period.

7.3 CLASS I AREA IMPACT ANALYSIS

The PSD program provides for extra protection for pristine areas of the United States, such as national parks, forests, and wildlife refuges. These areas are designated as Class I areas, and have lower ambient air thresholds with respect to significance and allowable impacts. Criteria have been proposed for SO_2, PM_{10}, and NO_x within Class I areas. Since there are no Class I Areas within 100 kilometers of the proposed site location, a Class I Area impact analysis was not performed.

7.4 AIR QUALITY ANALYSIS SUMMARY

An air quality analysis was performed for the proposed GBPGS in accordance with the modeling protocol approved by Maricopa County. The analysis involved determining maximum impacts on ambient air quality from emissions of NO_x, CO, SO_2, PM_{10}, and formaldehyde based on the operation of three combined cycle combustion turbines with duct burners, one cooling tower, and one auxiliary boiler at the proposed facility. Maximum predicted impacts were determined using the ISCST3 model. The maximum predicted impacts were compared with applicable PSD significance levels for criteria pollutants and

TABLE 7-3

FORMALDEHYDE MODELING ANALYSIS RESULTS

GILA BEND POWER GENERATION STATION
GILA BEND, ARIZONA

POLLUTANT	AVERAGING PERIOD	MAXIMUM PREDICTED IMPACT ($\mu g/m^3$)	ARIZONA AAQ GUIDELINE ($\mu g/m^3$)
Formaldehyde (HCHO)	Annual	0.012	0.08
	24-hr	0.092	12
	1-hr	0.676	20

established AAAQGs for formaldehyde. For all pollutants of concern, the maximum predicted impacts are below the applicable significance levels and standards. Therefore, the analyses demonstrate that the GBPGS will comply with all applicable air quality standards.

APPENDIX F

AIR QUALITY ANALYSIS - ADDITIONAL INFORMATION

Included in this appendix to Section 6.0 (Air Quality Analysis) are the following:

1) Modeling Input Table for the Class II Analysis

2) Results Tables for the Class II Area Analysis

3) List of Modeling Analysis Disk Contents

SUMMARY OF EMISSION RATES, STACK PARAMETERS, & BUILDING DIMENSIONS

ISC Dispersion Modeling Analysis for Gila Bend Power Generation Project

Emission Source	Pollutant Emission Rate Per Unit (lb/hr)					
	Nitrogen Oxides	Carbon Monoxide	Sulfur Dioxide	Formaldehyde (HCHO)	Particulate (PM10)	Total Particulate (TSP)
Combined Cycle CT Generator (3 units)	24.7	69.8	4.8	1.2[1] 0.88[2]	28[3]	28[3]
Auxiliary Boiler (1 unit)	3.11	3.95	0.03	0.002	0.26	0.26
Cooling Tower (1 unit)	NA[4]	NA[4]	NA[4]	NA[4]	2.07	1.36

Notes:

1. This is the formaldehyde emission rate used for the 1-hour significance analysis based on "worst-case" base load model runs.
2. This is the formaldehyde emission rate used for the 24-hour and annual significance analyses based on "worst-case" base load model runs.
3. This is the emission rate used in the modeling analysis based on the "worst-case" base load model runs and is not necessarily the maximum emission rate.
4. NA = Not Applicable.

Emission Source	Base Elevation (feet)	Stack Height (feet)	Stack Temperature (deg. F)	Stack Exit Velocity (feet/sec)	Stack Diameter (feet)
Combined Cycle CT Generator (3)					
NOx	678	165	188	70	18
CO	678	165	188	70	18
SO2	678	165	188	70	18
HCHO	678	165	209[1] 183[2]	67.2[1] 46.3[2]	18
PM10	678	165	183	46.3	18
Auxiliary Boiler (1)	678	95	450	35	2.0
Cooling Towers (1 unit, 12 cells)	678	50	70	30	30

Notes:

1. This is the stack temperature and stack exit velocity used for the 1-hour significance analysis based on "worst-case" base load model runs.
2. This is the stack temperature and stack exit velocity used for the 24-hour and annual significance analyses based on "worst-case" base load model runs.

Structure	Base Elevation (feet)	Maximum Height (feet)	Maximum Length (m)	Maximum Width (m)	Radius (feet)
Combined Cycle CT Generator (3)	678	55	72	18.3	--
Aux. Boiler Bldg.	678	20	15	7	--
Control Bldg.	678	20	19	13	--
Emergency Generator Building	678	15	10	4	--
Cooling Tower	678	50	71	37.9	--
Steam Generator #1	678	30	39	19.1	--
Water Treatment Building	678	20	37.9	15	--
Water Storage Tank #1	678	40	--	--	35
Water Storage Tank #2	678	40	--	--	35
Supply/Maintenance Building	678	30	36.2	22	--
Administration Building	678	25	28	11	--

SUMMARY OF MODELED CONCENTRATIONS

ISC3 Dispersion Modeling Analysis for Gila Bend Power Generation Project

Met Data Year	1994	1995	Significance Level
NOx			
Annual	0.43	**0.49**	*1*
CO			
8-hr	12.1	**16.3**	*500*
1-hr	**40.7**	39.5	*2000*
SO_2			
Annual	0.040	**0.042**	*1*
24-hr	0.34	**0.35**	*5*
3-hr	1.64	**2.00**	*25*
PM_{10}			
Annual	0.42	**0.43**	*1*
24-hr	3.73	**5.17**	*5*
HCHO*			
Annual	0.011	**0.012**	*0.08*
24-hr	0.090	**0.092**	*12*
1-hr	0.673	**0.676**	*20*

Note:
* All concentrations are in ug/m^3.
** Bold concentrations represent the maximum concentration for that averaging period.

09/25/2000

MODELING ANALYSIS DISK CONTENTS

PSD PERMIT APPLICATION - AIR QUALITY ANALYSIS
GILA BEND POWER GENERATION STATION

The enclosed modeling analysis compact disk contains the following folders and files:

1. **Bpip folder**

   Files (4): bpi, bpo, dat, & wak

2. **DEMs folder**

   - 7.5-minute degree subfolder
     Files (6): 32112h6.dem, 32112h7.dem, 32112h8.dem, 33112a6.dem, 33112a7.dem, & 33112a8.dem

3. **Metdata folder**

   Files (2): Panmet94.asc and Panmet95.asc

4. **Turbtest folder (Combined Cycle CT Generators "worst-case" base load condition model runs**

   Folders (5): COtest, HCHOtest, NOxtest, PMtest, & SO2test

   Files: dat and lst files for 8 separate load conditions for 1994 and 1995 met data. Some bpi, bpo, and wak files are also included.

5. **Psdsig folder (class II area modeling analysis)**

   Folders (5): CO, HCHO, NOx, PM, & SO2

   Files (lst and dat files set up with coarse grid and medium grid receptors)
   Example: *<pollutant name>_<metdata year>*.lst & .dat

   Files (lst and dat files with minigrid receptors set up around maximum impact locations)
   Example: *<pollutant name>_<metdata yearmg>*.lst &.dat

Visual Effects Screening Analysis for
Source: GBPGS
Class I Area: North Maricopa Mtn Wilde

*** User-selected Screening Scenario Results ***

Input Emissions for

Particulates	100.28	LB /HR
NOx (as NO2)	77.21	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

PARTICLE CHARACTERISTICS

	Density	Diameter
Primary Part.	2.5	6
Soot	2.0	1
Sulfate	1.5	4

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	225.00 km
Source-Observer Distance:	18.50 km
Min. Source-Class I Distance:	18.50 km
Max. Source-Class I Distance:	36.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	1.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	157.	36.0	11.	2.00	26.177*	.05	.620*
SKY	140.	157.	36.0	11.	2.00	6.344*	.05	-.201*
TERRAIN	10.	84.	18.5	84.	2.00	33.120*	.05	.230*
TERRAIN	140.	84.	18.5	84.	2.00	2.248*	.05	.019

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	1.	1.0	168.	2.00	59.881*	.05	1.794*
SKY	140.	1.	1.0	168.	2.00	18.966*	.05	-.513*
TERRAIN	10.	1.	1.0	168.	2.00	59.128*	.05	.691*
TERRAIN	140.	1.	1.0	168.	2.00	25.054*	.05	.504*

Visual Effects Screening Analysis for
Source: GBPGS
Class I Area: Signal Mountain Wilderne

*** User-selected Screening Scenario Results ***

Input Emissions for

Particulates	100.28	LB /HR
NOx (as NO2)	77.21	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

PARTICLE CHARACTERISTICS

	Density	Diameter
Primary Part.	2.5	6
Soot	2.0	1
Sulfate	1.5	4

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	225.00 km
Source-Observer Distance:	25.00 km
Min. Source-Class I Distance:	25.00 km
Max. Source-Class I Distance:	31.00 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	2.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	132.	31.0	37.	2.00	6.893*	.05	.149*
SKY	140.	132.	31.0	37.	2.00	1.651	.05	-.048
TERRAIN	10.	84.	25.0	84.	2.00	16.976*	.05	.112*
TERRAIN	140.	84.	25.0	84.	2.00	.880	.05	.009

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	0.	1.0	168.	2.00	43.706*	.05	1.154*
SKY	140.	0.	1.0	168.	2.00	11.505*	.05	-.336*
TERRAIN	10.	0.	1.0	168.	2.00	46.869*	.05	.538*
TERRAIN	140.	0.	1.0	168.	2.00	14.197*	.05	.280*

Visual Effects Screening Analysis for
Source: GBPGS
Class I Area: South Maricopa Mtn Wilde

*** User-selected Screening Scenario Results ***

Input Emissions for

Particulates	100.28	LB /HR
NOx (as NO2)	77.21	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

PARTICLE CHARACTERISTICS

	Density	Diameter
Primary Part.	2.5	6
Soot	2.0	1
Sulfate	1.5	4

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	225.00 km
Source-Observer Distance:	27.50 km
Min. Source-Class I Distance:	27.50 km
Max. Source-Class I Distance:	47.00 km
Plume-Source-Observer Angle:	11.25 degrees

Stability: 6
Wind Speed: 2.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	154.	47.0	15.	2.00	11.149*	.05	.239*
SKY	140.	154.	47.0	15.	2.00	2.338*	.05	-.078*
TERRAIN	10.	84.	27.5	84.	2.00	15.695*	.05	.107*
TERRAIN	140.	84.	27.5	84.	2.00	.813	.05	.009

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	0.	1.0	168.	2.00	42.780*	.05	1.107*
SKY	140.	0.	1.0	168.	2.00	11.138*	.05	-.322*
TERRAIN	10.	0.	1.0	168.	2.00	44.544*	.05	.513*
TERRAIN	140.	0.	1.0	168.	2.00	13.714*	.05	.276*

Visual Effects Screening Analysis for
Source: GBPGS
Class I Area: Woolsey Peak Wilderness

*** User-selected Screening Scenario Results ***

Input Emissions for

Particulates	100.28	LB /HR
NOx (as NO2)	77.21	LB /HR
Primary NO2	.00	LB /HR
Soot	.00	LB /HR
Primary SO4	.00	LB /HR

PARTICLE CHARACTERISTICS

	Density	Diameter
Primary Part.	2.5	6
Soot	2.0	1
Sulfate	1.5	4

Transport Scenario Specifications:

Background Ozone:	.04 ppm
Background Visual Range:	225.00 km
Source-Observer Distance:	11.50 km
Min. Source-Class I Distance:	11.50 km
Max. Source-Class I Distance:	25.50 km
Plume-Source-Observer Angle:	11.25 degrees
Stability:	6
Wind Speed:	2.00 m/s

R E S U L T S

Asterisks (*) indicate plume impacts that exceed screening criteria

Maximum Visual Impacts INSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	160.	25.5	9.	2.00	21.074*	.05	.494*
SKY	140.	160.	25.5	9.	2.00	5.151*	.05	-.160*
TERRAIN	10.	160.	25.5	9.	2.00	40.537*	.05	.386*
TERRAIN	140.	160.	25.5	9.	2.00	5.724*	.05	.080*

Maximum Visual Impacts OUTSIDE Class I Area
Screening Criteria ARE Exceeded

					Delta E		Contrast	
Backgrnd	Theta	Azi	Distance	Alpha	Crit	Plume	Crit	Plume
SKY	10.	1.	1.0	168.	2.00	49.715*	.05	1.417*
SKY	140.	1.	1.0	168.	2.00	14.072*	.05	-.412*
TERRAIN	10.	1.	1.0	168.	2.00	64.485*	.05	.690*
TERRAIN	140.	1.	1.0	168.	2.00	17.823*	.05	.267*

Woolsey Peak

Dispersion Condition (stability, windspeed)	OyOzU (m3/s)	Transport Time (hrs)	Time of Day (percent)							
			0-6		6-12		12-18		18-24	
			f	cf	f	cf	f	cf	f	cf
F,1	7.39E+03	6.39	0.57%	0.57%	0.00%	0.00%	0.00%	0.00%	0.21%	0.21%
E,1	1.91E+04	6.39	0.12%	0.69%	0.05%	0.05%	0.00%	0.00%	0.17%	0.38%
F,2	2.22E+04	2.13	0.38%	1.08%	0.02%	0.07%	0.00%	0.00%	0.14%	0.52%
F,3	3.70E+04	1.28	0.02%	1.10%	0.00%	0.07%	0.00%	0.00%	0.02%	0.55%
D,1	4.41E+04	6.39	0.02%	1.13%	0.10%	0.17%	0.00%	0.00%	0.05%	0.59%
E,2	5.72E+04	2.13	0.38%	1.51%	0.02%	0.19%	0.05%	0.05%	0.14%	0.74%
E,3	9.54E+04	1.28	0.02%	1.53%	0.00%	0.19%	0.05%	0.09%	0.02%	0.76%
D,2	1.32E+05	2.13	0.02%	1.56%	0.05%	0.24%	0.07%	0.17%	0.21%	0.98%
D,3	2.20E+05	1.28	0.02%	1.58%	0.12%	0.36%	0.33%	0.50%	0.19%	1.17%
C,1	2.60E+05	6.39	0.02%	1.60%	0.26%	0.62%	0.07%	0.57%	0.07%	1.24%
D,4	3.08E+05	0.91	0.02%	1.63%	0.02%	0.65%	0.24%	0.81%	0.12%	1.36%
C,2	7.80E+05	2.13	0.00%	1.63%	0.67%	1.32%	0.38%	1.19%	0.07%	1.43%

Signal Mountain

Dispersion Condition (stability, windspeed)	OyOzU (m3/s)	Transport Time (hrs)	Time of Day (percent)							
			0-6		6-12		12-18		18-24	
			f	cf	f	cf	f	cf	f	cf
F,1	2.03E+04	13.89	0.57%	0.00%	0.00%	0.00%	0.00%	0.00%	0.21%	0.00%
E,1	5.45E+04	13.89	0.12%	0.00%	0.05%	0.00%	0.00%	0.00%	0.17%	0.00%
F,2	6.09E+04	4.63	0.38%	0.38%	0.02%	0.02%	0.00%	0.00%	0.14%	0.14%
F,3	1.01E+05	2.78	0.02%	0.41%	0.00%	0.02%	0.00%	0.00%	0.02%	0.17%
D,1	1.36E+05	13.89	0.02%	0.41%	0.10%	0.02%	0.00%	0.00%	0.05%	0.17%
E,2	1.63E+05	4.63	0.38%	0.79%	0.02%	0.05%	0.05%	0.05%	0.14%	0.31%
E,3	2.72E+05	2.78	0.02%	0.81%	0.00%	0.05%	0.05%	0.09%	0.02%	0.33%
D,2	4.07E+05	4.63	0.02%	0.84%	0.05%	0.10%	0.07%	0.17%	0.21%	0.55%
D,3	6.79E+05	2.78	0.02%	0.86%	0.12%	0.22%	0.33%	0.50%	0.19%	0.74%
C,1	1.05E+06	13.89	0.02%	0.86%	0.26%	0.22%	0.07%	0.50%	0.07%	0.74%
D,4	9.51E+05	1.98	0.02%	0.89%	0.02%	0.24%	0.24%	0.73%	0.12%	0.86%
C,2	3.15E+06	4.63	0.00%	0.89%	0.67%	0.91%	0.38%	1.11%	0.07%	0.93%

North Maricopa Mountain

Dispersion Condition (stability, windspeed)	OyOzU (m3/s)	Transport Time (hrs)	Time of Day (percent)							
			0-6		6-12		12-18		18-24	
			f	cf	f	cf	f	cf	f	cf
F,1	1.35E+04	10.28	0.93%	0.93%	0.02%	0.02%	0.00%	0.00%	0.29%	0.29%
E,1	3.63E+04	10.28	0.74%	1.68%	0.12%	0.14%	0.00%	0.00%	0.21%	0.50%
F,2	4.04E+04	3.43	1.10%	2.78%	0.02%	0.17%	0.00%	0.00%	0.52%	1.02%
F,3	6.74E+04	2.06	0.22%	2.99%	0.02%	0.19%	0.00%	0.00%	0.07%	1.09%
D,1	8.79E+04	10.28	0.12%	3.11%	0.17%	0.36%	0.00%	0.00%	0.10%	1.19%
E,2	1.09E+05	3.43	1.72%	4.84%	0.74%	1.10%	0.02%	0.02%	0.79%	1.97%
E,3	1.81E+05	2.06	2.49%	7.33%	0.69%	1.80%	0.07%	0.09%	0.88%	2.86%
E,4	2.54E+05	1.47	0.74%	8.07%	0.45%	2.25%	0.00%	0.09%	0.26%	3.12%
D,2	2.64E+05	3.43	0.74%	8.81%	0.02%	2.27%	0.02%	0.12%	0.43%	3.55%
E,5	3.27E+05	1.14	0.14%	8.96%	0.19%	2.47%	0.00%	0.12%	0.07%	3.62%
D,3	4.39E+05	2.06	0.98%	9.94%	0.67%	3.14%	0.14%	0.26%	0.90%	4.52%
E,6	4.72E+05	0.79	0.02%	9.96%	0.12%	3.26%	0.00%	0.26%	0.00%	4.52%

South Maricopa Mountain

Dispersion Condition (stability, windspeed)	OyOzU (m3/s)	Transport Time (hrs)	Time of Day (percent)							
			0-6		6-12		12-18		18-24	
			f	cf	f	cf	f	cf	f	cf
F,1	2.18E+04	15.28	0.67%	0.00%	0.02%	0.00%	0.00%	0.00%	0.26%	0.00%
E,1	6.01E+04	15.28	0.38%	0.00%	0.02%	0.00%	0.00%	0.00%	0.38%	0.00%
F,2	6.53E+04	5.09	1.17%	1.17%	0.12%	0.12%	0.00%	0.00%	0.62%	0.62%
F,3	1.09E+05	3.06	0.26%	1.44%	0.02%	0.14%	0.00%	0.00%	0.10%	0.71%
D,1	1.56E+05	15.28	0.19%	1.44%	0.29%	0.14%	0.00%	0.00%	0.17%	0.71%
E,2	1.80E+05	5.09	2.42%	3.86%	0.22%	0.36%	0.00%	0.00%	0.98%	1.69%
E,3	3.01E+05	3.06	1.56%	5.41%	0.02%	0.38%	0.00%	0.00%	1.12%	2.81%
E,4	4.21E+05	2.18	0.22%	5.63%	0.00%	0.38%	0.00%	0.00%	0.31%	3.12%
D,2	4.68E+05	5.09	0.84%	6.47%	0.55%	0.93%	0.02%	0.02%	0.43%	3.55%
E,5	5.41E+05	1.70	0.14%	6.61%	0.00%	0.93%	0.00%	0.02%	0.17%	3.71%
E,6	6.62E+05	1.39	0.02%	6.63%	0.00%	0.93%	0.00%	0.02%	0.00%	3.71%
D,3	7.79E+05	3.06	0.60%	7.23%	0.26%	1.20%	0.05%	0.07%	0.43%	4.14%

Exhibit B

HARGIS + ASSOCIATES, INC.
HYDROGEOLOGY • ENGINEERING

1400 East Southern Avenue, Suite 620
Tempe, AZ 85282-5679
Phone: 480.345.0888
Fax: 480.730.0508

November 1, 2000

VIA HAND DELIVERY

Mr. Thom Shelton
Development Manager
INDUSTRIAL POWER TECHNOLOGY
2227 Capricorn Way, Suite 101
Santa Rosa, CA 95407

Re: Summary of Aquifer Testing Activities; Proposed Gila Bend Power Project, Gila Bend, Arizona.

Dear Mr. Shelton:

This letter report has been prepared to summarize the methods and results of aquifer testing activities conducted on behalf of the Gila Bend Power Partners LLC (GBPP) by Hargis + Associates, Inc. (H+A) at the proposed Gila Bend Power Plant (the proposed plant) site. The proposed plant will be located in the Town of Gila Bend, Arizona, within Section 19 of Township 5 South, Range 5 West (C-5-5) of the Gila and Salt River Baseline and Meridian (Figure 1).

Originally, a 3-5 day constant rate aquifer test was to be conducted at the site. However, due to pumping equipment malfunctions, the pumping portion of the aquifer test was limited to approximately 24 hours. This 1-day aquifer test was conducted during the period October 25 through October 27, 2000. This letter report summarizes the results of the 1-day aquifer test.

PURPOSES AND SCOPE

The purposes of the aquifer testing activities were to: 1) provide estimates of the aquifer transmissivity (T) of the upper basin fill in the area of the proposed plant; and 2) provide information on groundwater quality in the area of the proposed plant.

Groundwater will be used to meet water demand for the proposed plant. Selected site wells and/or newly constructed wells, will serve to supply groundwater to the proposed plant. Groundwater modeling was conducted as part of an application for a Certificate of Environmental Compatibility for the proposed plant. Groundwater modeling was conducted to evaluate the impacts to the local groundwater table by pumping site wells to meet water demand. Aquifer hydraulic properties used in the groundwater modeling were determined by the examination of drillers logs of area wells. Aquifer testing was conducted to verify and/or revise the aquifer T used in the groundwater modeling. Water quality data collected during the aquifer testing activities can be used to begin to evaluate plant water supply treatment methodologies.

The scope of the aquifer testing activities included:

- Clearing access routes to selected site wells;

Other Offices:
Tucson, AZ
San Diego, CA

- Conducting video surveys of selected site wells;
- Performing well rehabilitation (cleaning); and
- Conducting a constant rate aquifer test and collecting a groundwater quality sample.

All earthwork, video surveys, and well rehabilitation activities were conducted by Gilbert Pump, Phoenix, Arizona (Gilbert). The results of these activities will be summarized under separate cover.

A 500-horsepower diesel engine driven turbine pump was installed in well (C-5-5)19aba (the pumped well) by Gilbert to conduct the constant rate aquifer test (Figure 2). The pumped well was selected based on its relatively good overall condition, its proximity to the proposed plant, and its proximity to other wells to serve as observation wells. The pumped well was pumped at an average rate of approximately 1,767 gallons per minute for 1,397 minutes. Gilbert personnel monitored the pumping rate at the pumped well each half hour. Drawdown and recovery were monitored in the pumped well with electronic sounders by H+A personnel. Discharge water was directed away from the pumped well, other wells, and access roads, to stormwater collection areas along Sisson Road.

Wells (C-5-5)18ddc and (C-5-5)18ddd served as observation wells during the aquifer test (the observation wells). Observation wells (C-5-5)18ddc and (C-5-5)18ddd are located approximately 700 feet north, and approximately 1,425 feet northeast of the pumped well, respectively (Figure 2). Drawdown and recovery were monitored in each of the observation wells with electronic sounders by H+A personnel.

RESULTS OF THE AQUIFER TEST

Drawdown and recovery data were collected at the pumped well and the two observation wells. The following sections discuss the results of the analyses of the drawdown and recovery data.

Pumped Well

Drawdown and recovery graphs for the pumped well have been provided (Figures 3 and 4). Drawdown at the pumped well was 300.65 feet at the end of pumping. Drawdown data for the pumped well could not be analyzed due to fluctuations in the amount of drawdown. Recovery data for the pumped well were analyzed for T using the Jacob straight-line method (Table 1). T was determined to be approximately 12,000 square feet per day (ft^2/d) based on the recovery data.

Observation Wells

Drawdown and recovery graphs for the two observation wells have been provided (Figures 5 through 8). Drawdown at observation well (C-5-5)18ddc was 0.17 feet at the end of pumping. Drawdown at observation well (C-5-5)18ddd was 2.94 feet at the end of pumping. Data for observation well (C-5-5)18ddc could not be analyzed for T or storativity (S) due to an insufficient amount of drawdown. Drawdown and recovery data for observation well (C-5-5)18ddd were analyzed for T and S using the Jacob straight-line method (Table 1).

T was determined to be approximately 19,000 ft^2/d at observation well (C-5-5)18ddd based on the drawdown data. S was determined to be approximately 0.0021 based on drawdown data collected from

observation well (C-5-5)18ddd. T was determined to be approximately 17,300 ft^2/d at observation well (C-5-5)18ddd based on recovery data (Table 1).

RESULTS OF GROUNDWATER SAMPLING

A groundwater quality sample was collected from the pumped well during the aquifer testing activities. The groundwater quality sample was analyzed for selected common ions and inorganic constituents (Attachment A). The groundwater quality sample was collected and analyzed using methods and procedures in accordance with Arizona Department of Environmental Quality and U.S. Environmental Protection Agency protocols.

A review of the groundwater quality sample results indicates that groundwater in the area of the pumped well is of poor quality (Attachment A). Groundwater is a sodium-chloride type high in total dissolved solids (TDS). TDS was detected at a concentration of 3,100 milligrams per liter (mg/l). Nitrate as nitrogen was detected in the groundwater quality sample collected from the pumped well at a concentration greater than the federal primary maximum contaminant level (MCL) (Attachment A). Total recoverable iron, chloride, fluoride, sulfate, and TDS were detected in the groundwater quality sample collected from the pumped well at concentrations greater than their respective federal secondary MCLs (Attachment A). The results of the groundwater quality sample from the pumped well are similar in nature to groundwater quality samples collected from other wells in the area.

DISCUSSION OF RESULTS

The results of the aquifer test estimate an average value of T of approximately 16,100 ft^2/d and a value of S of 0.0021 for the site. The average value of T and the value of S are lower than those reported by other workers for the upper basin fill in the Gila Bend basin. These lower T and S values may be attributable to:

- The short duration of the aquifer test.
- The observation wells partially penetrate the upper basin fill to depths of approximately 400 and 670 feet below land surface. The use of standard aquifer test analytical methods for wells that partially penetrate aquifer systems can, in some instances underestimate values of T.
- Plugged perforations in both the pumped well and the observation wells; this condition results in increased well loss, low well efficiency, and an underestimation of aquifer hydraulic properties.

Based on these conditions it is likely that properly constructed and maintained, fully-penetrating supply wells will produce more water with less well loss and higher pumping efficiency.

The results of the groundwater quality sampling indicate that groundwater quality at the site is poor. Groundwater is a sodium-chloride type high in TDS. This is consistent with the results of groundwater quality sampling of other wells in the site area. Some treatment of raw groundwater is likely.

REVISED SIMULATIONS

Revised simulations were conducted to evaluate the impacts created by future groundwater withdrawals at the site. The revised simulations use a hydraulic conductivity (K) value of 20 feet per day (f/d). This K value is based on the results of the T values from the 1-day aquifer test. This value of K is considered low for the reasons listed above. Simulations conducted using a K of 20 f/d should be considered conservative in that the revised simulations will overestimate the amount of drawdown at the site.

An S value of 0.0021 is considered significantly low for the reasons listed above. Simulations conducted using an S of 0.0021 will create unrealistic estimates of drawdown at the site. Therefore, S values used in the revised simulations are 0.05 and 0.12. These values are based on the type of materials known to be present at the site and on estimates of specific yield for unconfined aquifers contained in the literature.

Four pumping scenarios were simulated using the revised K and S values. Pumpage was distributed evenly at four existing well locations at the site. The four pumping scenarios are:

1. Pumping 10,000 acre-feet per year (af/y); for 50 years; using K of 20 f/d and S of 0.05
2. Pumping 10,000 af/y; for 50 years; using K of 20 f/d and S of 0.12
3. Pumping 15,000 af/y; for 50 years; using K of 20 f/d and S of 0.05
4. Pumping 15,000 af/y; for 50 years; using K of 20 f/d and S of 0.12

The results of the simulations for the four pumping scenarios indicate that the impacts created by groundwater withdrawals at the site will not create excessive additional drawdown at or near project area boundaries. Figures depicting the amount of drawdown based on the four above-referenced pumping scenarios have been prepared (Figures 9 through 12).

As expected, the maximum amount of drawdown was created for the pumping scenario using an S value of 0.05 and pumping 15,000 af/y for 50 years (Scenario 3). Even under this conservative condition, projected drawdown at the four existing project area wells after 50 years of pumping is less than 85 feet. The projected drawdown at the project area boundary for Scenario 3 ranges from approximately 36 to 50 feet (Figure 11). The minimum amount of drawdown was projected using an S value of 0.12 and pumping 10,000 af/y for 50 years (Scenario 2). Projected drawdown for Scenario 2 at the four existing project area wells after 50 years of pumping is less than 55 feet. The projected drawdown at the project area boundary for Scenario 2 ranges from approximately 20 to 30 feet (Figure 10).

CONCLUSIONS

A review of the 1-day aquifer test data and the revised simulations indicates that pumping groundwater to serve as a source of water supply will not produce significant drawdown in the area. Assuming these conservative conditions, i.e. using conservative (low) estimates of K and S in scenario 3 above, additional drawdown at the site will likely range from approximately 1.2 to 1.7 feet per year, or a total drawdown of approximately 60 to 85 feet over the 50 year estimated life of the project.

The observed responses and the results of this 1-day constant rate aquifer test indicate that the pumping rate achieved during the test was adequate to stress the aquifer system and obtain reliable estimates of

transmissivity. However, based on the proposed work plan the test was to be conducted for a minimum of 72 hours. Due to pumping equipment problems the test was suspended at approximately 24 hours. Although the test results indicate that the pumping period was sufficient to get an estimate of transmissivity, at your direction the pumping equipment has been repaired and the test will be completed for at least 72 hours.. A 3-day constant rate aquifer test is currently being conducted at the site. A separate letter report will be prepared summarizing the results of the 3-day aquifer test when available.

H+A has appreciated this opportunity to provide hydrogeologic consulting services to GBPP. If you have any questions or comments regarding this letter, or any aspect of either aquifer test, please do not hesitate to contact me.

Sincerely,

HARGIS + ASSOCIATES, INC.

Michael R. Long, RG
Principal Hydrogeologist, Director of Arizona Operations

MRL:clt

Enclosures

TABLE 1

SUMMARY OF AQUIFER HYDRAULIC PROPERTIES

WELL IDENTIFIER	TRANSMISSIVITY (square feet per day)	STORATIVITY (dimensionless)
Pumped well (C-5-5)19aba	12,000(b)	Not applicable
Observation well (C-5-5)18ddc	Not determined	Not determined
Observation well (C-5-5)18ddd	19,000(a) 17,300(b)	0.0021(a)
Average	16,100	Not applicable

(a) Determined using drawdown data
(b) Determined using recovery data

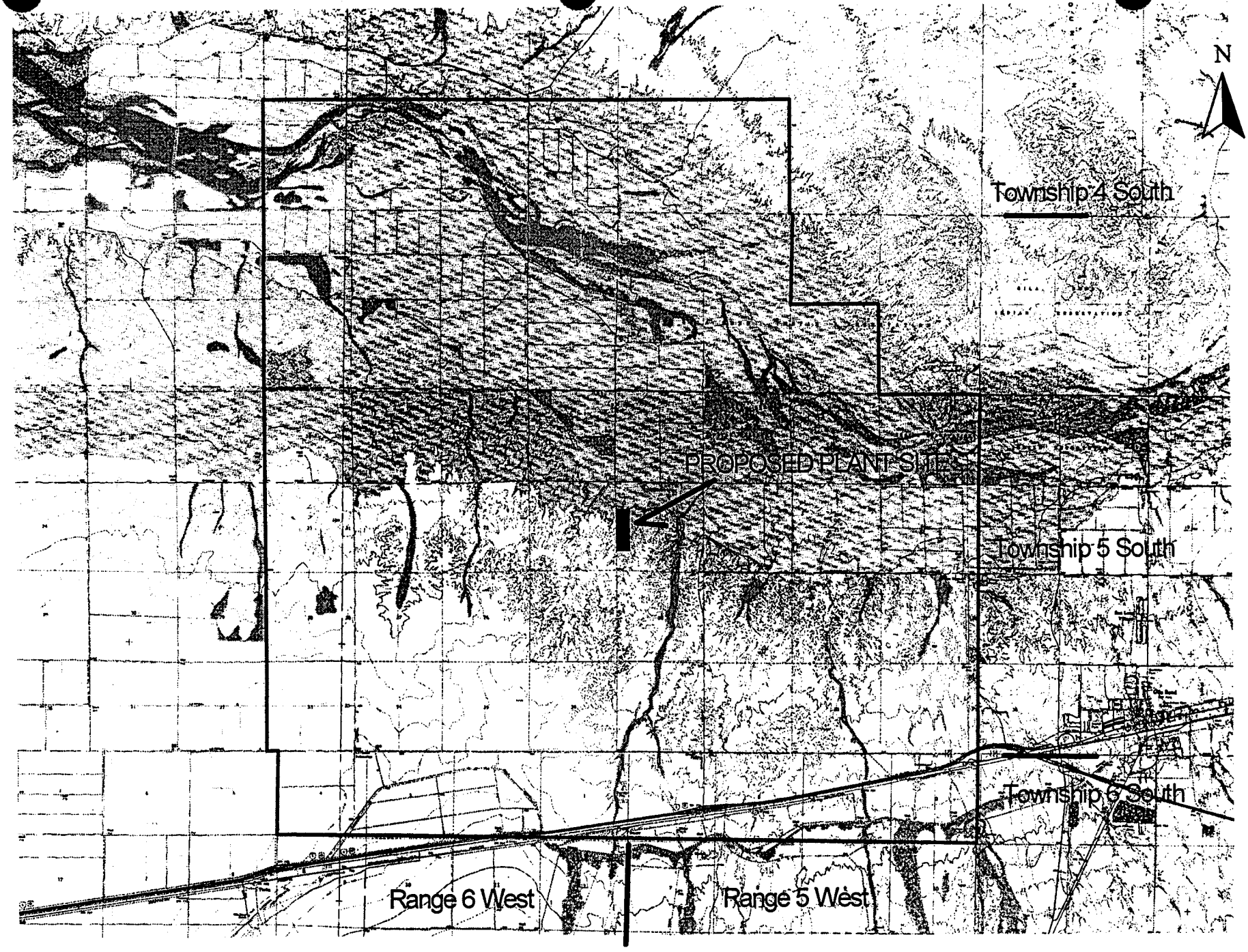

Figure 1. Study Area

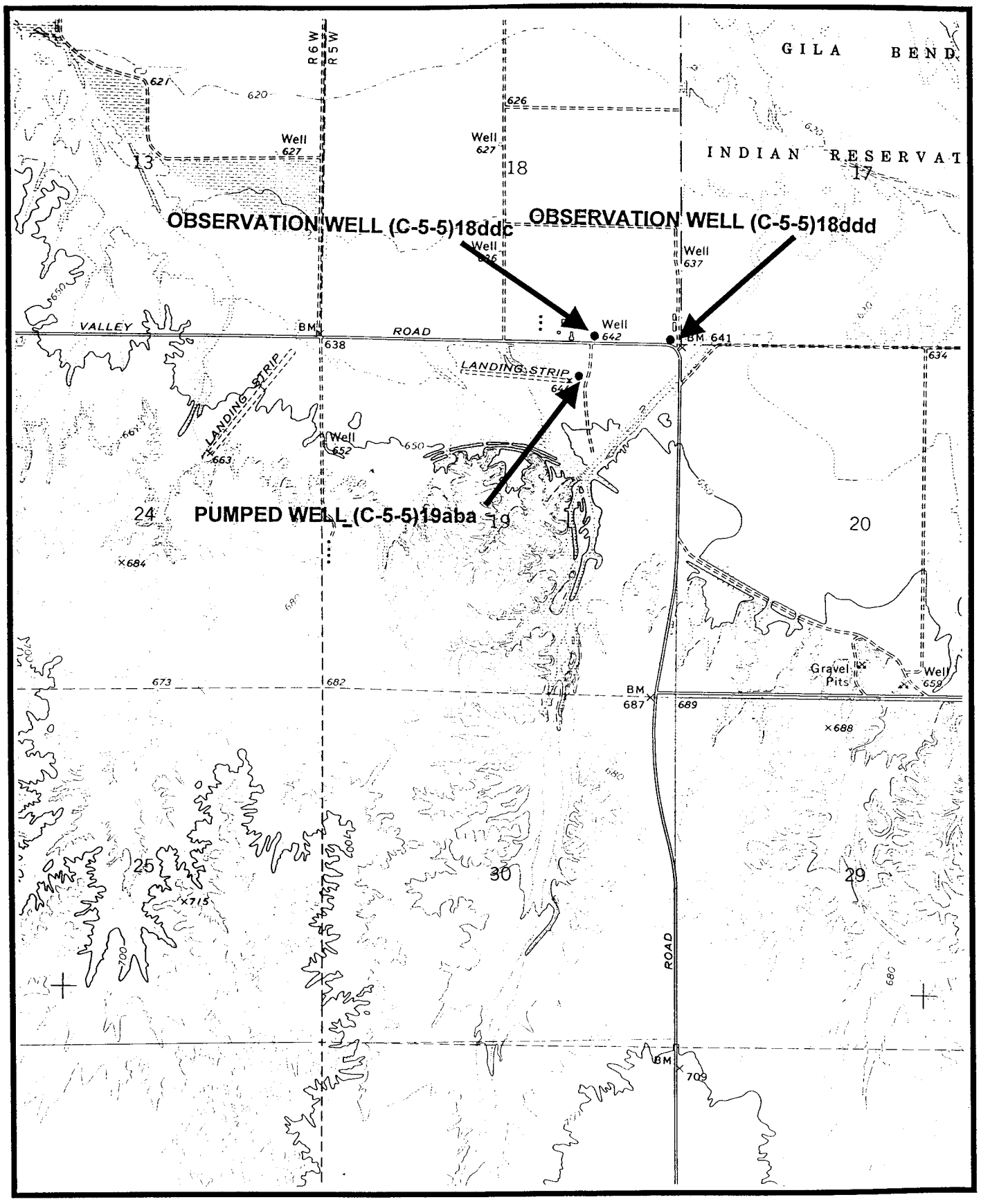

FIGURE 2. WELL LOCATIONS

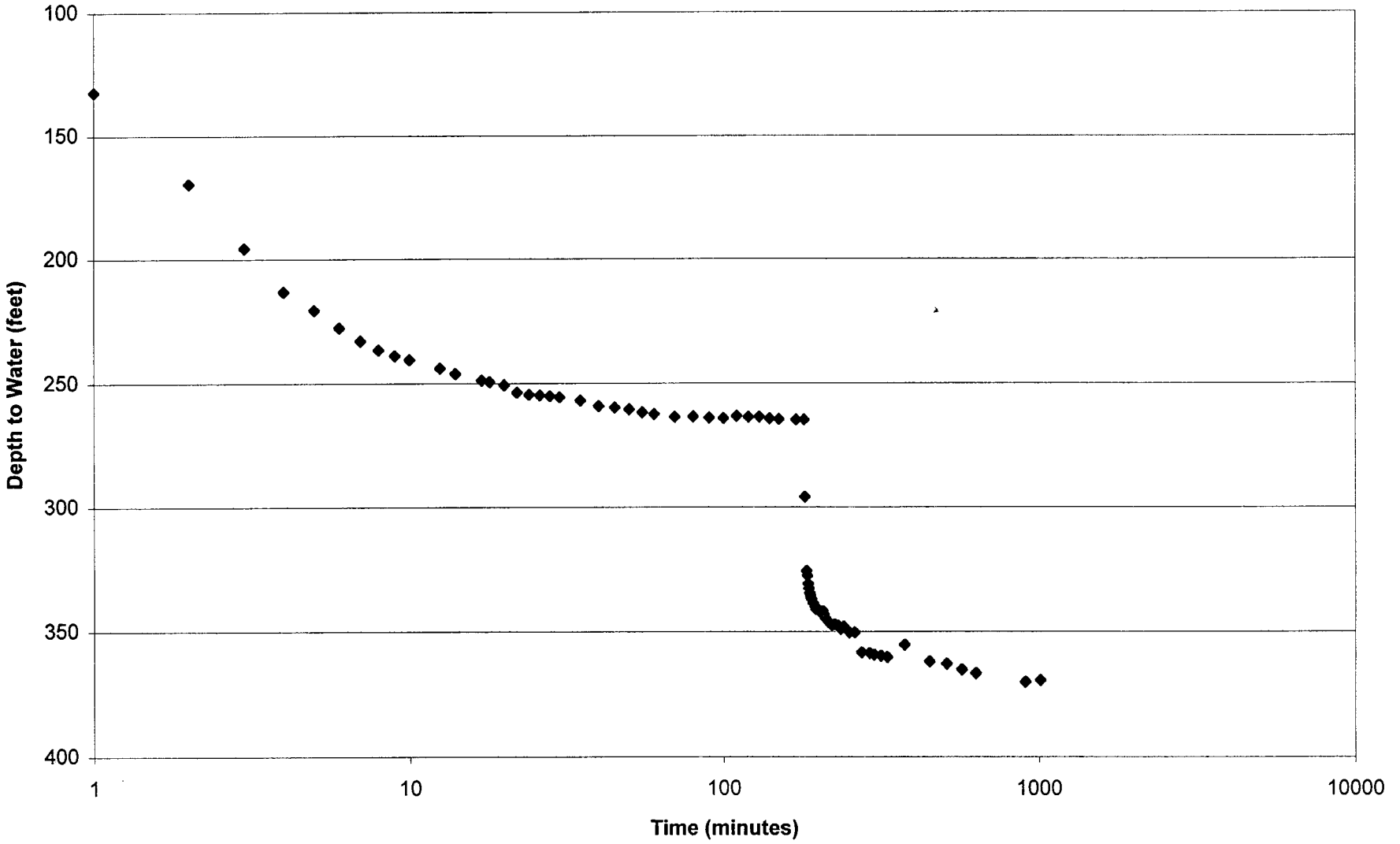

FIGURE 3. DRAWDOWN DATA FOR PUMPED WELL (C-5-5)19aba

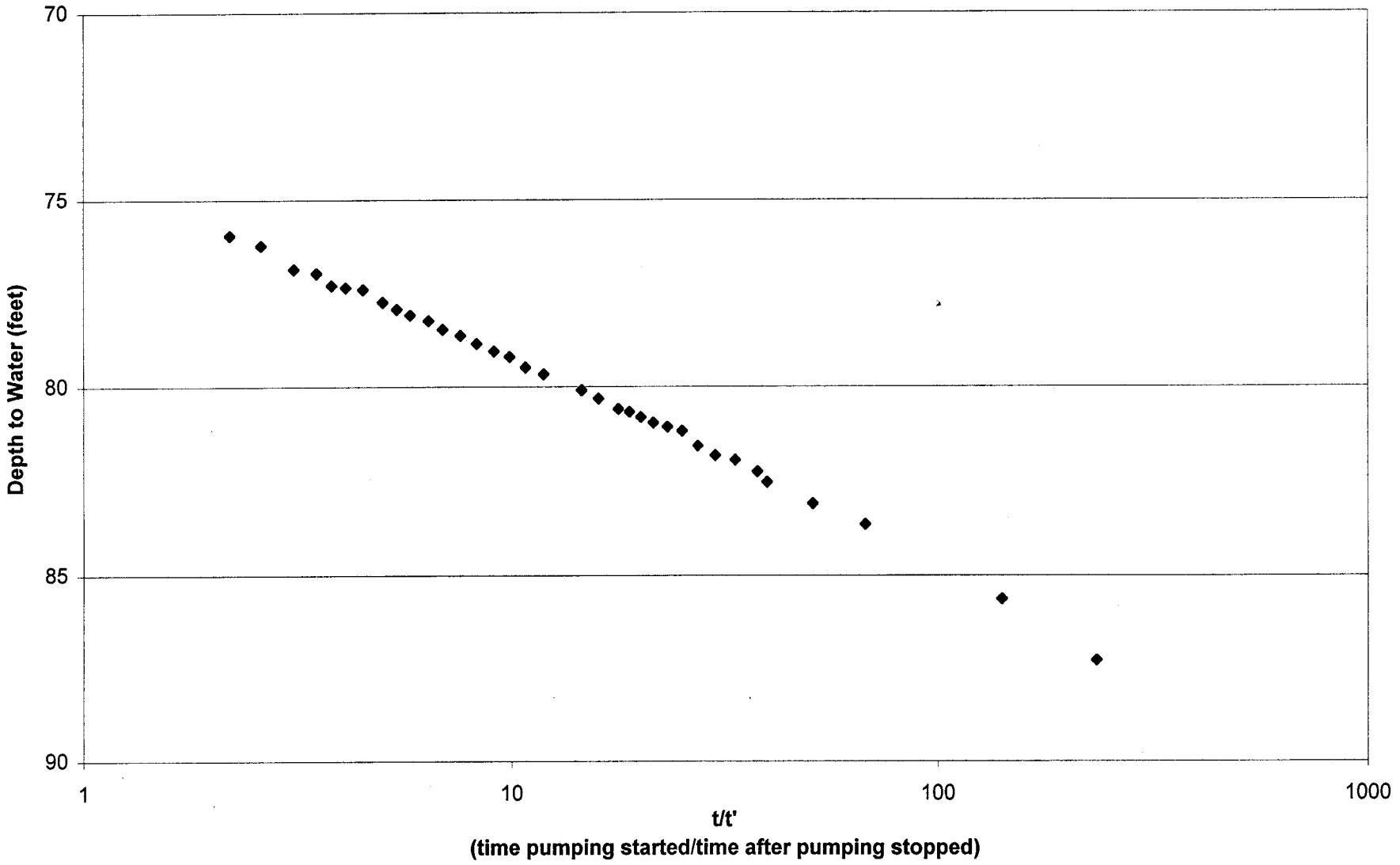

FIGURE 4. RECOVERY DATA FOR PUMPED WELL (C-5-5)19aba

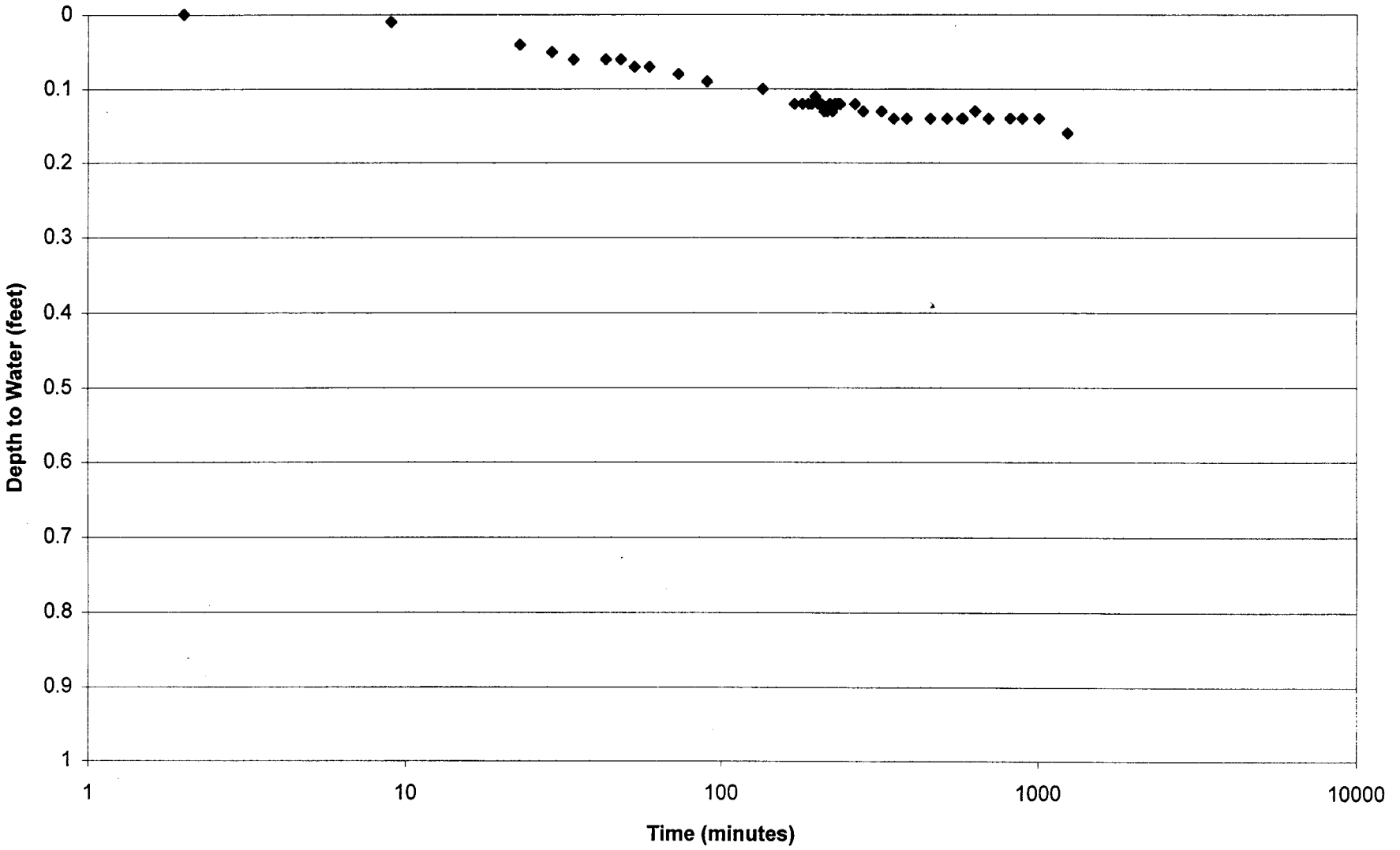

FIGURE 5. DRAWDOWN DATA FOR OBSERVATION WELL (C-5-5)18ddc

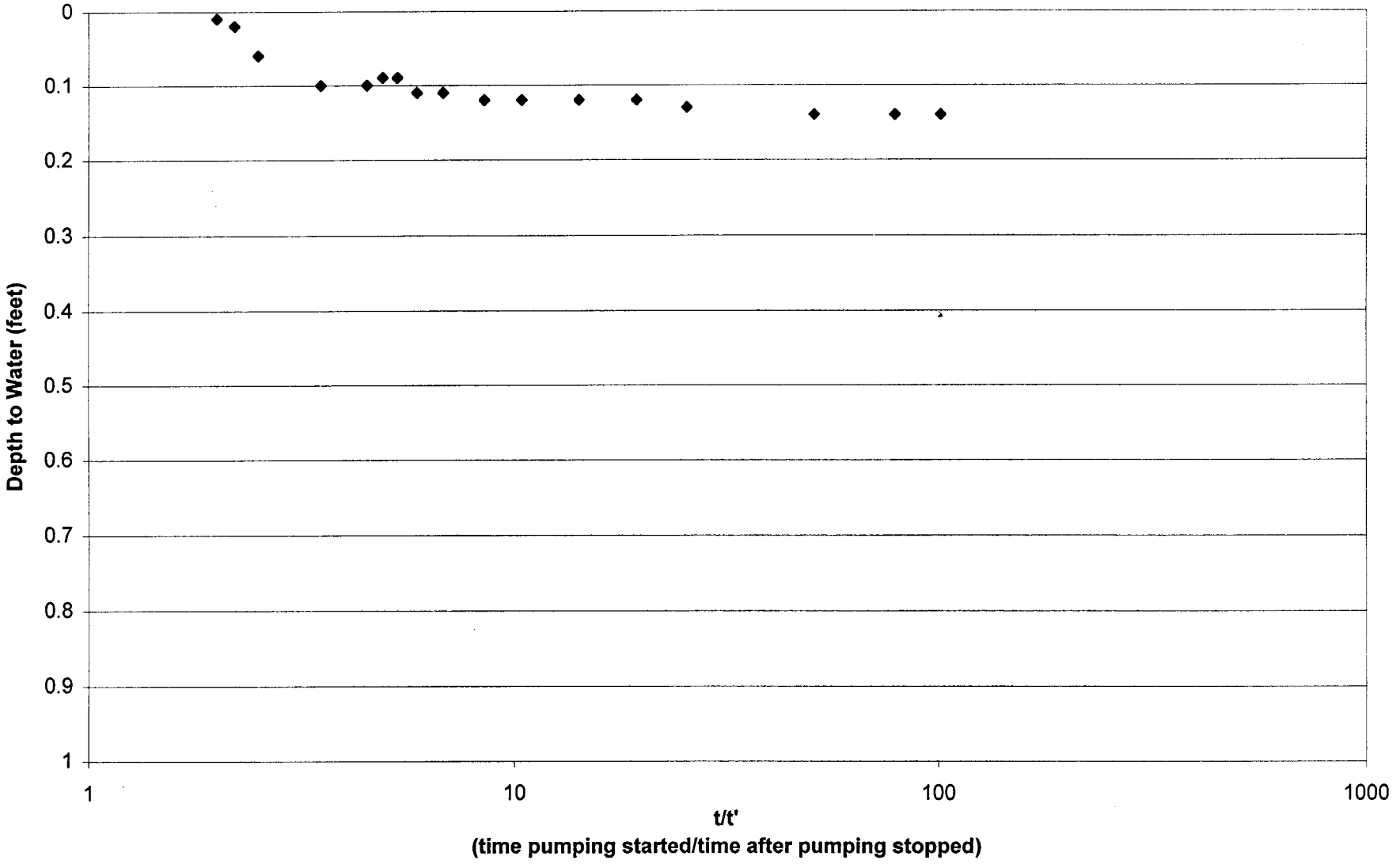

FIGURE 6. RECOVERY DATA FOR OBSERVATION WELL (C-5-5)18ddc

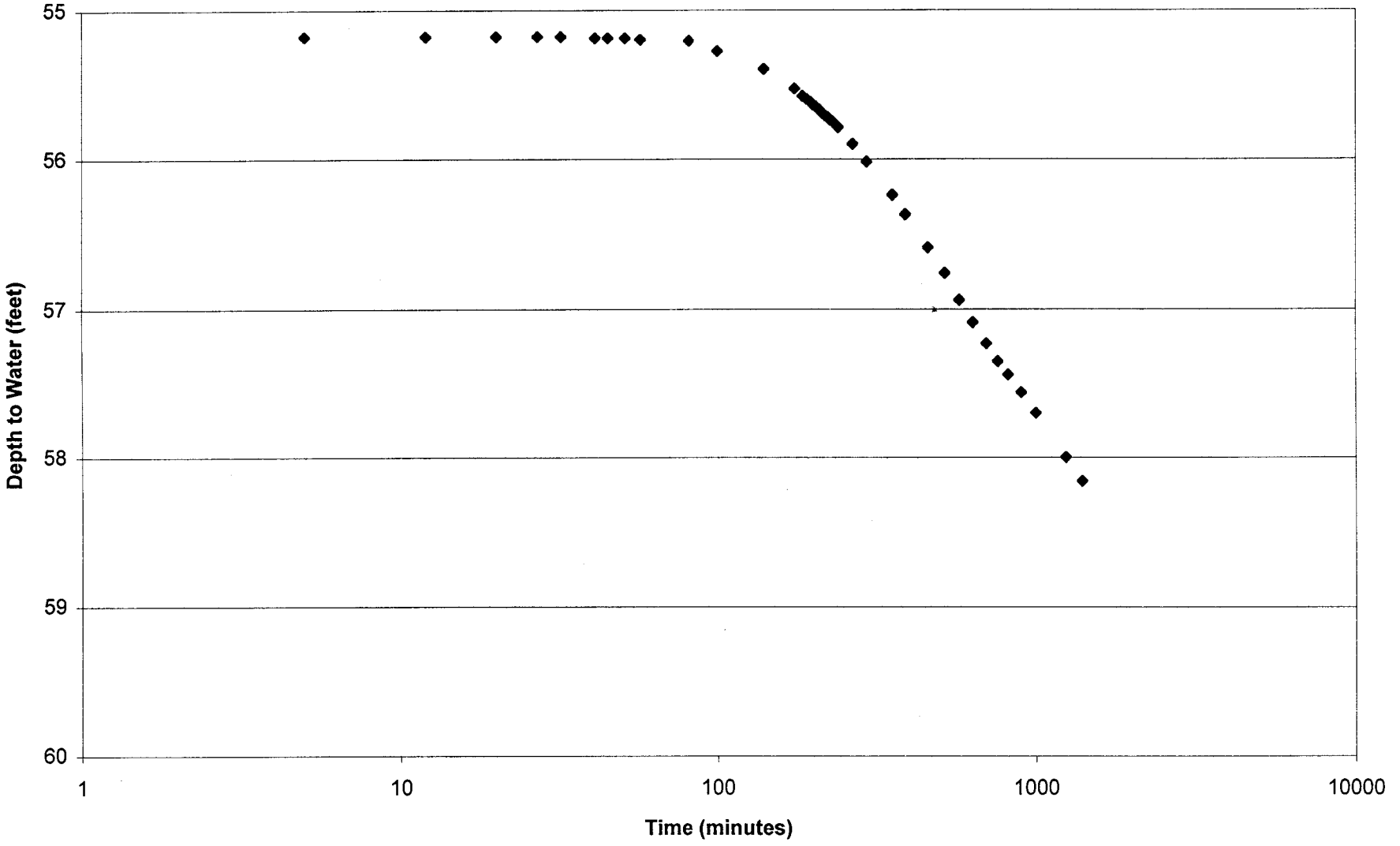

FIGURE 7. DRAWDOWN DATA FOR OBSERVATION WELL (C-5-5)18ddd

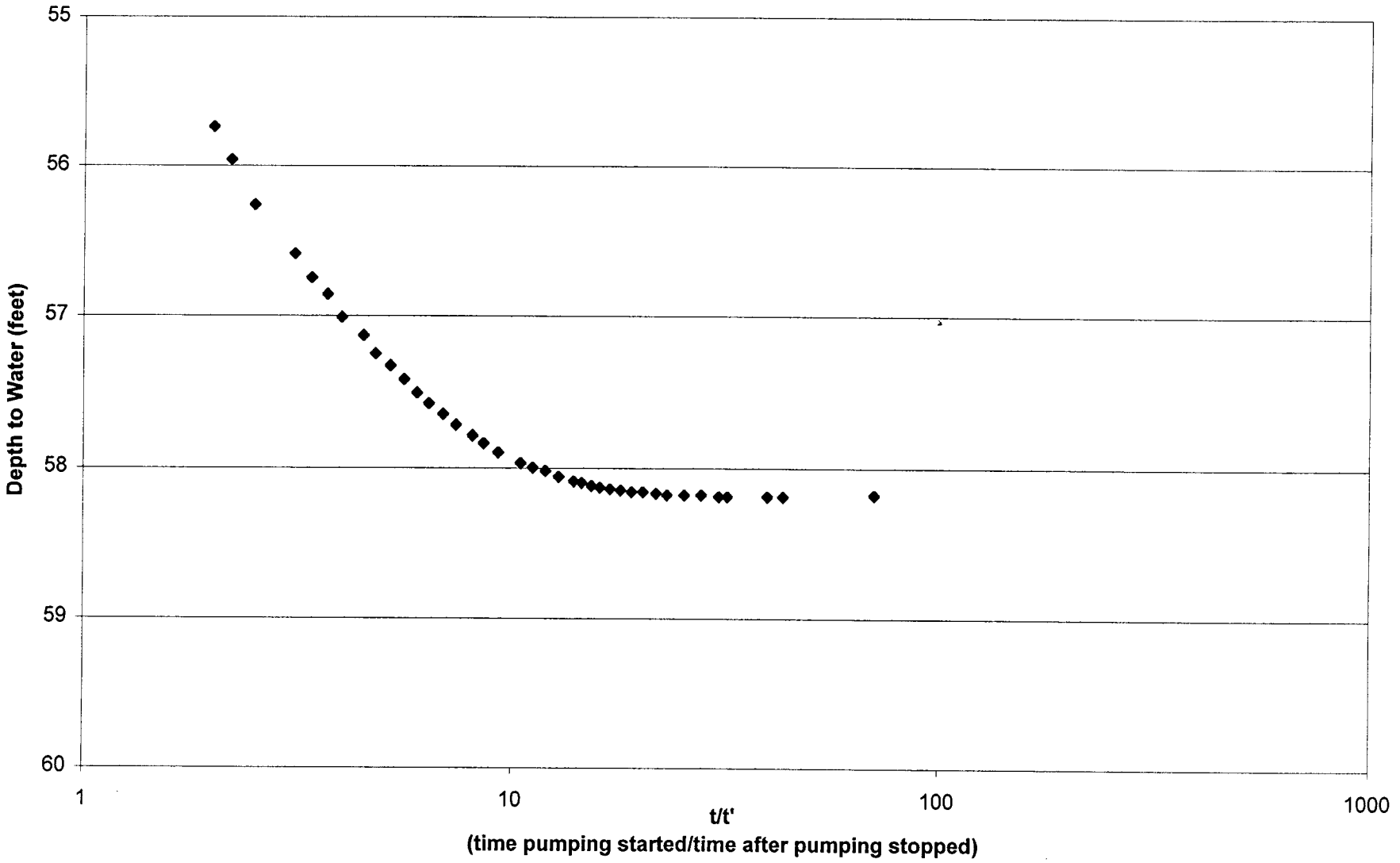

FIGURE 8. RECOVERY DATA FOR OBSERVATION WELL (C-5-5)18ddd

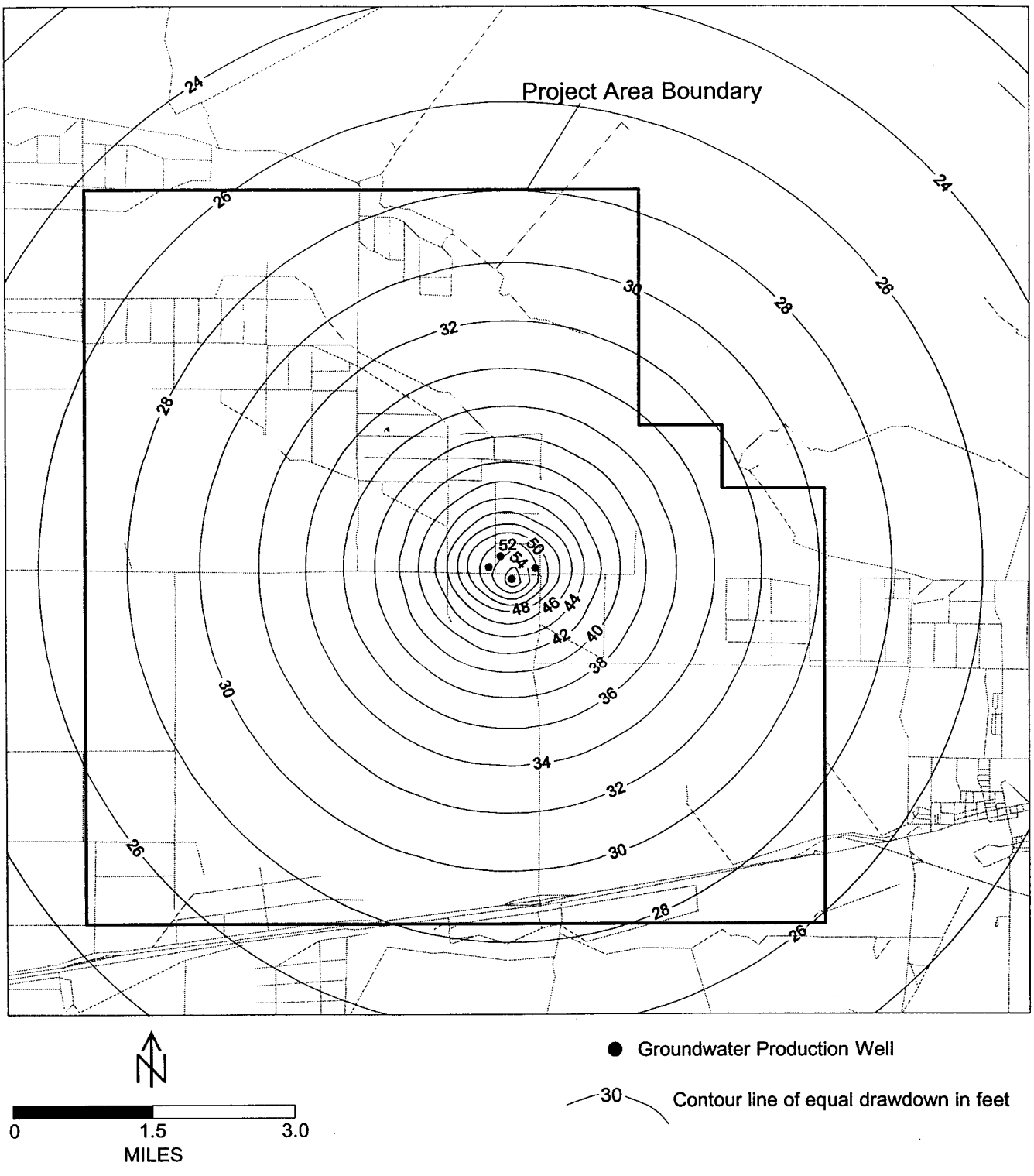

FIGURE 9. PROJECTED DRAWDOWN FOR SCENARIO 1

HARGIS + ASSOCIATES, INC.
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GB12

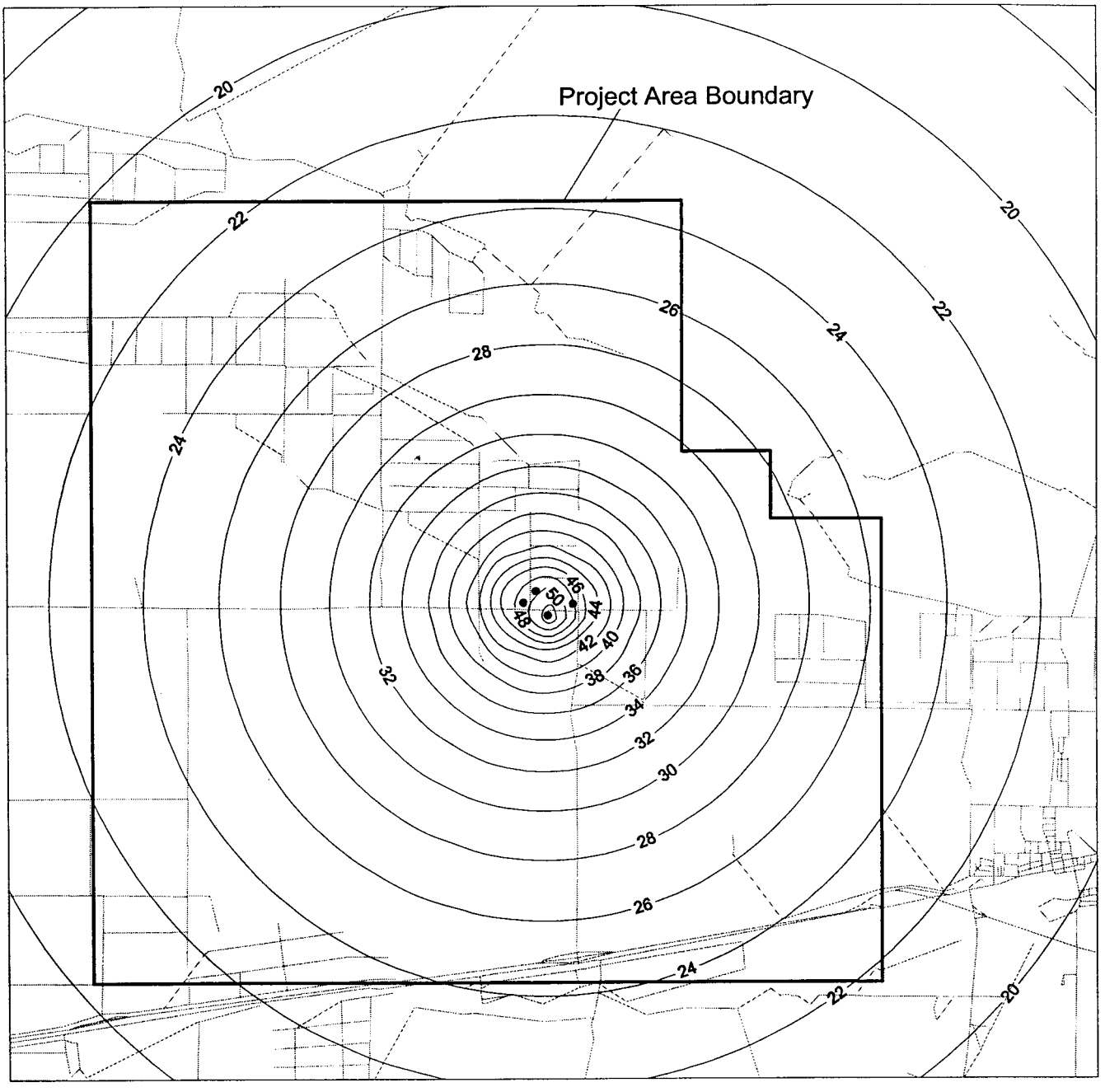

FIGURE 10. PROJECTED DRAWDOWN FOR SCENARIO 2

HARGIS + ASSOCIATES, INC.
Hydrogeology/Engineering

GB13

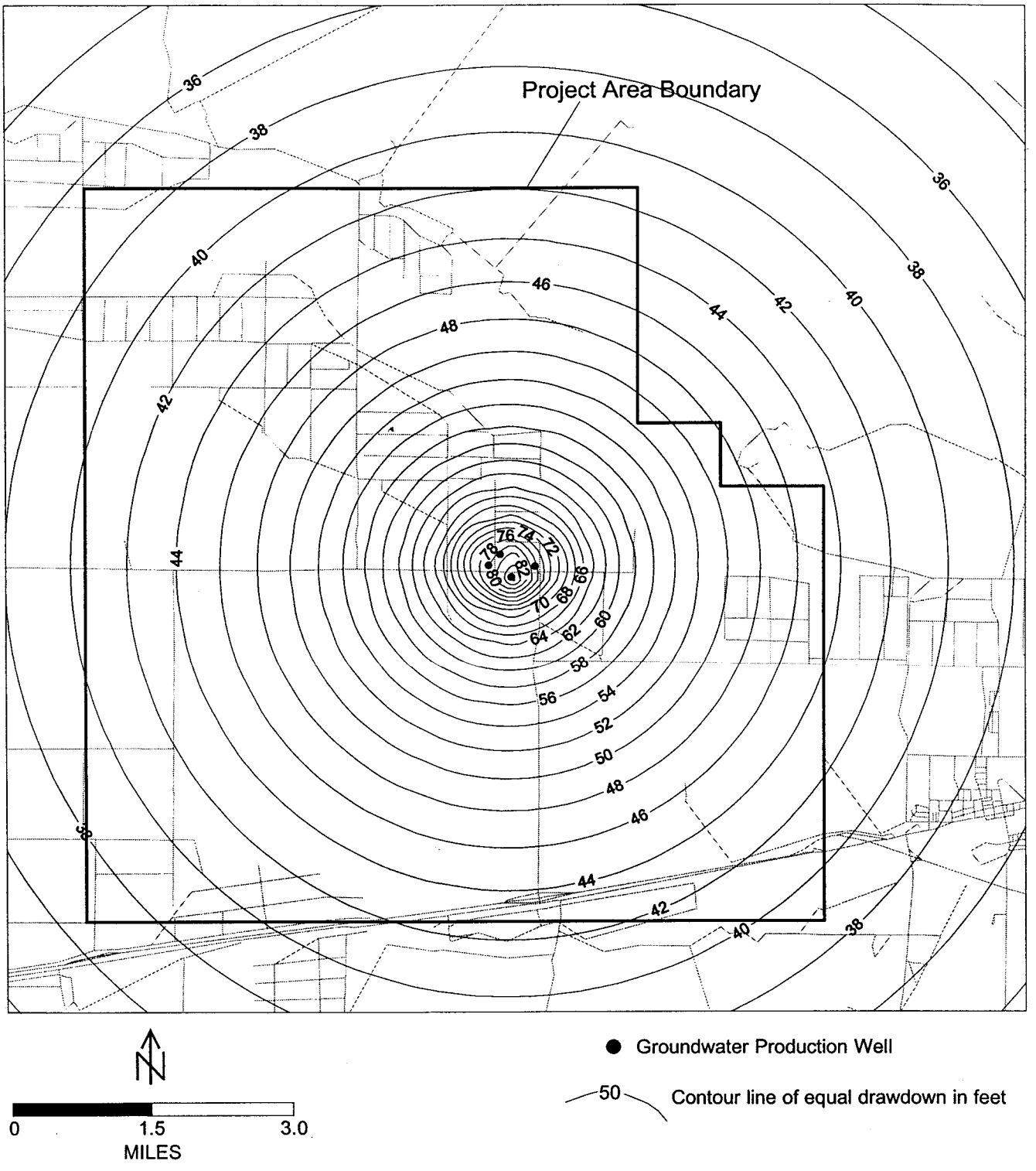

FIGURE 11. PROJECTED DRAWDOWN FOR SCENARIO 3

HARGIS + ASSOCIATES, INC.
Hydrogeology/Engineering

GB15

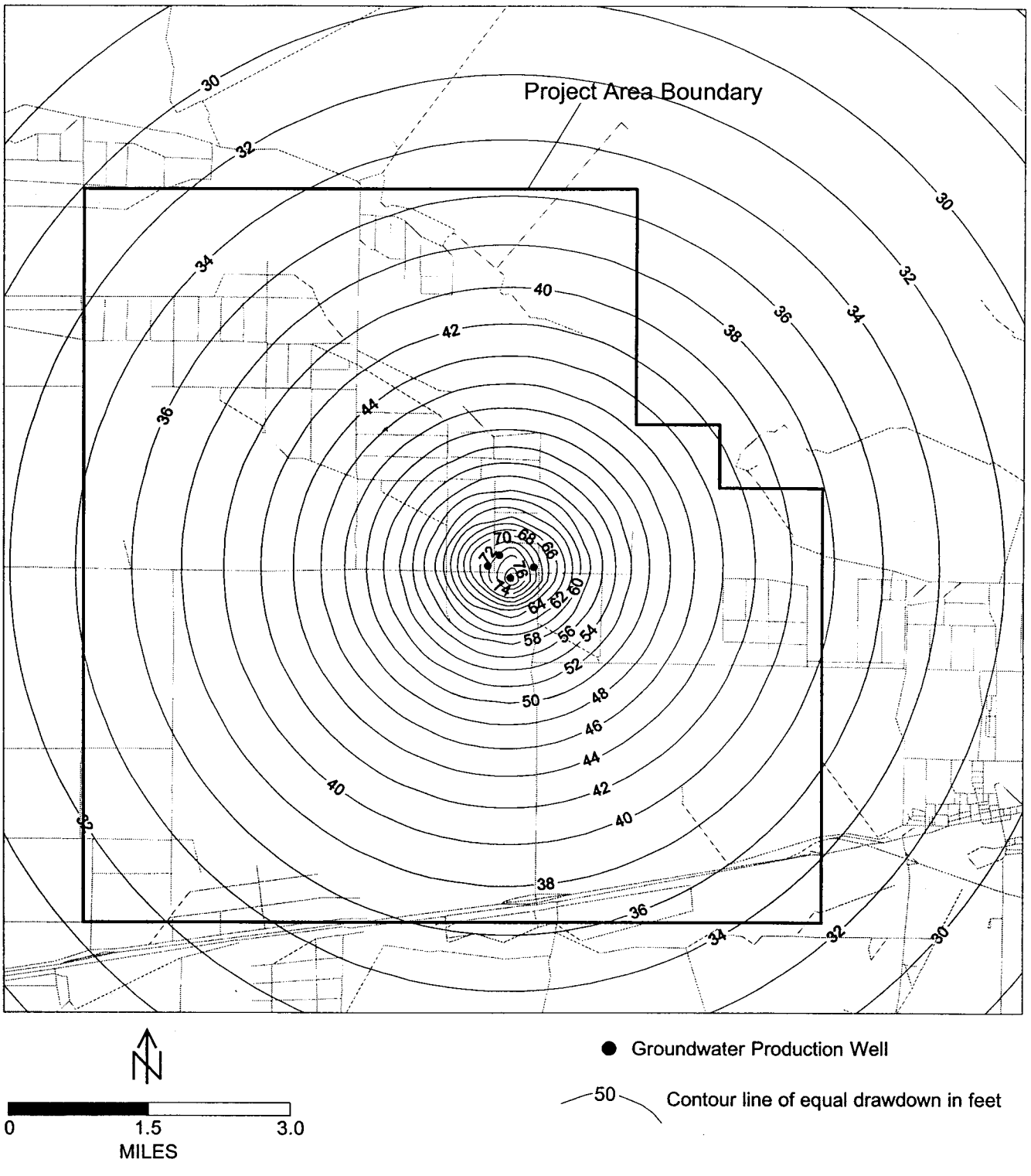

FIGURE 12. PROJECTED DRAWDOWN FOR SCENARIO 4

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HARGIS + ASSOCIATES, INC.

ATTACHMENT A

LABORATORY ANALYTICAL REPORTS

Del Mar Analytical

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
7277 Hayvenhurst, Suite B-12, Van Nuys, CA 91406 (818) 779-1844 FAX (818) 779-1843
9484 Chesapeake Dr., Suite 805, San Diego, CA 92123 (858) 505-8596 FAX (858) 505-9689
9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

Hargis & Associates, Inc. - Tempe
1400 E. Southern Ave., Ste. 620
Tempe, AZ 85282
Attention: Michael Long

Client Project ID: GBPP 886

Report Number: PJJ0425

Sampled: 10/26/00
Received: 10/26/00

TOTAL RECOVERABLE METALS

Analyte	Method	Batch	Reporting Limit mg/l	Sample Result mg/l	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PJJ0425-01 (Well No.1 - Water)								
Antimony	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	C
Arsenic	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Barium	EPA 200.7	P0J2703	0.010	**0.072**	1	10/27/00	10/27/00	
Cadmium	EPA 200.7	P0J2703	0.0050	ND	1	10/27/00	10/27/00	
Calcium	EPA 200.7	P0J2703	2.0	**250**	1	10/27/00	10/27/00	
Chromium	EPA 200.7	P0J2703	0.010	ND	1	10/27/00	10/27/00	
Copper	EPA 200.7	P0J2703	0.020	**0.043**	1	10/27/00	10/30/00	
Iron	EPA 200.7	P0J2703	0.10	**0.64**	1	10/27/00	10/27/00	
Lead	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Magnesium	EPA 200.7	P0J2703	0.50	**43**	1	10/27/00	10/27/00	
Manganese	EPA 200.7	P0J2703	0.020	**0.036**	1	10/27/00	10/27/00	
Mercury	EPA 245.1	P0J2708	0.00020	ND	1	10/27/00	10/27/00	
Nickel	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Potassium	EPA 258.1	P0J2703	1.0	**14**	1	10/27/00	10/27/00	
Selenium	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Silica	EPA 200.7	P0J2703	2.5	**43**	1	10/27/00	11/1/00	
Sodium	EPA 273.1	P0J2703	50	**680**	10	10/27/00	10/27/00	
Zinc	EPA 200.7	P0J2703	0.050	**0.13**	1	10/27/00	10/27/00	

Beth Price
Project Manager

Del Mar Analytical

2852 Alton Ave., Irvine, CA 92606 (949) 261-1022 FAX (949) 261-1228
1014 E. Cooley Dr., Suite A, Colton, CA 92324 (909) 370-4667 FAX (909) 370-1046
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9830 South 51st St., Suite B-120, Phoenix, AZ 85044 (480) 785-0043 FAX (480) 785-0851

Hargis & Associates, Inc. - Tempe
1400 E. Southern Ave., Ste. 620
Tempe, AZ 85282
Attention: Michael Long

Client Project ID: GBPP 886

Report Number: PJJ0425

Sampled: 10/26/00
Received: 10/26/00

DISSOLVED METALS

Analyte	Method	Batch	Reporting Limit mg/l	Sample Result mg/l	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PJJ0425-02 (Well No.1 - Water)								
Antimony, Dissolved	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	C
Arsenic, Dissolved	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Barium, Dissolved	EPA 200.7	P0J2703	0.010	**0.072**	1	10/27/00	10/27/00	
Cadmium, Dissolved	EPA 200.7	P0J2703	0.0050	ND	1	10/27/00	10/27/00	
Calcium, Dissolved	EPA 200.7	P0J2703	2.0	**250**	1	10/27/00	10/27/00	
Chromium, Dissolved	EPA 200.7	P0J2703	0.010	ND	1	10/27/00	10/27/00	
Copper, Dissolved	EPA 200.7	P0J2703	0.020	ND	1	10/27/00	10/30/00	
Iron, Dissolved	EPA 200.7	P0J2703	0.10	**0.11**	1	10/27/00	10/27/00	
Lead, Dissolved	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Magnesium, Dissolved	EPA 200.7	P0J2703	0.50	**46**	1	10/27/00	10/27/00	
Manganese, Dissolved	EPA 200.7	P0J2703	0.020	ND	1	10/27/00	10/27/00	
Mercury, Dissolved	EPA 245.1	P0J2708	0.00020	ND	1	10/27/00	10/27/00	
Nickel, Dissolved	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Potassium, Dissolved	EPA 258.1	P0J2703	1.0	**14**	1	10/27/00	10/27/00	
Selenium, Dissolved	EPA 200.7	P0J2703	0.050	ND	1	10/27/00	10/27/00	
Silica, Dissolved	EPA 200.7	P0J2703	2.5	**42**	1	10/27/00	11/1/00	
Sodium, Dissolved	EPA 273.1	P0J2703	50	**780**	10	10/27/00	10/27/00	
Zinc, Dissolved	EPA 200.7	P0J2703	0.050	**0.14**	1	10/27/00	10/27/00	

Beth Price
Project Manager

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Hargis & Associates, Inc. - Tempe
1400 E. Southern Ave., Ste. 620
Tempe, AZ 85282
Attention: Michael Long

Client Project ID: GBPP 886
Report Number: PJJ0425

Sampled: 10/26/00
Received: 10/26/00

INORGANICS

Analyte	Method	Batch	Reporting Limit	Sample Result	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
			mg/l	mg/l				
Sample ID: PJJ0425-01 (Well No.1 - Water)								
Alkalinity as CaCO3	SM2320B	P0J2729	5.0	**110**	1	10/27/00	10/27/00	
Carbon Dioxide	SM4500-CO2C	P0J2626	1.0	**25**	1	10/26/00	10/26/00	HS,HT-I
Chloride	EPA 300.0	P0J2610	50	**1300**	100	10/26/00	10/26/00	
Dissolved Sulfide	SM4500-S-B,C,D	P0J3019	0.10	ND	1	10/27/00	10/30/00	
Fluoride	EPA 300.0	P0J2610	0.10	**3.2**	1	10/26/00	10/26/00	
Hardness (CaCO3)	SM2340B	P0J2703	1.0	**800**	1	10/27/00	10/27/00	
Hydrogen Sulfide	SM4500-S-H	P0J3021	0.10	ND	1	10/27/00	10/30/00	
Nitrate-N	EPA 300.0	P0J2610	1.0	**11**	10	10/26/00	10/26/00	
Nitrite-N	EPA 300.0	P0J2610	1.0	ND	10	10/26/00	10/26/00	
Orthophosphate	EPA 300.0	P0J2610	5.0	ND	10	10/26/00	10/26/00	
			pH Units	pH Units				
Sample ID: PJJ0425-01 (Well No.1 - Water)								
pH	EPA 150.1	P0J2618	NA	**8.01**	1	10/26/00	10/26/00	HT-I
			umhos/cm	umhos/cm				
Sample ID: PJJ0425-01 (Well No.1 - Water)								
Specific Conductance	SM2510B	P0J2611	2.0	**5000**	1	10/26/00	10/26/00	
			mg/l	mg/l				
Sample ID: PJJ0425-01 (Well No.1 - Water)								
Sulfate	EPA 300.0	P0J2610	50	**620**	100	10/26/00	10/26/00	
			°C	°C				
Sample ID: PJJ0425-01 (Well No.1 - Water)								
Temperature	EPA 170.1	P0J2614	NA	**19**	1	10/26/00	10/26/00	HT-I
			mg/l	mg/l				
Sample ID: PJJ0425-01 (Well No.1 - Water)								
Total Dissolved Solids	SM2540C	P0J2629	100	**3100**	1	10/26/00	10/26/00	
Total Suspended Solids	EPA 160.2	P0J2609	10	**25**	1	10/26/00	10/26/00	

Beth Price
Project Manager

Del Mar Analytical

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1400 E. Southern Ave., Ste. 620
Tempe, AZ 85282
Attention: Michael Long

Client Project ID: GBPP 886
Report Number: PJJ0425

Sampled: 10/26/00
Received: 10/26/00

INORGANICS

Analyte	Method	Batch	Reporting Limit mg/l	Sample Result mg/l	Dilution Factor	Date Extracted	Date Analyzed	Data Qualifiers
Sample ID: PJJ0425-01 (Well No.1 - Water)								
Total Kjeldahl Nitrogen	SM4500-N-O,C	C0J3014	0.50	ND	1	10/30/00	10/31/00	

Beth Price
Project Manager

HARGIS + ASSOCIATES, INC.

CHAIN-OF-CUSTODY RECORD AND ANALYSIS REQUEST FORM

DATE 10.25.00 PAGE 1 OF 1

PROJECT NAME: GBPP
PROJECT No./TASK No.: 886
PROJECT MANAGER: Michael R. Long
Phone No.: (480) 345-0868
QA MANAGER: Brian R. Waggle
FAX No.: 730-0503
SAMPLER (SIGNATURE): Brian R Waggle
SAMPLER (PRINTED): BRIAN R. WAGGLE

LAB ID	SAMPLE ID	SAMPLE COLLECTION Date	SAMPLE COLLECTION Time	MATRIX: Soil	MATRIX: Groundwater	MATRIX: Surface water	PRESERVATION: HCl	PRESERVATION: HNO3	PRESERVATION: NaOH	PRESERVATION: H2SO4	PRESERVATION: Ice	PRESERVATION: NaOH+Zn acetate	SAMPLE CONTAINERS: 1 L Poly	SAMPLE CONTAINERS: 500 mL Poly	SAMPLE CONTAINERS: 500 mL glass amber	ANALYSES REQUESTED	ESTIMATED CONCENTRATION RANGE (ppb FOR VOAS	SPECIAL HANDLING	LABORATORY INFORMATION
PJJ042501	Well No. 1	10.26.00	0820	X							X		1			See analyte list		Field Filtered	Del Mar
-02				X					X		X			2					
				X							X			1					
				X							X			1					
				X							X	X		1					
																			REMARKS
																			72-hour Turnaround Time Requested For all Analyses

Total number of Containers per analysis:

Total No. of Containers:

Relinquished by:	Date	Received by:	Date
Brian R Waggle	10/26/00	Vicki Foster	10/26/00
H+A	Time 1015	Del Mar A-	Time 10:15
Company		Company	
Relinquished by:	Date	Received by:	Date
	Time		Time
Company		Laboratory	

INSTRUCTIONS

1. Fill out form completely except for shaded areas (lab use only); sign only after verified for completeness.
2. Complete in ballpoint pen. Draw one line through errors, initial and date correction.
3. Indicate number of sample containers in analysis request space; indicate choice with ✓ or x.
4. Note applicable preservatives, special instructions, and deviations from typical environmental samples.
5. Consult project QA documents for specific instructions.

Sample Receipt:

- ☐ No. of containers correct
- ☐ received good condition/cold
- ☐ custody seals secure
- ☐ conforms to COC document

Shipment Method: hand delivered

Send Results to: Brian Waggle

- ☐ 2365 NORTHSIDE DRIVE, SUITE C-100 SAN DIEGO, CA 92108 (619) 521-0165
- ☒ 1400 EAST SOUTHERN AVENUE, SUITE 620 TEMPE, AZ 85282 (480) 345-0868
- ☐ 1820 EAST RIVER ROAD, SUITE 100 TUCSON, AZ 85718 (520) 881-7300

Send invoice to San Diego, CA
Attn: Accounts Payable

Exhibit C

TOWN OF GILA BEND

APPLICATION FOR AN AMENDMENT TO THE GENERAL PLAN

DATE FILED:_____ APPLICATION FEE PAID: **$0** DEPOSIT PAID: **$0**

CHECK NO:_____ BANK:_____ RECEIVED BY:_____

ZONING: Existing ***AG*** Proposed **I-3 and AG** Number of Acres **640**

GENERAL PLAN DESIGNATION: Existing: **Unplanned** Proposed **Open Space and Heavy Industrial**

Property Legal Description, Assessor's Parcel Number, and Address:

Assessor's Parcel Number: 403-15-049E, 049H, 049J, 049K, 049L, 049M, 049N, 048

T&R, Sec: Township 5S, Range 5W, Section 19

Applicant Name: **Gila Bend Planning Commission**

Address (mailing and physical): _____

Telephone: _____ FAX: _____

Owner's Name (If other than petitioner): **S&P Farms, Paloma Ranch, and US Government**

Address: **See Section 3 for full addresses**

Telephone: _____

INSTRUCTIONS

The following items must be submitted with the application at the time of filing:

____ Assessor's Parcel Map(s) showing all properties within 100 feet

____ A description of the impact of the proposed use will have in relation to the health, safety, and general welfare of the occupants of surrounding lands, and consistency of the proposed amendment with the General Plan outside of the proposed amendment area.

____ Vicinity map showing all property within 300 feet by name of owner, a set of mailing labels for each property owner within 300 feet, and a copy of the vicinity map in an 8½" X 11" format on white paper and on a transparency

Certification:

I certify that the information I have given on this application is true and accurate to the best of my knowledge.

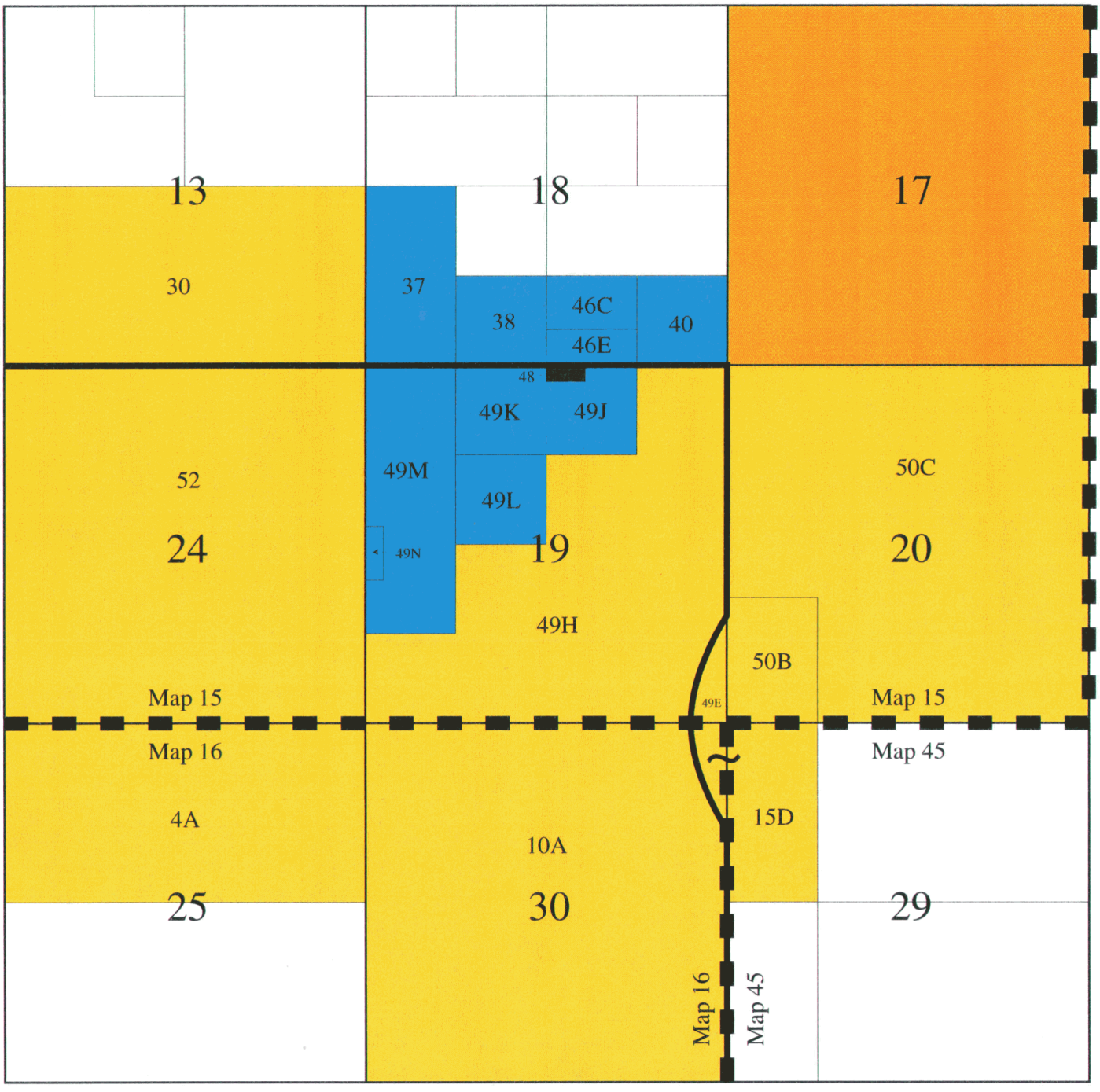
_____ _____

Applicant's Signature

SECTION 2: IMPACT ASSESSMENT

The site is located on the west side of Citrus Valley Road immediately north of approximately 1,500 acres of land in Section 30, T5S, R5W, that is planned for heavy industrial use, specifically a commercial landfill. The surrounding lands include a mixture of agricultural and desert lands. The proposed use of the parcel, Heavy Industrial, is consistent with the General Plan designation for the adjacent properties within the town limits, which are Heavy Industrial to the south and Light Industrial to the east.

The site is intended to be developed for a combined cycle power generating facility. There are no occupants on surrounding lands within 300 feet of the subject parcel and, therefore, impacts to residents will be minimal. Additional information regarding health, safety, and welfare is included in the Application for a Certificate of Environmental Compatibility (Gila Bend Power Partners, LLC, September 2000).



Parcels and Landowners Within 300' of Site*

*See Attachment for Addresses

- Paloma Ranch
- S&P Farms
- San Lucy District, Tohono O'Odham Nation
- United States Government

Figure 2
Township 5S, Range 5W
Section 19

SECTION 3: MAILING ADDRESSES OF LANDOWNERS

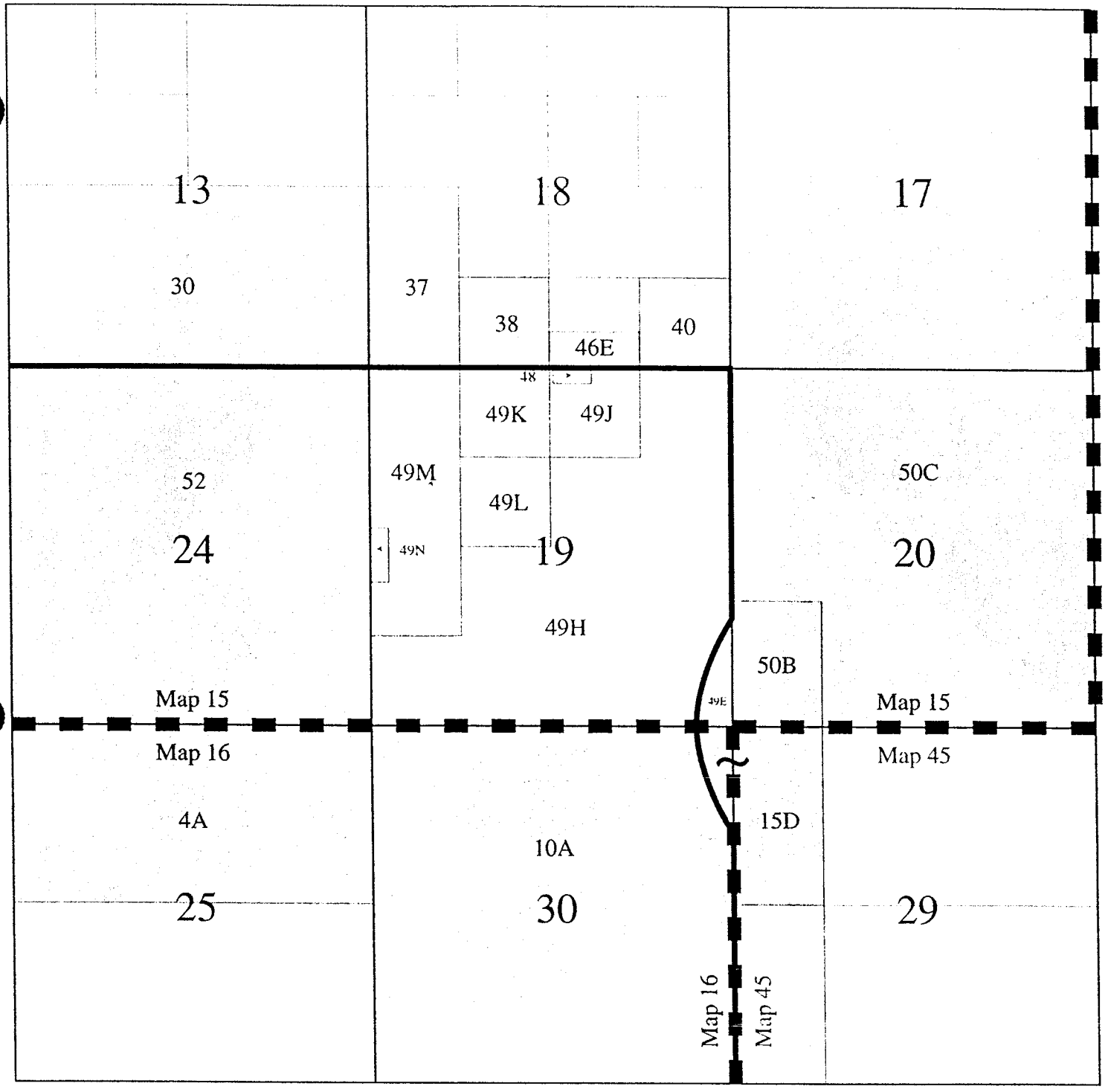
S&P Farms
205 W. Sonoma Dr.
Litchfield Park, AZ 85340

Paloma Ranch
1999 Avenue of the Stars, Suite 1200,
Los Angeles, CA 90067

United States Government
PO Box 81169
Phoenix, AZ 85068

San Lucy Division, Tohono O'Odham Nation

520 683 2343

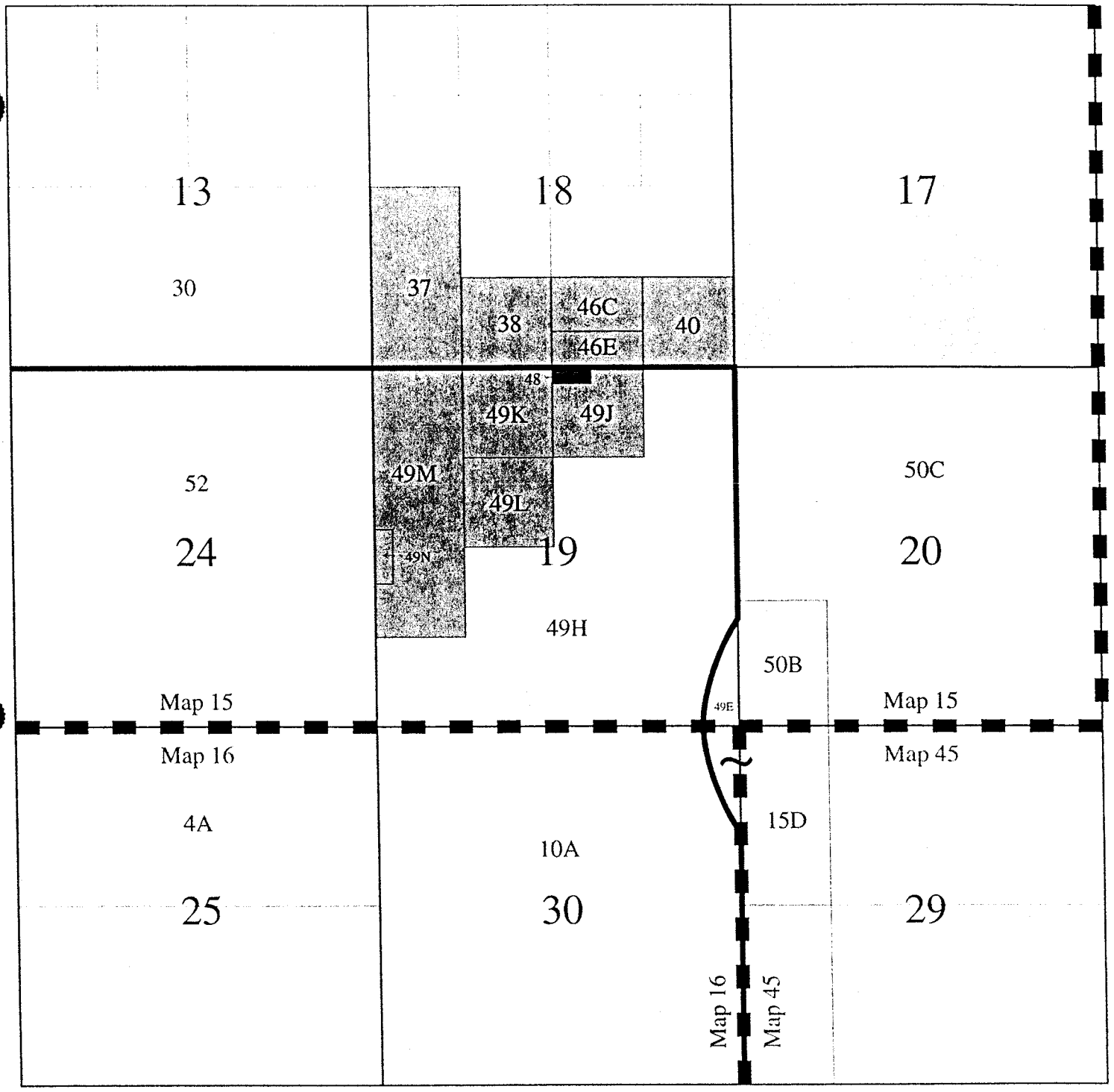


Properties Within 100' of Site

Properties Within 100'

Area Subject to Plan Amendment

Figure 1
Township 5S, Range 5W
Section 19
DRAFT 10/23/00

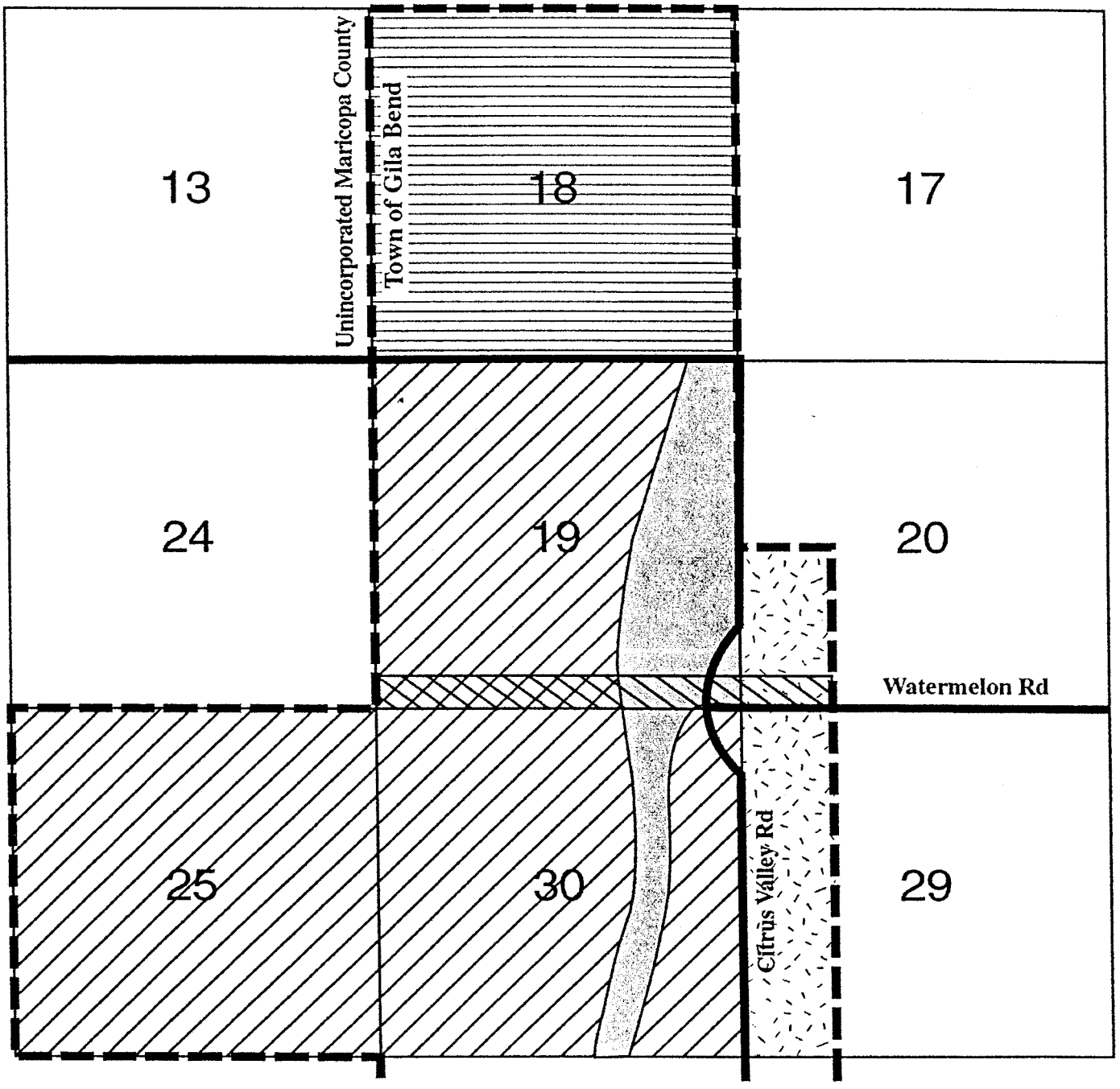


Parcels and Landowners Within 300' of Site*

*See Attachment for Addresses

- Paloma Ranch
- S&P Farms
- San Lucy District, Tohono O'Odham Nation
- United States Government

Figure 2
Township 5S, Range 5W
Section 19
DRAFT 10/23/00



Proposed General Plan Amendment

- Town Boundary
- Heavy Industrial
- Light Industrial
- Parks/Open Space
- Utility Corridor (500')
- Unplanned

Section 19, Township 5S
Range 5W

TOWN OF GILA BEND

APPLICATION FOR A CHANGE IN ZONING

DATE FILED:_____

APPLICATION FEE PAID: **$0** DEPOSIT PAID: **$0** CHECK NO:_____

BANK:_____ RECEIVED BY:_____

General Plan Designation: **Unplanned**

Property Legal Description, Assessor's Parcel Number, and Address:

Assessor's Parcel Number: 403-15-049H, 049J, 049K, 049L, 049M, 049N, 048

T&R, Sec: T5S, R5W, Section 19, except a portion of the E ½ of the E ½ of Section 19.

NUMBER OF ACRES **480** ZONING: Existing **AG** Proposed **I-3**

Applicant Name: **Gila Bend Planning Commission**

Address (mailing and physical): _____

Telephone: _____ FAX: _____

Owner's Name (If other than petitioner): **S&P Farms, Paloma Ranch, and US Government**

Address: **See Section 3 for full addresses**

Telephone: _____

INSTRUCTIONS

The following items must be submitted with the application at the time of filing:

____ Assessor's Parcel Map(s) showing all properties within 100 feet.

____ A description of the impact of the proposed use will have in relation to the health, safety, and general welfare of the occupants of surrounding lands, and consistency with the Town's General Plan.

____ Vicinity map showing all property within 300 feet by name of owner, a set of mailing labels for each property owner within 300 feet, and a copy of the vicinity map in an 8½" X 11" format on white paper and on a transparency

Certification:

I certify that the information I have given on this application is true and accurate to the best of my knowledge.

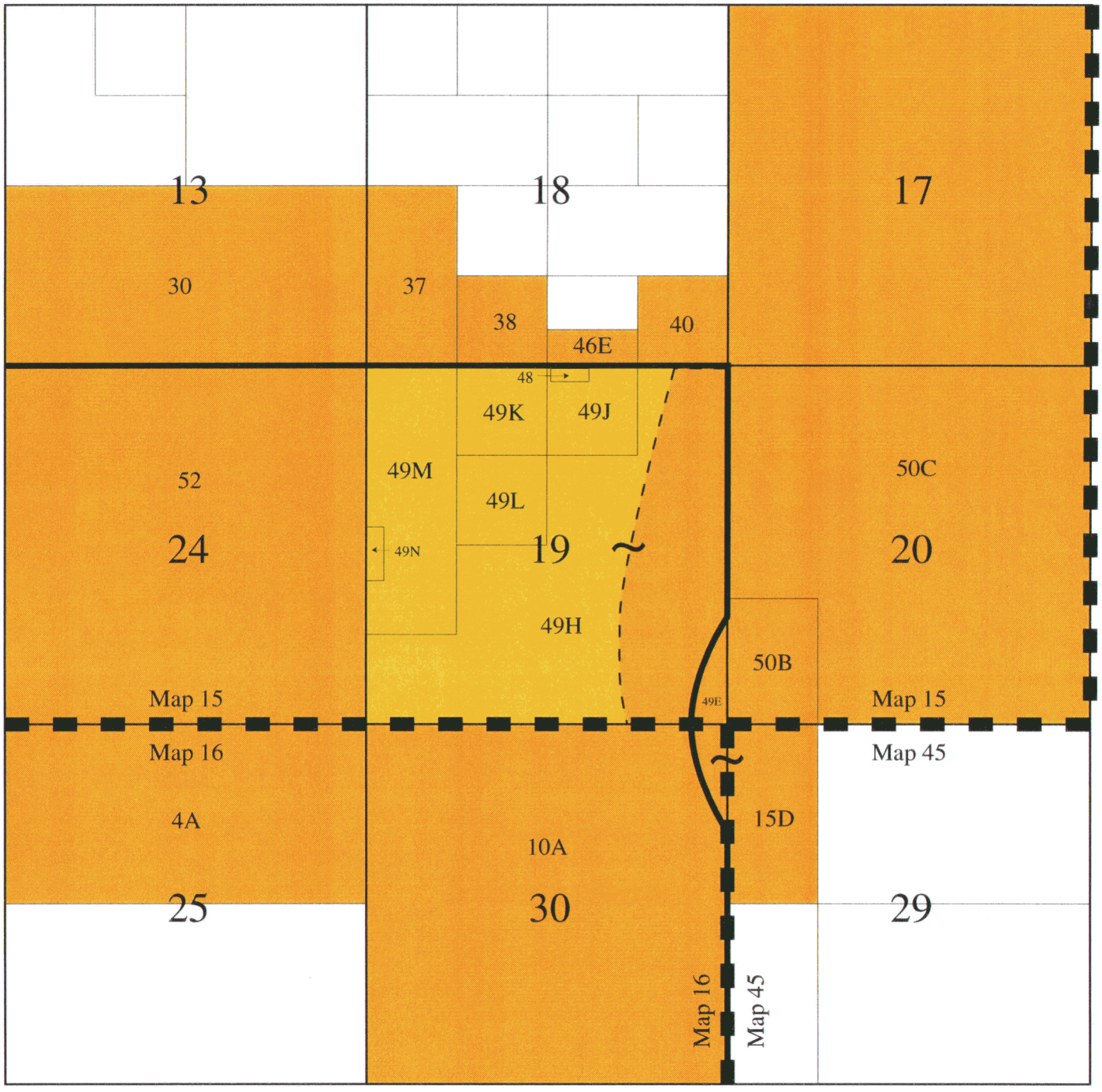
_____ _____

Applicant's Signature

SECTION 2: IMPACT ASSESSMENT

The site is located on the west side of Citrus Valley Road immediately north of approximately 1,500 acres of land in Section 30, T5S, R5W, that is planned for heavy industrial use, specifically a commercial landfill. The surrounding lands include a mixture of agricultural and desert lands. The proposed zoning of the parcel, to I-3 heavy industrial, is consistent with the General Plan designation for the adjacent properties within the town limits.

The site is intended to be developed for a combined cycle power generating facility. There are no occupants on surrounding lands within 300 feet of the subject parcel and, therefore, impacts to residents will be minimal. Additional information regarding health, safety, and welfare is included in the Application for a Certificate of Environmental Compatibility (Gila Bend Power Partners, LLC, September 2000).



Properties Within 100' of Site

Properties Within 100'

Area Subject to Zoning Change

Figure 1
Township 5S, Range 5W
Section 19

NOTICE OF PUBLIC HEARING

A Public Hearing will be held before the Planning Commissioin of The Town of Gila Bend on:

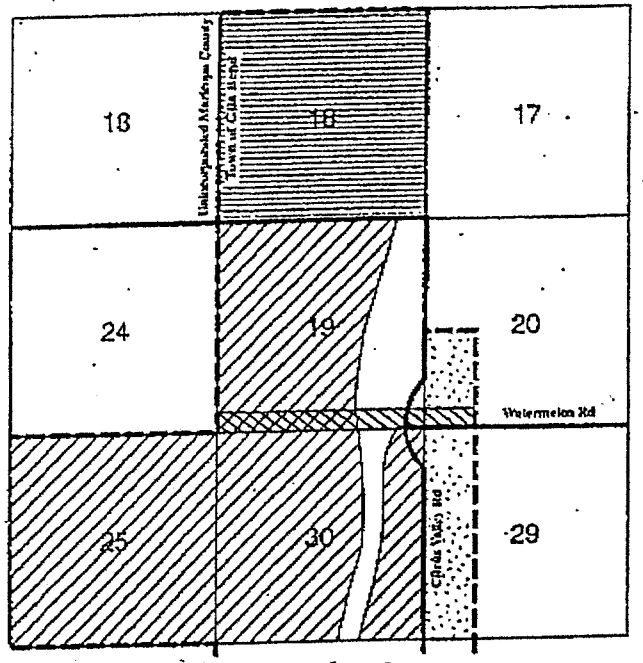
DATE: Thursday, November 9, 2000

TIME: 7:00 pm

PLACE: Gila Bend Town Hall, 644 West Pima Street
Gila Bend, AZ 85337

CASE: GPA-00-05

GPA-00-05, to consider a proposed General Plan Amendment to the Town of Gila Bend General Plan to change the land use designation on Section 19 Township 5 South Range 5 West from unplanned to Heavy Industrial and open space.



Proposed General Plan Amendment

- Town Boundary
- Utility Corridor (500')
- Heavy Industrial
- Unplanned
- Light Industrial
- Parks/Open Space

Interested persons may file written comments concerning the proposed amendments and/or appear and be heard at the public meeting. Copies of the proposed amendments will be available at the Town Hall.

Accessibility for all persons with disabilities will be provided upon request. Please telephone your accommodation request (683-2255 or 1-800-367-8939 ADD Arizona Relay Service) 72 hours in advance if you need a sign language interpreter or alternate materials for a visual or hearing impairment.

Number of Publications two: Dates of Publication, October 19 & 26, 2000

NOTICE OF PUBLIC HEARING

A Public Hearing will be held before the Planning Commissioin of The Town of Gila Bend on:

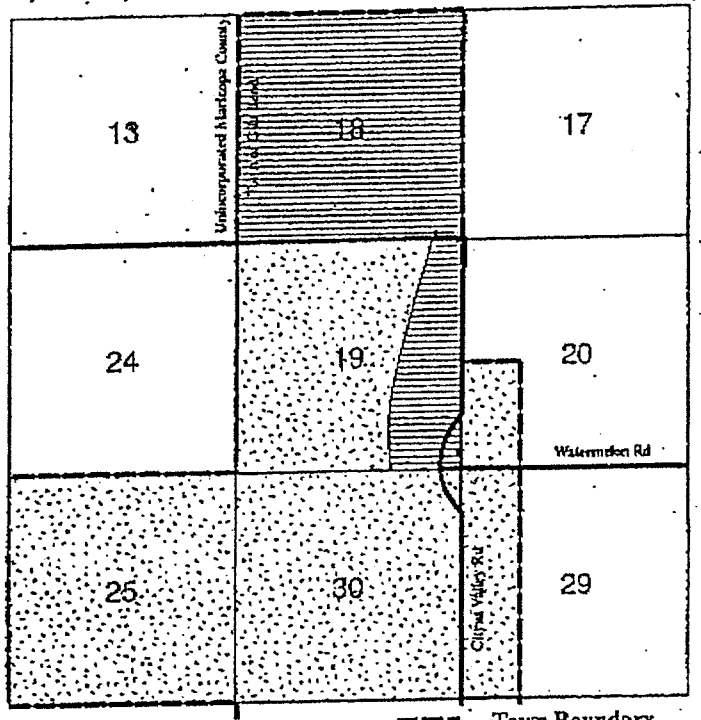
DATE: Thursday, November 9, 2000

TIME: 7:00 pm

PLACE: Gila Bend Town Hall, 644 West Pima Street
Gila Bend, AZ 85337

CASE: Z-00-26

Z-00-26, to consider a proposed amendment to the Zoning Ordinance to change the zoning on Section 19 Township 5 South Range 5 West from AG to Heavy Industry.



Proposed Zoning Change

- Town Boundary
- Agriculture
- I-3

Interested persons may file written comments concerning the proposed amendments and/or appear and be heard at the public meeting. Copies of the proposed amendments will be available at the Town Hall.

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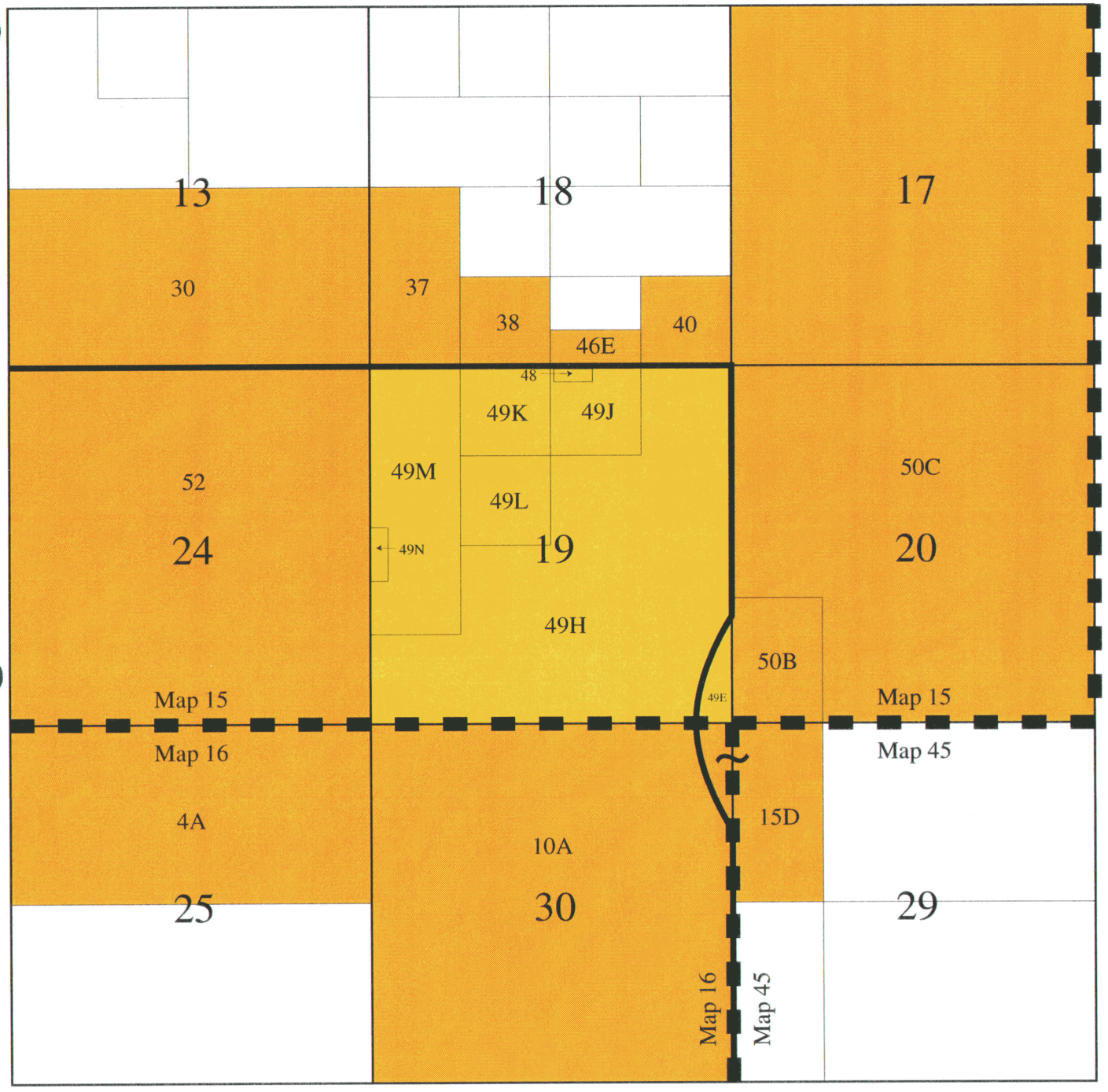
Number of Publications two: Dates of Publication, October 19 & 26, 2000

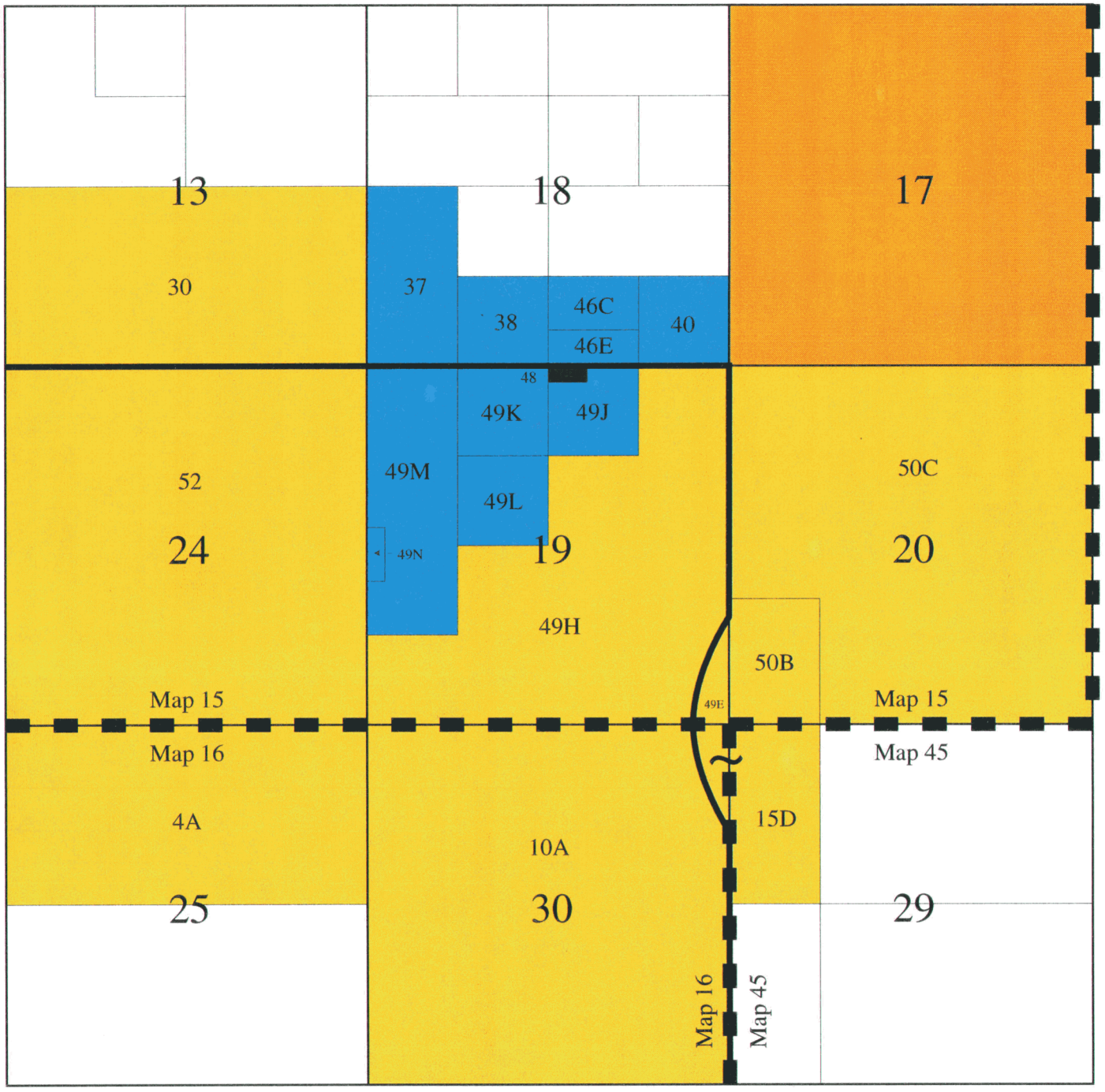


Properties Within 100' of Site

Properties Within 100'

Area Subject to Plan Amendment

Figure 1
Township 5S, Range 5W
Section 19



Parcels and Landowners Within 300' of Site*

*See Attachment for Addresses

- Paloma Ranch
- S&P Farms
- San Lucy District, Tohono O'Odham Nation
- United States Government

Figure 2
Township 5S, Range 5W
Section 19

SECTION 3: MAILING ADDRESSES OF LANDOWNERS

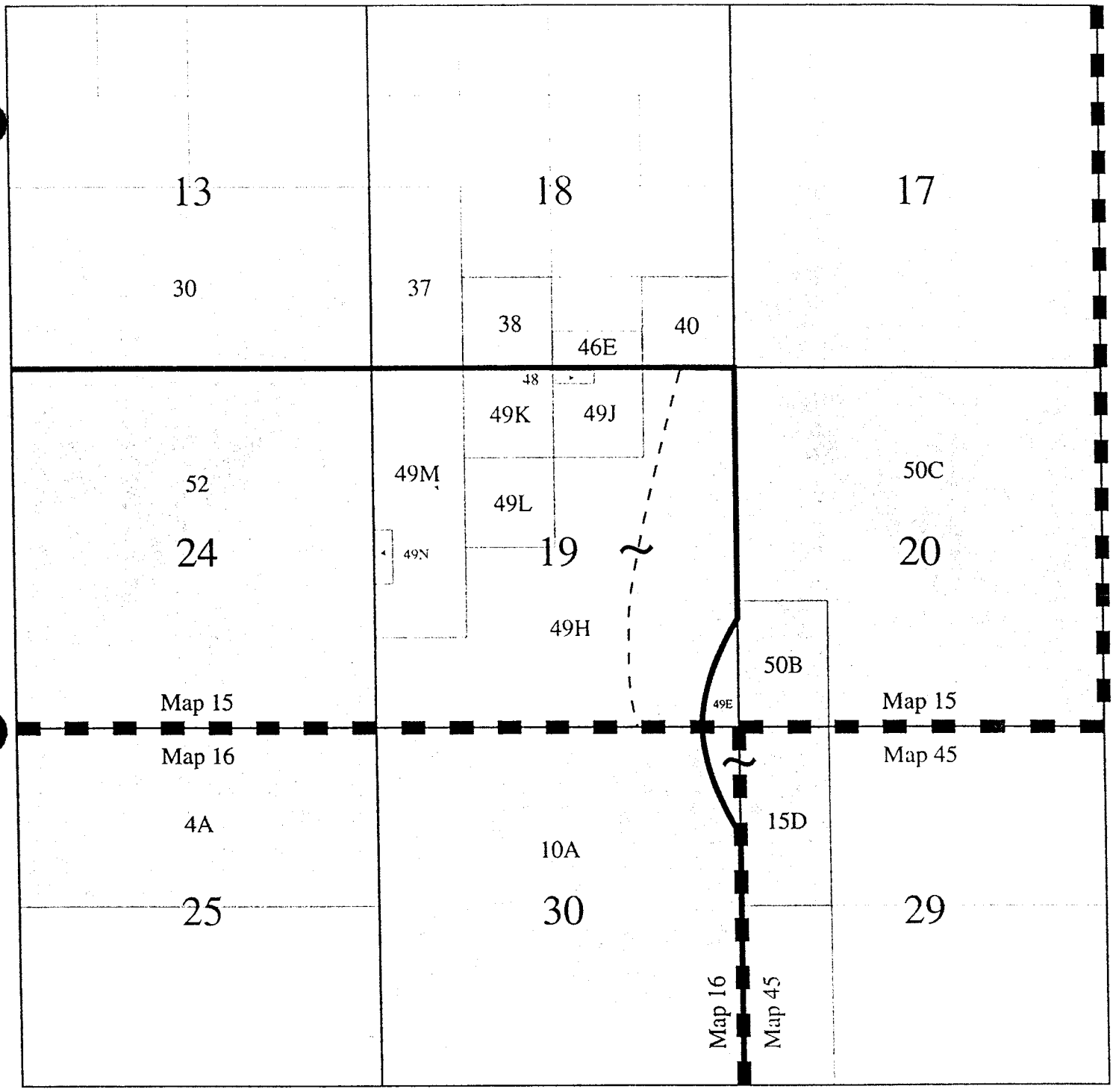
S&P Farms
205 W. Sonoma Dr.
Litchfield Park, AZ 85340

Paloma Ranch
1999 Avenue of the Stars, Suite 1200,
Los Angeles, CA 90067

United States Government
PO Box 81169
Phoenix, AZ 85068

San Lucy Division, Tohono O'Odham Nation

520 683 2343

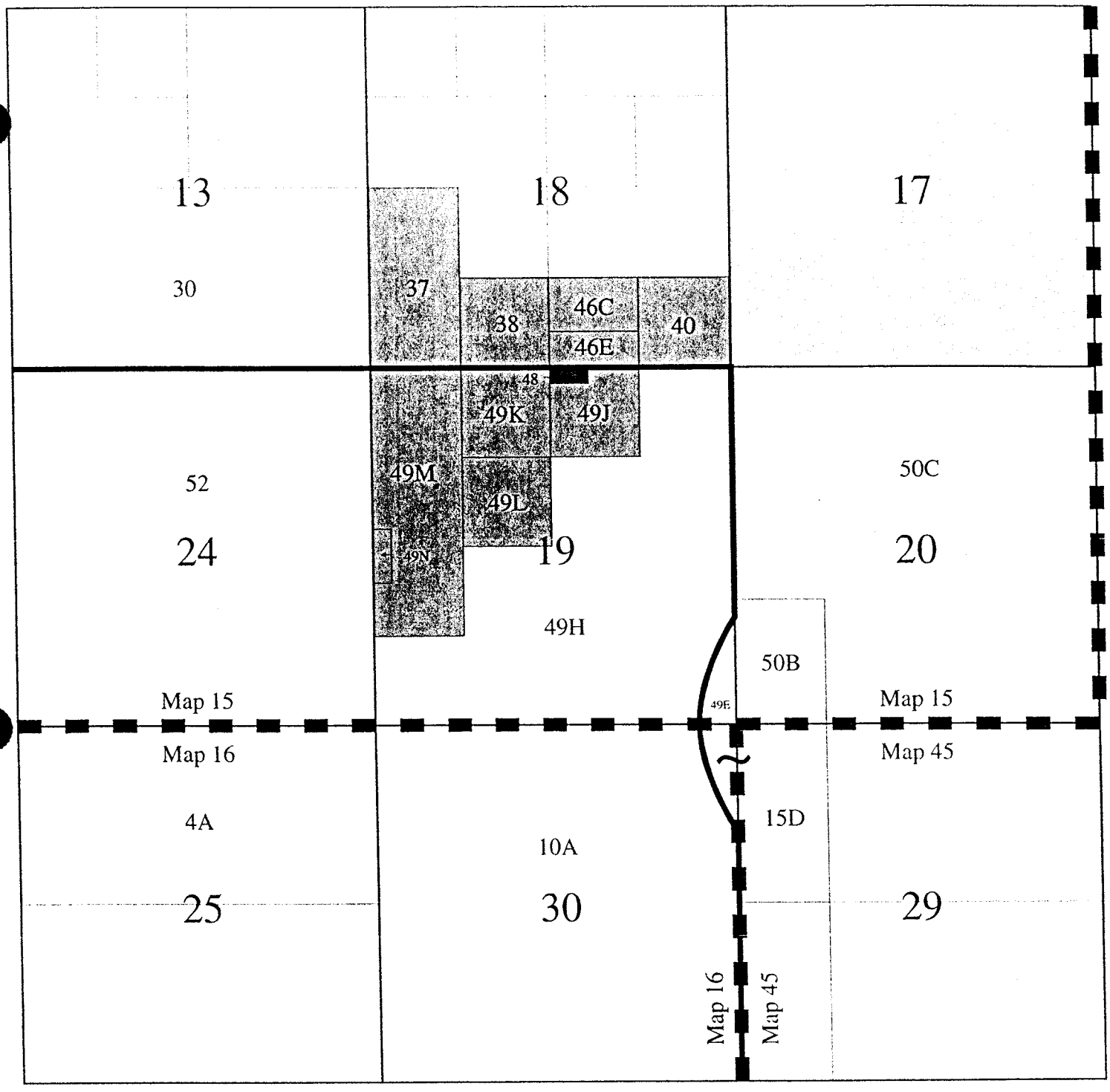


Properties Within 100' of Site

Properties Within 100'

Area Subject to Zoning Change

Figure 1
Township 5S, Range 5W
Section 19
DRAFT 10/23/00



Parcels and Landowners Within 300' of Site*

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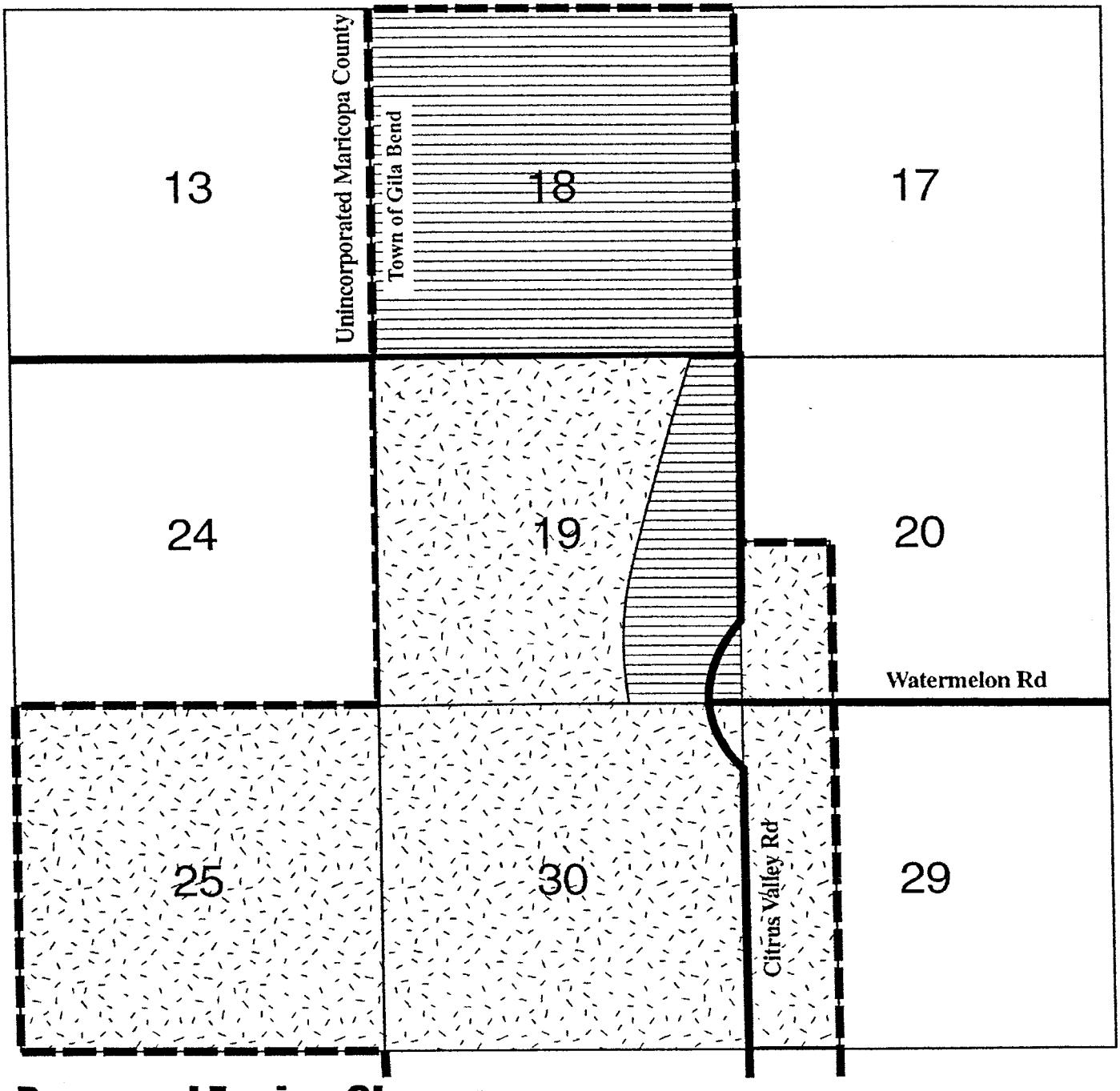
Figure 2
Township 5S, Range 5W
Section 19
DRAFT 10/23/00



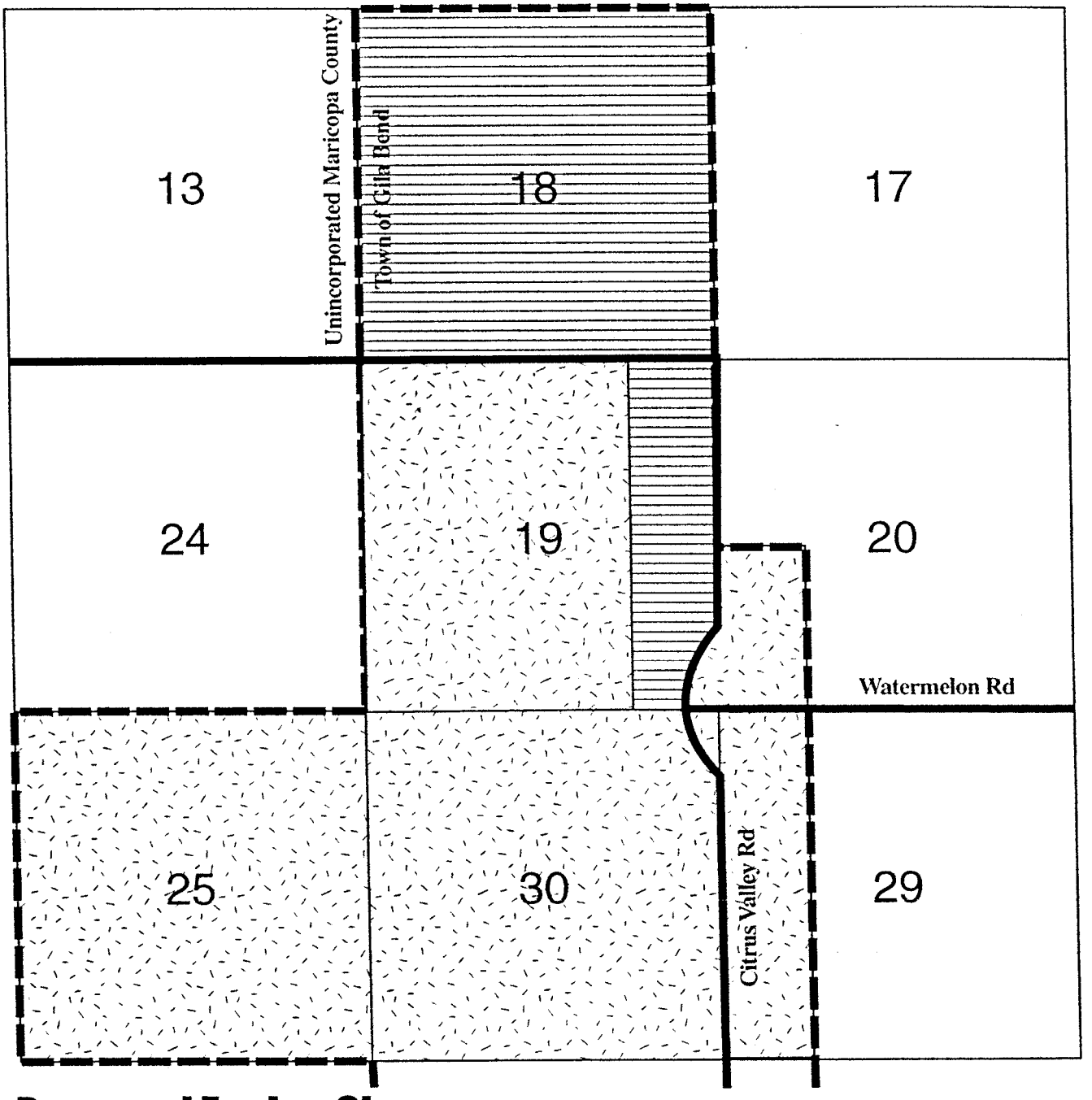
Proposed Zoning Change

Town Boundary

Agriculture

I-3

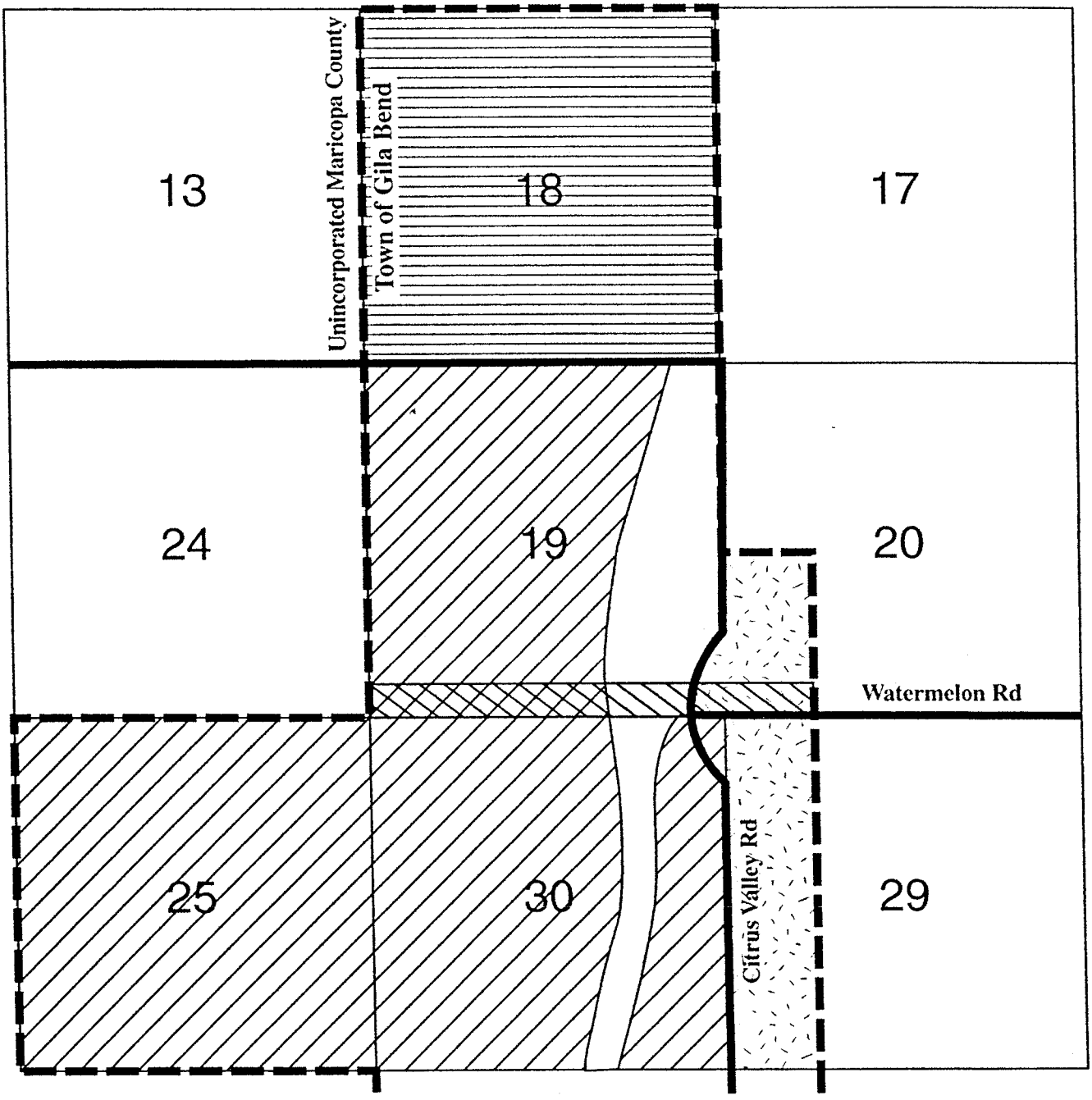
Section 19, Township 5S
Range 5W
DRAFT 10/23/00



Proposed Zoning Change

- Town Boundary
- Agriculture
- I-3

Section 19, Township 5S
Range 5W



Proposed General Plan Amendment

- Town Boundary
- Heavy Industrial
- Light Industrial
- Parks/Open Space
- Utility Corridor (500')
- Unplanned

Section 19, Township 5S
Range 5W