

# REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

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 FACIL:STN-50-528 Palo Verde Nuclear Station, Unit 1, Arizona Publi 05000528  
 STN-50-529 Palo Verde Nuclear Station, Unit 2, Arizona Publi 05000529  
 STN-50-530 Palo Verde Nuclear Station, Unit 3, Arizona Publi 05000530  
 AUTH.NAME AUTHOR AFFILIATION  
 VAN BRUNT,E.E. Arizona Public Service Co.  
 RECIP.NAME RECIPIENT AFFILIATION  
 KNIGHTON,G.W. Licensing Branch 3

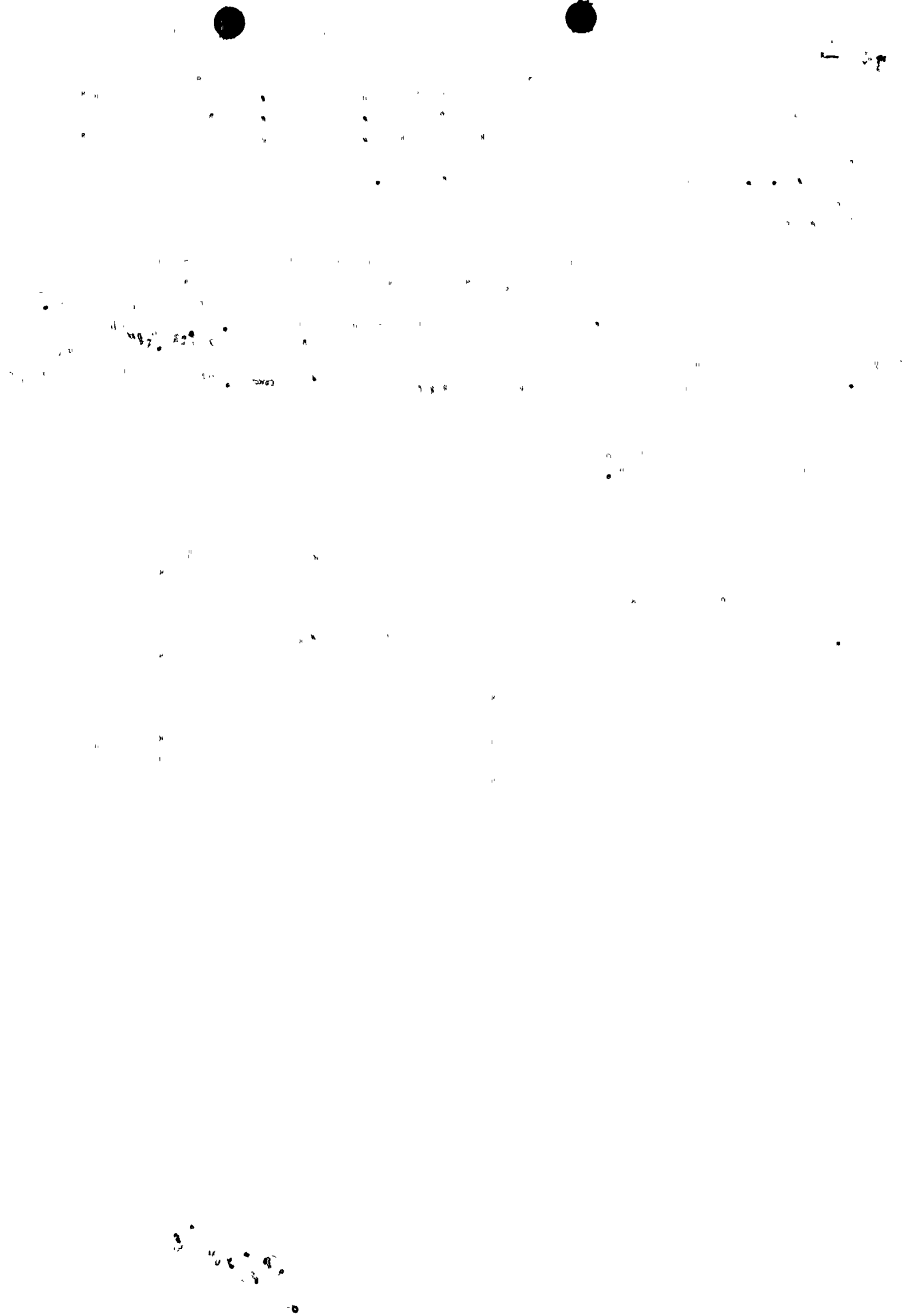
SUBJECT: Forwards various items mailed to residents in 10-mile emergency planning zone. Info available on periodic basis to ensure residents notified of actions should emergency occur. W/two oversize drawing .Aperture cards in PDR.

DISTRIBUTION CODE: A045D COPIES RECEIVED:LTR 1 ENCL 6 SIZE: 34  
 TITLE: OR Submittal Emergency Prep Correspondence

NOTES:Standardized plant. 05000528  
 Standardized plant. 05000529  
 Standardized plant. 05000530

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NRR/DSI/AEB	1 1	NRR/DSI/RAB	1 1
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Arizona Public Service Company

ANPP-31321-EEVB/WFQ/RWP  
December 4, 1984

Director of Nuclear Reactor Regulation  
Mr. George W. Knighton, Chief  
Licensing Branch No. 3  
Division of Licensing  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555

Subject: Palo Verde Nuclear Generating Station (PVNGS)  
Units 1, 2, and 3  
Public Information on Emergency Planning  
for EPZ Residents  
Docket Nos. STN 50-528/529/530  
File: 84-056-026; G.1.01.10; 84-002-493

Dear Mr. Knighton:

Per telephone conversation with E. A. Licitra, of your staff, and Robert W. Page, ANPP Manager of Emergency Planning and Preparedness, on November 28, 1984, please find attached various items mailed to the residents of the ten-mile Emergency Planning Zone. A separate itemized listing of the enclosures is provided for your convenience

This information is made available to the residents on a periodic basis to ensure they know how they will be notified and what their initial actions should be in the event of an emergency. Information has been provided on radiation, where to call for additional information, protective measures and evacuation routes.

If any additional information or clarification is required, please contact me.

Very truly yours,

*E E Van Brunt / JSK*

E. E. Van Brunt, Jr.  
APS Vice President  
Nuclear Production  
ANPP Project Director

EEVB/RWP/mb

cc: E. A. Licitra  
A. C. Gehr  
R. P. Zimmerman  
F. Kantor

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PDR ADOCK 05000528  
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1/6*






## CONTENTS

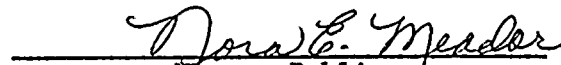
1. New Generation (published periodically)
2. Information Brochure (1982)
3. Emergency Brochures (1983-1984)  
Note: Update mailing in 1985
4. Telephone Sticker
5. Text of Telephone Book Insert for Buckeye, Arizona. Inserted 1983/1984.  
Submitted to Mt. Bell November 1984 for 1985.
6. Emergency Posters (1983-1984)
7. Text of Emergency Poster translated into Spanish - card for distribution  
in employees pay envelopes. Both will be distributed when poster  
printing completed.
8. Special Assistance Mailing. Card, for mailing done by APS in 1983.  
Letter with card mailed by MCCDES May 1984.
9. 1984 Emergency Calendar (1985 to be mailed shortly, currently at  
printer).
10. Listing of events for Open House held May 5, 1984. Similar to Open  
House held in Spring 1983. Various mailings related to Open House.
11. Mailing to inform residents of the annual Emergency Exercise 1984.
12. Letter to area Mayors providing tour and briefing on Emergency Planning.
13. Letter to area Mayors providing briefing for the Emergency Exercise  
9/26/84.
14. Radiation Brochure

STATE OF ARIZONA    )  
                              ) ss.  
COUNTY OF MARICOPA)

I, Donald B. Karner, represent that I am Assistant Vice President, Nuclear Production of Arizona Public Service Company, that the foregoing document has been signed by me on behalf of Arizona Public Service Company with full authority to do so, that I have read such document and know its contents, and that to the best of my knowledge and belief, the statements made therein are true.

  
Donald B. Karner

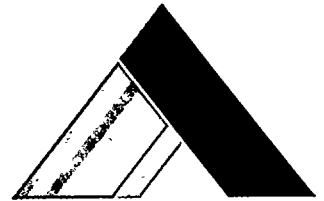
Sworn to before me this 4th day of December, 1984.

  
Notary Public

My Commission Expires:  
My Commission Expires April 6, 1987



# The New Generation



Palo Verde Quarterly News

Vol. 11, Spring 1984

## Emergency response planning comes of age

*Following is a reprint of a story that appeared in the Winter 1984 Review, a magazine published by the Institute of Nuclear Power Operations, about the Palo Verde plant's emergency response plan and organization.*

As Bob Page puts it, "Murphy's law can take over. So even if you can't imagine that a situation could occur, you should be able to deal with it."

Page speaks as manager of emergency planning and preparedness at Arizona Public Service Company's Palo Verde Nuclear Generating Station.

Although Palo Verde is still under construction (the first of its three units is nearing fuel load), its

emergency plan is well in place.

A permanent eight-member staff at Palo Verde works full-time on emergency planning. With each step in the planning process, these staff members must address a number of questions. Are the facilities adequate? Is the training sufficient for both plant staff and off-site agencies? How are training tools such as drills and exercises to be coordinated?

In some ways, Palo Verde's challenges are less complex than those at other plants. The emergency planning zone (EPZ\*) population is less than 4,000, and only one county and one state participate in the emergency plan. (Editor's note: \*denotes terms to be defined.)

The point is to get a quick response for the start, using on-site personnel.

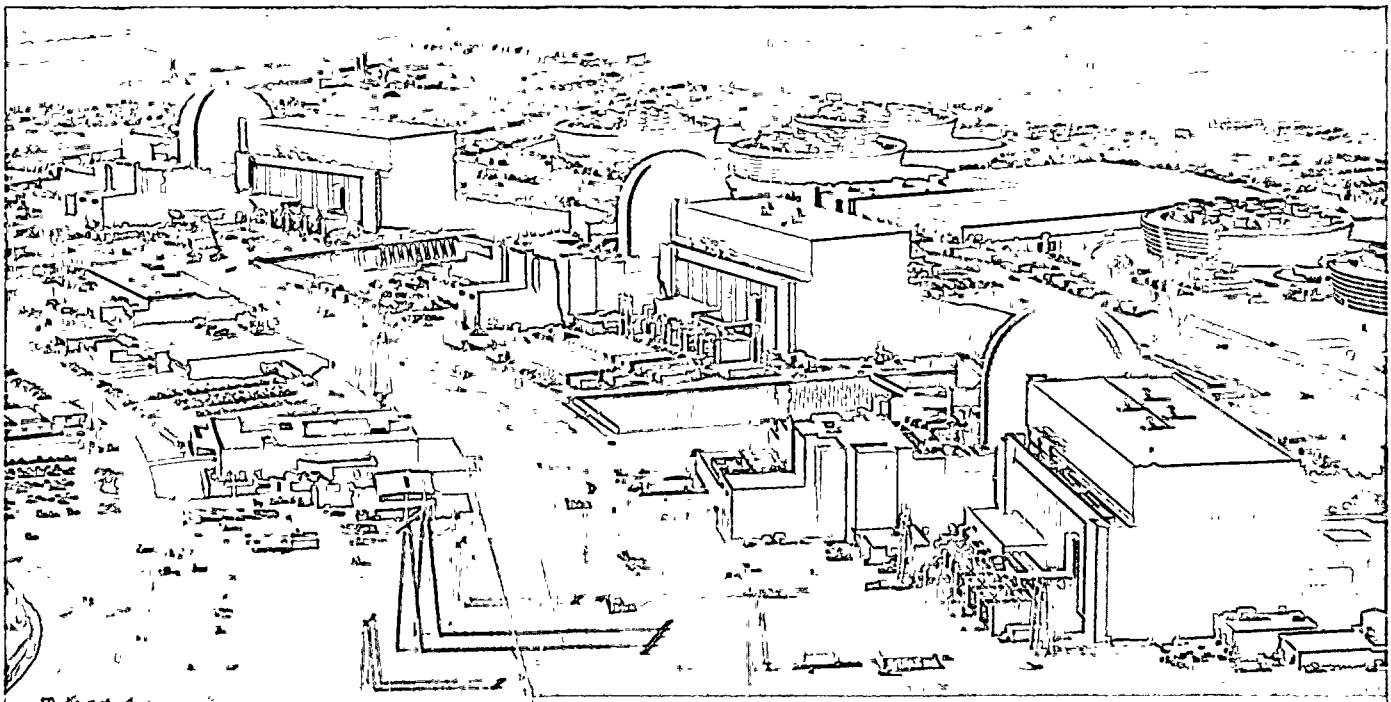
But the very fact that the Palo Verde site is so remote - about 60

miles from Phoenix - brings special considerations. Getting experts from the corporate office in Phoenix to the plant site quickly, for example, could cause some staffing problems.

The point, says Page, is to get a quick response from the start, using on-site personnel. This is where Palo Verde's satellite technical support center (STSC) comes into play. The STSC is a special facility located immediately outside the control room. There, a staff of about 10 handles the initial stages of an emergency before other emergency facilities are staffed.

After the operator determines which of the four emergency action levels (EALs\*) an event falls into, he calls in the shift supervisor from an "unaffected" unit at the plant. That supervisor acts as the

*(Continued overleaf)*



## Emergency (Continued)

emergency coordinator, freeing the supervisor of the affected unit to deal with the emergency.

From the STSC, the flow of information begins: The emergency coordinator, among other things, notifies off-site agencies and calls in backup personnel. Says Page, "The STSC provides the immediate response and control needed, allowing us time to staff other facilities fully."

In addition to the STSC, Palo Verde staff has tailored other facilities to speed the flow of information during an emergency. These include the following:

A joint emergency news center, joint ENC\*, where representatives from the county, state and utility cooperate to provide information to the public.

A corporate headquarters information center, which handles public information before the news center is in operation. Staffing the corporate facility is quickly done, since the day-to-day offices of the staff members are already located in the corporate office.

## Palo Verde training

Making the emergency plan work hinges on a key ingredient: training. By no means does that training stop with the plant staff or even the corporate staff. At Palo Verde, it includes such off-site groups as the state radiation agency and local medical facilities.

APS takes special measures to ensure training is consistent throughout each organization. With members drawn from all organizations, a committee creates lesson plans for that purpose.

Hands-on training, classroom instruction and exams play a part, and "mini-drills" allow the trainees to act out their emergency roles far in advance of exercises when all the organizations work together.

After the mini-drills, the next training tool APS used was the "table-top" exercise. Here all the players — about 200 — assembled in one room to walk through the full emergency exercise. The site



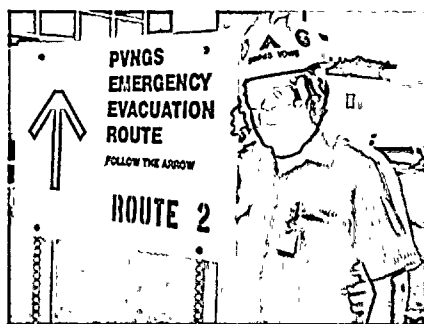
Bob Page

for Palo Verde's three table-top exercises was a convention center in downtown Phoenix.

The participants, explains Page, had signs on the tables designating their positions, along with packets that explained who they could call and what phones they could use. With the emergency scenario as a guide, the players made phone call after phone call — all hypothetically. With each "call," the caller would stand and address the person on the receiving end so that all the players could hear.

The point was to get the problems out in the open. Says Page, "Some people came in not knowing exactly what they were supposed to do. Others hadn't read the procedures. And, in fact, I think there were some glitches in the scenario. Let's face it. Everyone was learning."

Two table-tops and a dress rehearsal later, Palo Verde was



Dennis Yows

ready to check the results of its training efforts through the full-scale exercise. Lead On-site Emergency Planner Dennis Yows notes that one of the major efforts was to simulate real conditions as much as possible. Role-playing is essential, he says. "You have to emphasize that to the participants. We said to them, 'You've got to do it just like it was really happening so we can check the whole thing.'"

With realism the goal, Palo Verde began its exercise by way of the control room simulator, along with a mock satellite technical support center. The use of the simulator proved an excellent training tool, says Yows. "This way," he explains, "the operators could see events unfolding before their eyes." The full scenario brought all the facilities into play, complete with heavy media interest at the joint emergency news center.

The exercise went well, says Page, and he notes that it served as a good method to locate rough spots. "You should be convinced that you've already got a passing situation. You run the exercise to determine those areas that need additional work."

## Walt Disney movie arrives at Palo Verde

You are invited to the Palo Verde Information Center to see a very informative and entertaining movie about the atom and how it is used in the production of electricity at a nuclear generating station. The movie, "The Atom, A Closer Look," was produced by Walt Disney Productions and the American Nuclear Society.

The movie also explains how a nuclear generating plant works, radiation, the safety record of the nuclear industry, and the handling of spent fuel.

Both children and adults will learn a lot about the atom and the nuclear industry from this 30-minute film, so why not bring the whole family!

To reserve a time at the Information Center to see "The Atom, A Closer Look," please call the Information Center any day between 8:00 a.m. and 4:00 p.m. at 932-3230 or 386-6167.

# Open House

The fourth annual Palo Verde Open House for all our neighbors living around the plant will be on Saturday, May 5th. Palo Verde's doors will be open to you and your family from 10:00 a.m. to 3:00 p.m.

This will be the first Open House that will give you a chance to see the inside of one of the nuclear plant's units. Sights included in the walking tour will be the large turbine generator that will produce electricity, and the nuclear reactor located inside the containment building. For safety's sake we ask that ladies planning to

take the walking tour do not wear high-heeled shoes.

We hope you will take advantage of this opportunity to not only walk through the inside of the nuclear plant, but to also take a bus tour of the site, visit the control room simulator, see radiation and energy demonstrations, enjoy a barbeque lunch, listen to a country western band, and take away free souvenirs of your visit.

Please mark Saturday, May 5th on your calendar, and we'll look forward to seeing you at the Palo Verde Open House.

## Hot Line program re-emphasized to employees

In November 1982, APS launched a quality assurance program at Palo Verde called Hot Line. Designed to be yet another check in a system of many checks, the Hot Line phone number enables employees to bring their unresolved quality and safety concerns to the attention of the APS corporate QA Department.

Since the program began, 40

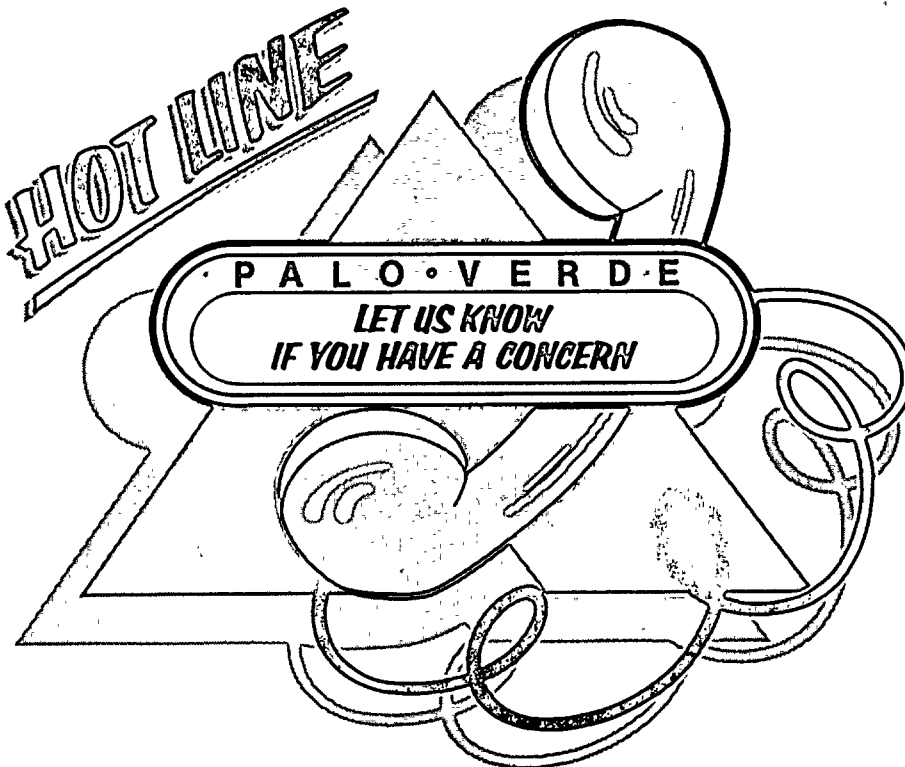
concerns have been investigated through Hot Line. "This relatively low figure is a good indicator that most quality and safety problems are being resolved at the plant site," says Bruce Kaplan, manager of Quality Systems and Programs for APS.

But the number of APS employees at Palo Verde has grown since the program began, and there

have been many personnel changes among the Bechtel crews. So in April, Hot Line brochures were again distributed to all Palo Verde personnel, to make sure everyone becomes aware of the program.

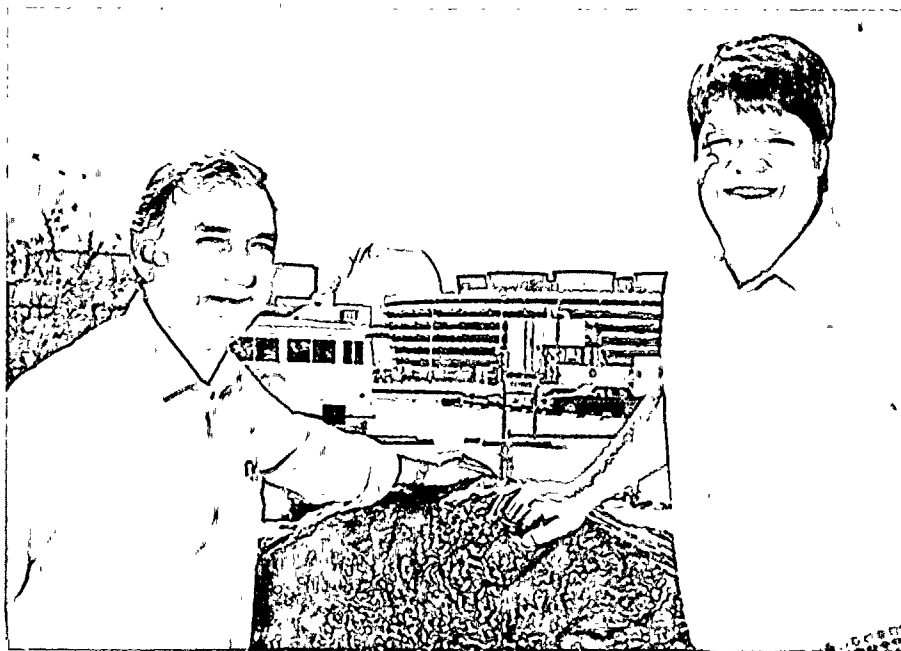
Calls made to Hot Line are responded to within one day and all calls are confidential. QA engineers investigate and follow up all reports made to Hot Line in order to carry out upper management's commitment to provide employees a way to make sure their concerns are heard and addressed. Callers who wish to remain anonymous can check back in 10 working days after their initial report to find out the status of their concern.

The Hot Line program is a part of the APS Corporate Nuclear Safety Policy which holds all Palo Verde employees responsible for maintaining the highest standards of safety for the protection of employees and the public.



The  
New Generation





Ray Duncan (left) and Mike Zimmerman

## Visitors Center staff changes

Mike Zimmerman has joined the Palo Verde Nuclear Generating Station staff as Director of the Information Center. Mike has been with Arizona Public Service since 1977 and has held positions in Customer Service, Nuclear Fuel Supply and Nuclear Information and Communications.

Also joining the Information Center staff is Ray Duncan. Ray was a member of the plant's security force for nearly 3 years and has recently retired from the Air Force.

Both Mike and Ray hope to meet you personally at the Palo Verde Open House to be held Saturday, May 5th (see story on Page 3).

In the meantime, if you have any questions about the Palo Verde Nuclear Generating Station, please give Mike, Ray, or Donna Bell a call at 932-3230 or 386-6167. They'll be happy to hear from you.



## The New Generation

Palo Verde Nuclear Generating Station  
P.O. Box 21666, Station 1391  
Phoenix, Arizona 85036  
(602) 386-6167



PRESORT  
FIRST-CLASS MAIL  
U.S. POSTAGE  
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PERMIT No. 90

Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

March, 1984

Dear Neighbor:

Enclosed is the new Emergency Brochure I mentioned in my last letter to you. It contains information similar to the calendar; however it also gives you some details on the various organizations involved in the Emergency Plan for the Palo Verde nuclear plant.

Please keep this brochure in a place where you can find it easily.

We are in the process of planning Palo Verde's next Open House. May 5, 1984 has been tentatively chosen as the date for this event. We'll send you the details on the Open House in the near future.

Sincerely,



Joseph R. Bynum  
Director of Nuclear Operations

PVNGS-JRB-L84-203

Enclosure





Arizona Public Service Company

December, 1983

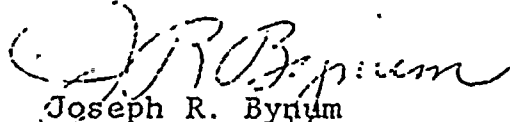
Dear Neighbor:

Attached is a sticker for your telephone, listing the emergency telephone numbers for the Sheriff's and Fire Departments. Also on the sticker is a reminder of what to do in the event you hear one of the sirens in your area signaling an emergency at the Palo Verde Nuclear Generating Station (you will be notified in advance of any siren testing).

If you would like additional stickers for extension phones in your home, please call the Palo Verde Energy Information Center at 386-6167.

We will soon be sending to you a 1984 Calendar that will contain information on Palo Verde and emergency procedures developed by the State of Arizona, Maricopa County and Arizona Public Service Company. These emergency procedures are for your protection in the highly unlikely event of a major accident at the Palo Verde nuclear plant. We hope that you will use this calendar and become familiar with the emergency information.




Sincerely,



Joseph R. Bynum  
Manager of Nuclear Operations

PVNGS-JRB L-83-1466

Attachment

EMERGENCY INFORMATION	
 Sheriff (toll-free) 1-800-352-4553	 Fire/Ambulance 386-4411
 PALO VERDE	If you should hear the siren sound, tune to local radio or TV stations for information. Read your emergency brochure for instructions.

1984 insert

# Palo Verde Nuclear Generation Station Emergency Plan

## What You Should Do In Case Of An Emergency At The Palo Verde Nuclear Generating Station

The Palo Verde Nuclear Generating Station is located in Wintersburg, Arizona, about 55 miles west of Phoenix and is scheduled to begin operating in 1984. The following information explains some steps that should be taken by people living or working within a 10-mile radius of the plant, including the communities of Tonopah, Arlington, Wintersburg, etc., in the unlikely event of an accident at the Palo Verde Plant.

## Emergency Classifications

You should take a few moments to familiarize yourself with each of these classifications so that if you ever hear them being used, you'll know how to respond. The four levels of emergency, from least serious to most serious are:

- **Unusual Event** - Indication of a potential degradation of the level of safety of the plant. No release of radioactive material requiring off-site response is expected.
- **Alert** - An actual or potential, limited release of radioactive material requiring off-site radiation monitoring.
- **Site Area Emergency** - Releases or potential releases of radioactive material requiring off-site radiation monitoring and notification of local residents.
- **General Emergency** - Releases or potential releases of radioactive material requiring protective measures for local residents.

## Actions To Take If You Hear A Siren

Although the possibility is remote that an accident would escalate to a level requiring protective measures, a warning system for the public has been installed. A siren will sound in the event of a potential or actual radiation release to the environment. Local radio or television stations will broadcast emergency protective action instructions from county and state officials. You will be kept informed for as long as the potential for hazard exists.

1. Tune to your local radio or television station for information bulletins. The stations will keep you informed. The action you are asked to take will depend on the nature of the emergency. Review your Emergency Brochure.
2. **DO NOT** tie up telephone lines. You are urged **NOT** to use the telephone except for personal emergency.
3. Protective action may simply involve staying indoors with doors and windows closed and ventilating systems (e.g. evaporative cooling systems) turned off.
4. If you are asked to relocate - pack necessary items and secure your home. Special Reception and Care Centers have been established and would be activated in the unlikely event they were needed. If you have been asked to go to a Reception and Care Center, gather only essential items and go to the Center as soon as possible. **DO NOT** leave until told to do so.
5. If you have no transportation: Immediately contact the Maricopa County Department of Civil Defense and Emergency Services at 273-1411, and tell them you have no transportation. Transportation will then be provided for you.
6. If school is in session, state and county officials may direct school children within the 10-mile radius of the Palo Verde nuclear plant be transported to a Reception and Care Center where they could be joined by their families. Local radio and television stations will carry bulletins making you fully aware of this process and will indicate where parents can go to pick up their children.

## Reception and Care Center (RCC) Locations \*

(Those Centers which are activated will be announced over the radio.)

RCC	Direction From PVNGS
Agua Fria High School (Avondale) .....	East
Buckeye High School .....	East
Littleton Elementary School .....	East (115th Ave. & Buckeye - Avondale)
Harquahala Valley Elementary School .....	West
Gila Bend High School .....	South

\* Other Reception and Care Centers may be activated if necessary.

## PVNGS Sector Designations

(This map is for your use in the event you are instructed to evacuate the area.)

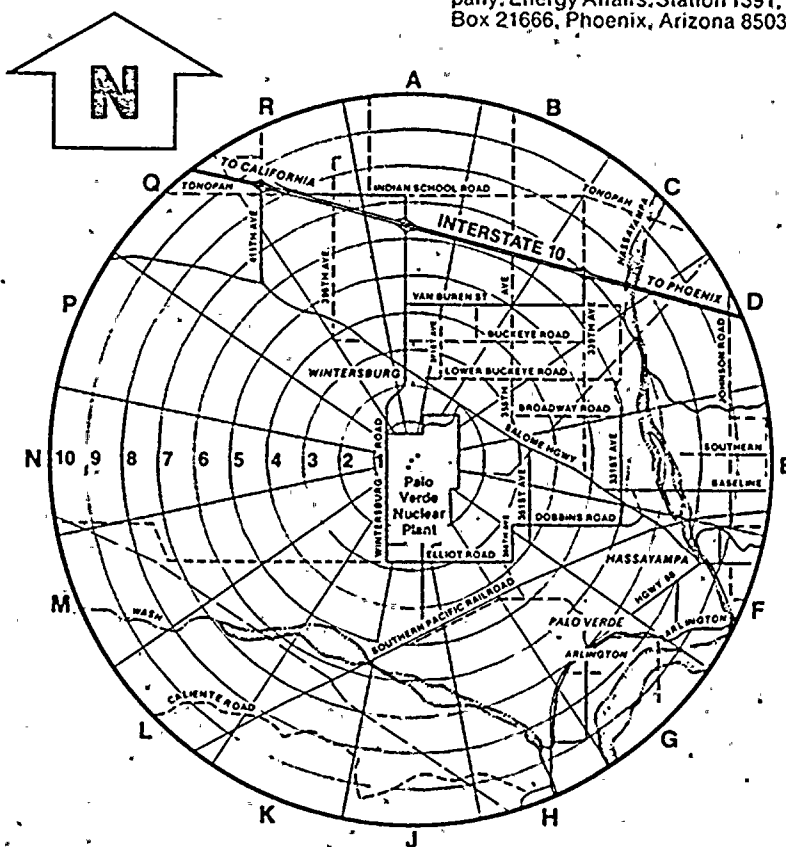
## How to use this map:

1. Find your location on the map.
2. Determine your sector letter and mile number from the plant and note below.

My Sector letter and mile number are: \_\_\_\_\_

3. Government officials will broadcast sector evacuation messages and routes you are to use over local radio and television stations.

Additional information pertaining to emergency planning or radiation will be provided by APS to all households and businesses in the 10-mile radius of the plant. Information may also be obtained through the Maricopa County Department of Civil Defense and Emergency Services by calling 273-1411, or by mail from Arizona Public Service Company, Energy Affairs, Station 1391, P.O. Box 21666, Phoenix, Arizona 85036.



**IF YOU REQUIRE ASSISTANCE DURING AN EMERGENCY OR NATURAL DISASTER  
CALL 273-1411 MARICOPA COUNTY DEPARTMENT OF CIVIL DEFENSE AND  
EMERGENCY SERVICES.**

APS hereby waives any claims against Mountain Bell arising by reason of errors in, or omission of this listing.



(A)

(title)

LO QUE USTED DEBE HACER EN CASO DE UNA EMERGENCIA EN

~~LA ESTACION GENERADORA PALO VERDE~~

ANPP



Ref: page (B), ☆

Note: I think the English terms for the emergency classifications should be included, then followed by my translation. Example:

Notification of Unusual Event (Notificación de Evento o Suceso Raro)-  
etc., etc.,

Alert (Alerta)- etc.

Site Area Emergency (Emergencia del Área del Sitio) - etc.

General Emergency (Emergencia General) - etc.

~~La Estación Generadora Palo Verde,~~  
situada en Wintersburg, Arizona, queda  
cincuenta y cinco millas al oeste del  
centro de Phoenix. Aunque la planta se  
ha construido y se opera siempre pensando  
en la seguridad, es posible que pueda  
ocurrir un accidente que requiera acción  
protectiva. La siguiente información  
explica algunas precauciones que se deben  
tomar por las personas que vivan o traba-  
jen dentro de un área de aproximadamente  
10 millas de la planta en el caso impro-  
bable de un accidente en la planta Palo  
Verde.

#### COMO SE LE NOTIFICARÁ

La posibilidad es remota que un accidente  
llegaría a un nivel donde fuera necesario  
notificar al público. Una sirena sonará  
en el caso de un escape de radiación  
accidental, potencial o real al medio-  
ambiente. Si usted oye una sirena, ponga  
la radio a su Sistema de Radiodifusión  
Primario de Emergencia, el 620 AM, para  
informarse y para instrucciones de oficiales  
del Condado y del Estado. Se le informará  
mientras exista algún peligro potencial.

#### CLASIFICACIONES DE EMERGENCIA

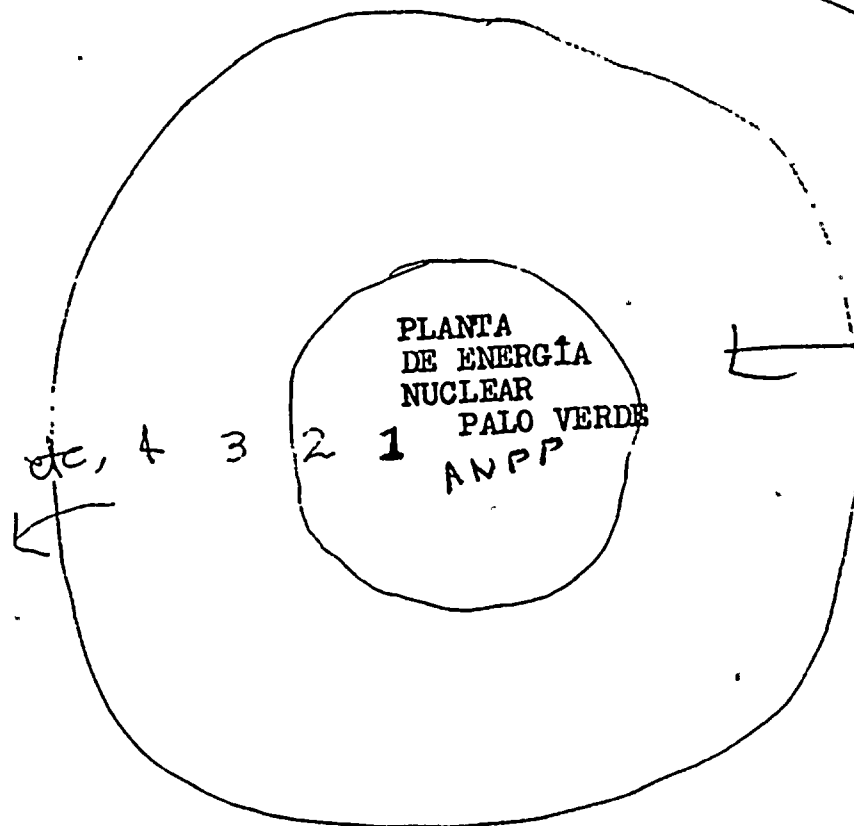
Usted debe tomar unos momentos para fami-  
liarizarse con cada una de estas clasifi-  
caciones para saber cómo responder o  
actuar si oye usadas estas clasificaciones.

- \* ● Notificación de Evento o Suceso Raro -  
Indicación de una degradación potencial del  
nivel de seguridad de la planta. No se  
espera ningún escape de materia radio-  
activa que requiera acción fuera del sitio.
- \* ● Alerta - Un escape real, potencial o  
limitado de materia radioactiva que requiere  
vigilancia de radiación fuera del sitio.
- \* ● Emergencia del Área del Sitio - Escapes  
o escapes potenciales de materia radio-  
activa que requieren vigilancia de radia-  
ción fuera del sitio y notificación de los  
residentes locales.
- \* ● Emergencia General - Escapes o escapes  
potenciales de materia radioactiva que  
requieren medidas de protección para los  
residentes locales.

(\* note: I would insert the English terms  
here. too, then followed by Spanish text)  
(See yellow lined sheet for  
example)



RUTAS PRIMARIAS  
DE EVACUACIÓN



all chart remain  
same except as  
indicated

ESCALA EN MILLAS



## ACCIONES PROTECTIVAS

Hay una cantidad de acciones protectivas que se le aconsejaría tomar bajo la dirección de las autoridades gubernamentales de Arizona y del Condado de Maricopa para asegurar la protección máxima de exposición excesiva a la radiación. Según la magnitud del accidente, los oficiales del gobierno pueden dirigir la ejecución de una o de una combinación de estas acciones protectivas:

Sheltering (Amparo): Esta acción es la acción protectiva más fácil de implementar porque en casi todos los casos, su propio hogar le dará el amparo suficiente de la radiación. Un anuncio de "shelter-in-place" quiere decir "quédese adentro de casa" o "váyase dentro de casa".

Selective Evacuation (La Evacuación Selectiva): Se implementaría si la severidad del accidente justifica la evacuación de esas personas que son más sensibles a la radiación (como las mujeres embarazadas y los niños hasta la edad de 18 años, porque los jóvenes son más susceptibles que los adultos).

Evacuation (Evacuación): Se implementa sólo cuando otras acciones protectivas no pueden asegurar un nivel de protección adecuado de un peligro anticipado. Muy sencillamente, si se le tiene que evacuar a usted, se le dirigirá a salirse del área del riesgo y hacia Centros de Cuidado y Recepción designados en sitios bastante fuera del área del peligro. Antes de salir de su casa, asegúrese que sus aparatos eléctricos y sus llaves de agua están apagados y cerradas. Las puertas y ventanas deben estar aseguradas. Asegúrese de dejar comida y agua para sus animales domésticos que se quedarán. No EVACÚE o se salga hasta que se le aconseje a su área. Manténgase calmado y siga las instrucciones de la programación de radio.

## ZONA DE PLANIFICACION DE EMERGENCIA

El mapa muestra la Zona de Planificación de Emergencia para la Estación Generadora Palo Verde. Todas las instrucciones de acción protectiva que se den en las estaciones de radio y televisión corresponderán a indicaciones de sector como aparecen en el mapa. Cualquier acción protectiva necesaria afectará solamente a esas personas especificadas en las instrucciones. Escuche para ver si se indica su sector y siga las instrucciones transmitidas.

## SITIOS DE CENTROS DE CUIDADO Y RECEPCIÓN

(list of centers & locations)

"

"

"

"

(South) Sur

"

(North) Norte

"

"

"

"

**NÓTESE:** Los centros que serán activados se anunciarán por la radio. Otros Centros de Cuidado y Recepción se activarán según sea necesario.



para más información, favor ponerse  
en contacto con:

Arizona Nuclear Power Plant  
(Arizona Public Service Company)  
etc.

(602) 271-2069  
271-5057

SI USTED REQUIERE ASISTENCIA DURANTE  
UNA EMERGENCIA O DESASTRE NATURAL

LLAME AL 273-1411

Departamento de Defensa Civil y  
Servicios de Emergencia del Condado  
de Maricopa

ESTA INSTALACIÓN ES SITUADA DENTRO DE LA ZONA DE PLANIFICACIÓN DE EMERGENCIA QUE  
CIRCUNDA LA ESTACIÓN GENERADORA PALO VERDE QUE SE LOCALIZA CERCA DE WINTERSBURG, ARIZONA.  
ESTE ANUNCIO SE HA PREPARADO PARA DARLE A USTED LA INFORMACIÓN QUE NECESITA PARA ACTUAR  
PRONTA Y SEGURAMENTE DURANTE UNA EMERGENCIA. POR FAVOR REFIÉRASE A LA HOJA ENCAJADA EN  
SU DIRECTORIO TELEFÓNICO PARA MÁS INFORMACIÓN.

ASEGÚRESE DE SU BIENESTAR Y SEGURIDAD PERSONAL Y EL DE SU FAMILIA, TOMANDO UNOS MOMENTOS  
PARA FAMILIARIZARSE CON LAS PARTES ESENCIALES DE ESTE ANUNCIO: EL TIPO DE AVISO O NOTI-  
FICACIÓN QUE SE DARÁ, LA CLASIFICACIÓN DE EVENTOS O SUCESOS, Y LAS DIFERENTES ACCIONES  
PROTECTIVAS PERSONALES QUE USTED TAL VEZ TENDRÁ QUE TOMAR.



# CIVIL DEFENSE AND EMERGENCY SERVICES

MARICOPA COUNTY

2035 North 52nd Street Phoenix, Ariz. 85008

Roy B. Bluhm  
Director



273-1411

May, 1984

Dear Resident:

This Department has the responsibility to prepare the plans for emergency response in your area for any incident or accident associated with the Palo Verde Nuclear Generating Station. We are requesting that you complete and return to us the enclosed postage-free information form to aid us in this effort.

As you can see, this form will provide us with current information as to the number of people residing within 10 miles of the plant and alert us to the names and addresses of those who may need transportation provided in the event of an emergency.

Due to the design and type of construction used at the Palo Verde Nuclear Generating Station, we believe that when it becomes operational it is extremely unlikely that an accident will occur which would pose a threat to those living near the plant. However, Federal Regulations require the preparation of Emergency Response Plans and that these plans be exercised on a regular basis.

Thank you for your assistance. If you have any questions, please contact this office.

Sincerely,

A handwritten signature in cursive script that reads "Roy B. Bluhm".

Roy B. Bluhm  
Director

RBB/br

Enclosure



Phoenix

Scottsdale

Glendale

Participating Cities

Mesa

Tempe

Chandler



1

11

21



Arizona Public Service Company

P.O. BOX 21688 • PHOENIX, ARIZONA 85038

January, 1984

Dear Neighbor:

Attached is the calendar I mentioned in my last letter. It was designed to be much more than just a calendar. It contains valuable information that you should become familiar with. Please take the time to read this important information and then hang the calendar in a place that you can easily see.

We are also preparing a new Emergency Brochure that will contain much of this same information. We will send you one as soon as they are ready.

Best wishes to you in 1984.

Sincerely,



Joseph R. Bynum  
Director of Nuclear Operations

PVNGS-JRB-L-84-14

Attachment

yeh



Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

April 16, 1984

Dear Neighbor:

PALO VERDE OPEN HOUSE  
MAY 5, 1984

You are invited to attend our annual Open House at the Palo Verde Nuclear Generating Station on Saturday, May 5, 1984 from 10 a.m. to 3 p.m.

This year, you'll be able to walk through one of the nuclear plants and see what it looks like on the inside. You'll see the plant's large turbine generator that will make the electricity. You will also go inside the containment building where the nuclear reactor is. For the ladies' safety, we ask that they do not wear high-heel shoes if they plan to go on this walking tour of the plant.

Other activities for you and your family to enjoy at the Open House include:

- Radiation Demonstration
- Bus Tour of the Plant Site
- Visit to the Control Room Simulator
- Energy Demonstration

Plus free food, souvenirs, a country western band and much more.

We hope you will be able to attend this Open House.

Sincerely,



Joseph R. Bynum  
Director of Nuclear Operations



11

11

DEAR RESIDENT:

JUST A REMINDER!

PALO VERDE'S 4TH ANNUAL OPEN HOUSE  
will be held Saturday, May 5, 1984  
from 10 a.m. to 3 p.m.

DON'T MISS THE:

WALKING TOUR OF UNIT 2

SITE TOUR

RADIATION DEMONSTRATIONS

BARBEQUE LUNCH

FREE SOUVENIRS

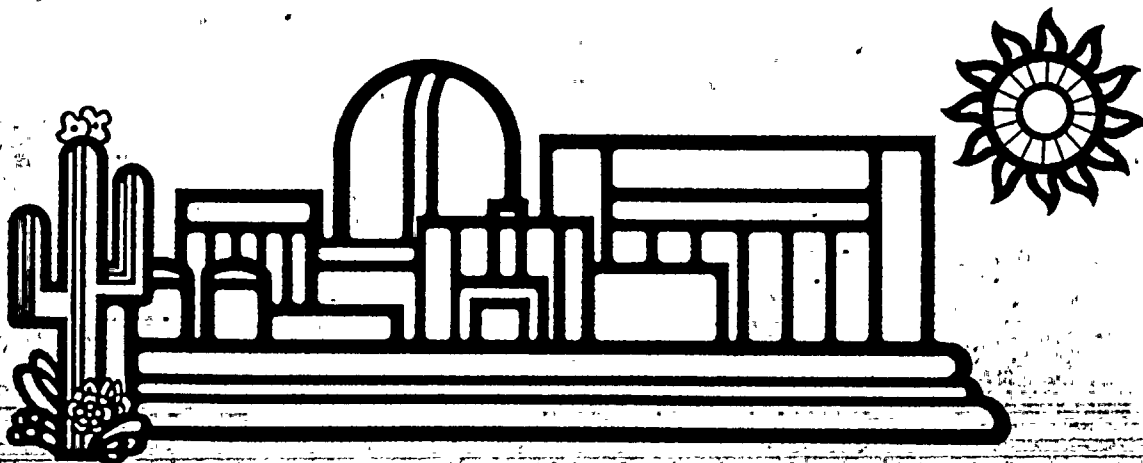
COUNTRY AND WESTERN BAND

AND MUCH MORE!

SEE YOU THERE!

*J R Bynum*

Director of Nuclear Operations



Arizona Public Service Company

PVNGS  
TOURS





Arizona Public Service Company

May 5, 1984

Dear Neighbor:

Thank you for attending this year's Open House at Palo Verde.

For the past four years, Arizona Public Service Company employees have looked forward to each Open House as a way to meet Palo Verde's neighbors and to answer questions about the plant.

If this year's event left you with a better understanding of the Palo Verde nuclear plant, emergency planning and nuclear power in general, then we've accomplished our goal.

I hope your visit here today was informative and enjoyable. Please remember that the Information Center wants to hear from you. If you think of a question, or have a concern you'd like to let us know about, please give them a call. The number is 932-3230 or 386-6167.

Again, thanks for making this year's Open House a success!

Sincerely,

A handwritten signature in dark ink, appearing to read "J R Bynum".

Joseph R. Bynum  
Director of Nuclear Operations

PVNGS-JRB-L84-344





*Mike*

ARIZONA



PUBLIC SERVICE COMPANY

COMPANY CORRESPONDENCE

DATE: February 1, 1984

TO: Distribution

Sta. #

FROM: Mike Crusa

Sta. # 6010

Ext. # 873-6096

SUBJECT: Emergency Planning

For your information, please find attached the invitation for a briefing and PVNGS tour extended to local Mayors. By way of this memo and its attachments, you have received your copies of the individually addressed letters. Also attached is the listing of those Mayors invited.

m

Attachments

Distribution: E. E. VanBrunt, Jr.  
J. R. Bynum  
E. L. Lewis  
M. L. Shultz  
D. R. Canady  
M. S. Zimmerman

copy: Bob Page

January 30, 1984

Dear Mayor :

Later this year, the Palo Verde Nuclear Generating Station is scheduled to go on-line and begin providing electricity for the residents of Maricopa County and the State of Arizona. In line with APS' commitment to ensure that all political subdivisions and their officials be kept informed of its progress, I would like to extend the personal invitation to attend a briefing on emergency planning for Palo Verde, a luncheon at the facility and a tour of the Plant.

It is our intention to provide an update on emergency planning activities and the scheduling of events for the upcoming year. We hope you can avail yourself of the opportunity, inasmuch as it will also give you a chance to tour the facility and see in detail the makings of a nuclear reactor.

The briefings, luncheons and tours will be available on February 22nd, 24th and 27th of this year. The program is scheduled to last most of the day. APS will provide transportation to and from the Plant.

Please R.S.V.P., to Mike Crusa or Barbara Merrill (932-5300, extension 6096 or 6128), as to the day you would like to attend, and if members of your City Council would also like to participate.

If you are in need of additional information, Mike Crusa would be happy to assist you.

Sincerely,

Robert W. Page  
Manager, Emergency Planning  
and Preparedness - PVNGS

RWP:wpc

cc: E. E. VanBrunt, Jr.  
J. R. Bynum  
E. L. Lewis  
M. L. Shultz  
D. R. Canady  
M. C. Crusa  
M. S. Zimmerman

L/-EPGO-4-25

The Honorable Wendell Clarke  
Mayor, City of Apache Junction  
1001 North Idaho Road  
Apache Junction, Arizona 85220  
Clarke

The Honorable Dessie M. Lorenz  
Mayor, City of Avondale  
525 North Central  
Avondale, Arizona 85323  
Lorenz

The Honorable John B. Hawley  
Mayor, Town of Buckeye  
715 Monroe  
Buckeye, Arizona 85326  
Hawley

The Honorable Jerry Brooks  
Mayor, City of Chandler  
200 East Commonwealth  
Chandler, Arizona 85224  
Brooks

The Honorable John A. Garza  
Mayor, Town of El Mirage  
12206 Well Street  
El Mirage, Arizona 85335  
Garza

The Honorable Duke Fox  
Mayor, Town of Gila Bend  
202 North Euclid Avenue  
Gila Bend, Arizona 85337  
Fox

The Honorable L. J. Reed  
Mayor, Town of Gilbert  
119 North Gilbert Road  
Gilbert, Arizona 85234  
Reed

The Honorable George R. Renner  
Mayor, City of Glendale  
7022 North 58th Drive  
Glendale, Arizona 85301  
Renner



The Honorable Chauncey B. Coor  
Mayor, Town of Goodyear  
119 North Litchfield Road  
Goodyear, Arizona 85338  
Coor

The Honorable Pat Villa  
Mayor, Town of Guadalupe  
9050 South Avenida Del Yaqui  
Guadalupe, Arizona 85283  
Villa

The Honorable Don Strauch  
Mayor, City of Mesa  
55 North Center Street  
Mesa, Arizona 85201  
Strauch

The Honorable J. Duncan Brock  
Mayor, Town of Paradise Valley  
Lincoln at Invergordon  
Paradise Valley, Arizona 85253  
Brock

The Honorable Edmund Tang  
Mayor, City of Peoria  
8355 West Peoria Avenue  
Peoria, Arizona 85345  
Tang

The Honorable Terry Goddard  
Mayor, City of Phoenix  
251 West Washington  
Phoenix, Arizona 85003  
Goddard

The Honorable Herbert R. Drinkwater  
Mayor, City of Scottsdale  
3939 Civic Center Plaza  
Scottsdale, Arizona 85251  
Drinkwater

The Honorable George Cumbie  
Mayor, Town of Surprise  
12604 Santa Fe Drive  
Surprise, Arizona 85345  
Cumbie

The Honorable Harry E. Mitchell  
Mayor, City of Tempe  
31 East Fifth Street  
Tempe, Arizona 85281  
Mitchell

The Honorable Mario J. Herrera  
Mayor, City of Tolleson  
9555 West Van Buren  
Tolleson, Arizona 85353  
Herrera

The Honorable Bruce Woodruff  
Mayor, Town of Wickenburg  
120 East Apache  
Wickenburg, Arizona 85358  
Woodruff

The Honorable Norman B. Shrenk  
Mayor, Town of Youngtown  
12030 Clubhouse Square  
Youngtown, Arizona 85363  
Shrenk

(0587M)



Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

August 18, 1984

The Honorable Wendell Clarke  
Mayor, City of Apache Junction  
201 West Apache Junction  
Apache Junction, Arizona 85220

Subject: PVNGS Emergency Preparedness  
Evaluated Exercise Mayors Briefing  
File: 84-002-493/84-001-022

Dear Mayor Clarke:

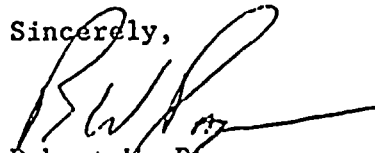
On Wednesday, September 26, 1984, Arizona Public Service Company, in coordination with Arizona Division of Emergency Services, Arizona Radiation Regulatory Agency and Maricopa County Department of Civil Defense and Emergency Services, will conduct a full scale exercise of the Palo Verde Nuclear Generating Station's emergency response plan.

As it is possible that residents of your city may pose questions regarding this exercise, we are offering a briefing on the exercise activities and to answer any questions you may have regarding Palo Verde's emergency preparedness.

The briefing will be conducted on September 18, 1984, at 9:00 a.m. at the APS Headquarters Building, 411 North Central Avenue, Conference Room 408. You or a designated representative are welcome to participate. Please R.S.V.P. by September 11, 1984, to Barbara Merrill, phone number 932-5300, extension 6128. Arrangements will be made for parking at the APS Headquarters Garage.

Thank you for your consideration and please feel free to contact me or Mike Crusa if we can provide you with any additional information.

Sincerely,



Robert W. Page  
Manager  
Emergency Planning

RWP:wpc





022 Corrected Copy  
PVNGS-RWP-L84-021

blind copies:

H. F. Bieling  
J. A. Brand  
J. R. Bynum  
D. R. Canady  
M. C. Crusa  
O. M. DeMichele  
D. B. Karner  
M. L. Shultz  
C. P. Thompson  
E. E. VanBrunt, Jr.  
T. G. Woods, Jr.  
  
R. B. Bluhm, MCD&ES  
R. A. Colson, ADES  
C. F. Tedford, ARRA





# WHAT YOU SHOULD DO IN CASE OF AN EMERGENCY AT THE PALO VERDE NUCLEAR GENERATING STATION

The Palo Verde Nuclear Generating Station, located in Wintersburg, Arizona, is fifty-five miles west of downtown Phoenix. Although the plant has been constructed and is operated with safety foremost in mind, it is possible that an accident could occur that might require protective action. The following information explains some steps that should be taken by people living or working within an approximate ten mile radius of the plant in the unlikely event of an accident at the Palo Verde plant.

## HOW YOU WILL BE NOTIFIED

The possibility is remote that an accident would escalate to a level requiring notification of the public. A siren will sound in the event of an accidental, potential, or actual radiation release to the environment. If you should hear a siren, tune to local radio or television stations for information and instructions from county and state officials. You will be kept informed for as long as a potential hazard exists.

## EMERGENCY CLASSIFICATIONS

You should take a few moments to familiarize yourself with each of these classifications so that if you ever hear them being used, you'll know how to respond. The four classes of emergency from the least serious to most serious are:

- **Notification of Unusual Event** — Indication of a potential degradation of the level of safety of the plant. No release of radioactive material requiring offsite response is expected.
- **Alert** — An actual or a potential, limited release of radioactive material requiring offsite radiation monitoring.
- **Site Area Emergency** — Releases or potential releases of radioactive material requiring offsite radiation monitoring and notification of local residents.
- **General Emergency** — Releases or potential releases of radioactive material requiring protective measures for local residents.

## PROTECTIVE ACTIONS

There are a number of protective actions that you could be advised to take under the direction of Arizona and Maricopa County government authorities to ensure maximum protection from excessive exposure to radiation. Depending upon the magnitude of the accident, government officials may direct implementation of one or a combination of these protective actions:

**Sheltering:** This action is the easiest protective action to implement since, in most cases, your home will provide adequate shelter from radiation. A "shelter-in-place" announcement means "stay indoors" or "get indoors."

**Selective Evacuation:** Would be implemented if the severity of the accident warrants the evacuation of those people who are more sensitive to radiation (pregnant females and children to age 18, because the young are more susceptible than are adults).

**Evacuation:** Implemented only when other protective actions cannot assure an appropriate level of protection from an anticipated hazard. Simply stated, if you are required to evacuate, you will be directed to move out of the area of risk and into designated Reception and Care Centers in locations well outside the hazard area. Before leaving your home, make sure that appliances and faucets are turned off. Doors and windows should be locked. Be sure to leave adequate food and water for animals that remain at home. Do not EVACUATE unless it is advised for your area. Keep calm and follow broadcast instructions.

## EMERGENCY PLANNING ZONE

The map shows the Emergency Planning Zone for the Palo Verde Nuclear Generating Station. All protective action instructions given to the radio and television stations will be keyed to sector designations as indicated on the map. Any protective action necessary will affect only those people specified in the instructions. Listen for your sector designation and follow the broadcast instructions.

## RECEPTION AND CARE CENTER LOCATIONS AS FOLLOWS:

- Dysart High School**  
11405 N. Dysart Road
- Trevor Browne High School**  
7402 W. Catalina Drive, Phoenix
- Glendale High School**  
6216 W. Glendale Ave., Glendale
- Agua Fria Union High School**  
530 E. Riley Drive, Avondale
- (South)**
- Agua Fria Union High School**  
14802 W. Indian School Road
- (North)**
- Tolleson Union High School**  
9419 West Van Buren, Tolleson
- Gila Bend High School**  
308 N. Martin Avenue, Gila Bend
- Gila Bend Elementary School**  
308 N. Martin Avenue, Gila Bend
- Harquahala Valley**  
Van Buren/Harquahala Valley Road

**NOTE:** Those centers which are activated will be announced over the radio. Other Reception and Care Centers may be activated if necessary.

## IF YOU REQUIRE ASSISTANCE DURING AN EMERGENCY OR NATURAL DISASTER

**CALL 273-1411**

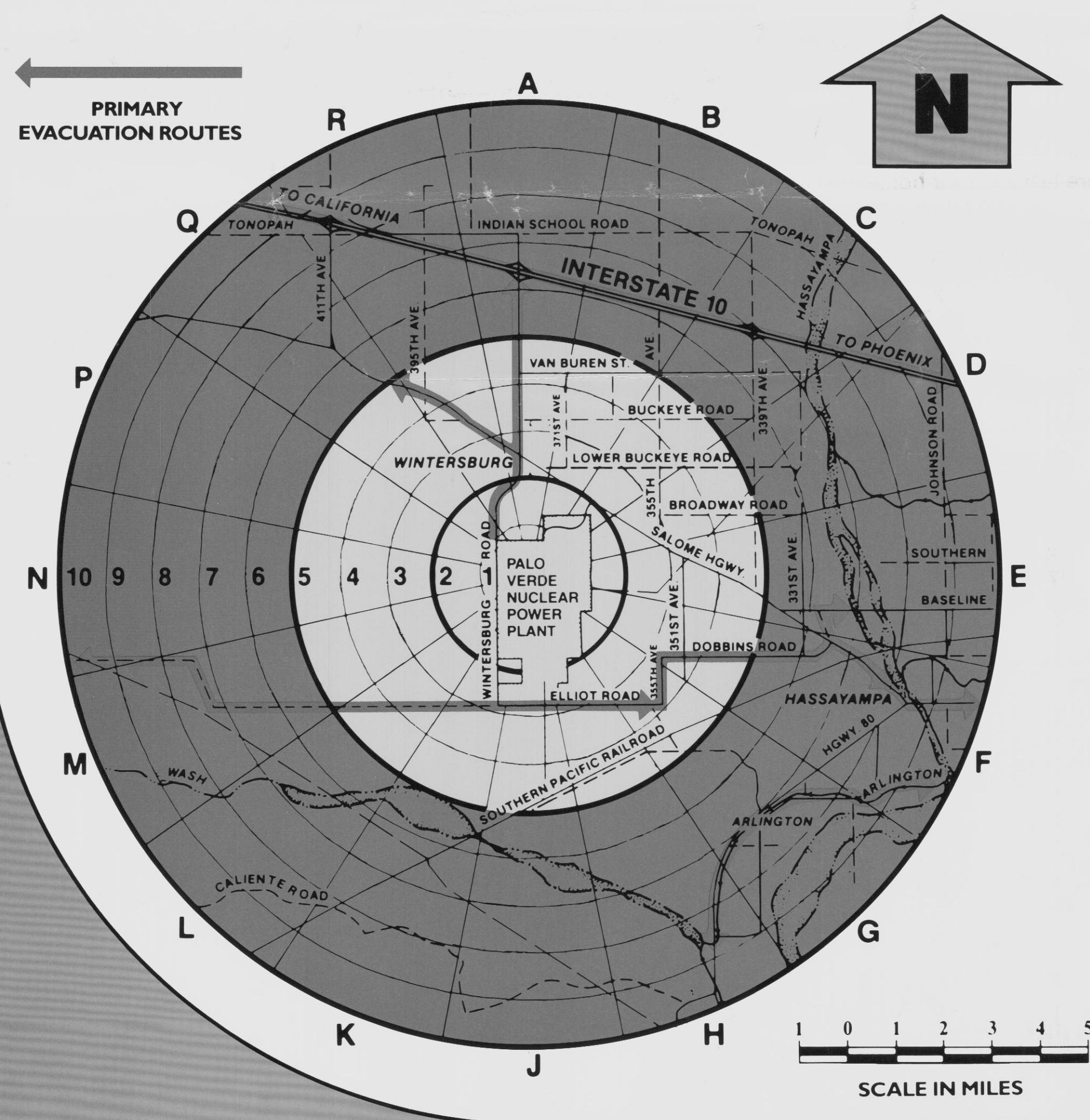
Maricopa County Department of Civil Defense and Emergency Services

## For more information please contact:

**Arizona Public Service Company**  
Station 1391  
P.O. Box 21666  
Phoenix, Arizona 85036  
(602) 271-2069

**THIS FACILITY IS SITUATED WITHIN THE EMERGENCY PLANNING ZONE THAT SURROUNDS THE PALO VERDE NUCLEAR GENERATING STATION LOCATED NEAR WINTERSBURG, ARIZONA. THIS POSTER HAS BEEN PREPARED TO PROVIDE YOU WITH THE INFORMATION YOU NEED TO ACT PROMPTLY AND SAFELY DURING AN EMERGENCY. PLEASE REFER TO THE INSERT IN YOUR TELEPHONE DIRECTORY FOR ADDITIONAL INFORMATION.**

**ENSURE YOUR PERSONAL SAFETY AND THAT OF YOUR FAMILY BY TAKING A FEW MOMENTS TO ACQUAINT YOURSELF WITH THE FUNDAMENTALS: THE TYPE OF WARNING UTILIZED, THE CLASSIFICATION OF OCCURANCES, AND THE VARIOUS PERSONAL PROTECTIVE ACTIONS THAT YOU MIGHT BE REQUIRED TO TAKE.**



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7



# WHAT YOU SHOULD DO IN CASE OF AN EMERGENCY AT THE PALO VERDE NUCLEAR GENERATING STATION

The Palo Verde Nuclear Generating Station located in Wintersburg, Arizona, is about fifty miles west of Phoenix. Although the plant has been constructed and is operated with safety foremost in mind, it is possible that an accident could occur that might require you to take appropriate protective action. The following information explains some steps that should be taken by people living or working within a ten mile radius of the plant, including the communities of Tonopah, Arlington, Wintersburg, etc., in the unlikely event of an accident at the Palo Verde plant.

## HOW YOU WILL BE NOTIFIED

There are four different levels of accidents:

### Emergency Classifications

You should take a few moments to familiarize yourself with each of these classifications so that if you ever hear them being used, you'll know how to

respond. The four levels of emergency, from least serious to most serious, are:

- **Unusual Event**—Indication of a potential degradation of the level of safety of the plant. No release of radioactive material requiring offsite response is expected.
- **Alert**—An actual or a potential, limited release of radioactive material requiring offsite radiation monitoring.
- **Site Emergency**—Releases or potential releases of radioactive material requiring offsite radiation monitoring and notification of local residents.
- **General Emergency**—Releases or potential releases of radioactive material requiring protective measures for local residents.

However, the possibility is remote that an accident would escalate to a level requiring notification of the public. A siren will sound in the event of an accidental, potential or actual radiation release to the environment. Your local radio and television stations will broadcast appropriate emergency protective action instructions from county and state officials. You will be kept informed for as long as a potential hazard exists.

## PROTECTIVE ACTIONS

There are a number of protective actions that you could be advised to take, under the direction of Arizona and Maricopa County government authorities, to ensure maximum protection from excessive exposure to radiation. Depending upon the magnitude of the accident, government officials may direct implementation of one or a combination of these protective actions:

**Sheltering:** This action is the easiest protective action to implement since, in most cases, your home will provide adequate shelter from radiation. A "shelter-in-place" announcement means "stay indoors" or "get indoors."

**Selective Evacuation:** Would be implemented if the severity of the accident warrants the evacuation of those people who are uniquely susceptible to radioactivity (pregnant females and children to age 18, because the young are more susceptible than are adults).

**Evacuation:** Implemented only when other protective actions cannot assure an appropriate level of protection from an anticipated hazard. Simply stated, if you are required to evacuate, you will be directed to move out of the area of risk and into designated Reception and Care Centers in locations well outside the hazard area (see map).

For more information please contact:

Arizona Public Service Company  
Station 1390  
P.O. Box 21666  
Phoenix, Arizona 85036  
(602) 271-2554

**THIS FACILITY IS SITUATED WITHIN THE EMERGENCY PLANNING ZONE THAT SURROUNDS THE PALO VERDE NUCLEAR GENERATING STATION LOCATED NEAR WINTERSBURG, ARIZONA. THIS POSTER HAS BEEN PREPARED TO PROVIDE YOU WITH THE INFORMATION YOU NEED, TO ACT PROMPTLY AND SAFELY DURING AN EMERGENCY. PLEASE REFER TO THE INSERT IN YOUR TELEPHONE DIRECTORY FOR ADDITIONAL INFORMATION.**

**ENSURE YOUR PERSONAL SAFETY AND THAT OF YOUR FAMILY BY TAKING A FEW MOMENTS TO ACQUAINT YOURSELF WITH THE FUNDAMENTALS; THE TYPE OF WARNING UTILIZED, THE CLASSIFICATION OF OCCURENCES, AND THE VARIOUS PERSONAL PROTECTIVE ACTIONS THAT YOU MIGHT BE REQUIRED TO TAKE.**

Before leaving your home, make sure that appliances and faucets are turned off. Doors and windows should be locked. Be sure to leave adequate food and water for animals that remain at home. Do not EVACUATE unless it is advised for your area. Keep calm and follow broadcast instructions.

## EMERGENCY PLANNING ZONE

The map shows the Emergency Planning Zone for the Palo Verde Nuclear Generating Station. All protective action instructions given to the radio and television stations will be keyed to sector designations as indicated on the map. Any protective action necessary will affect only those people as specified in the instructions. Listen for your sector designation and follow the broadcast instructions.

Reception and Care Center locations are as follows:

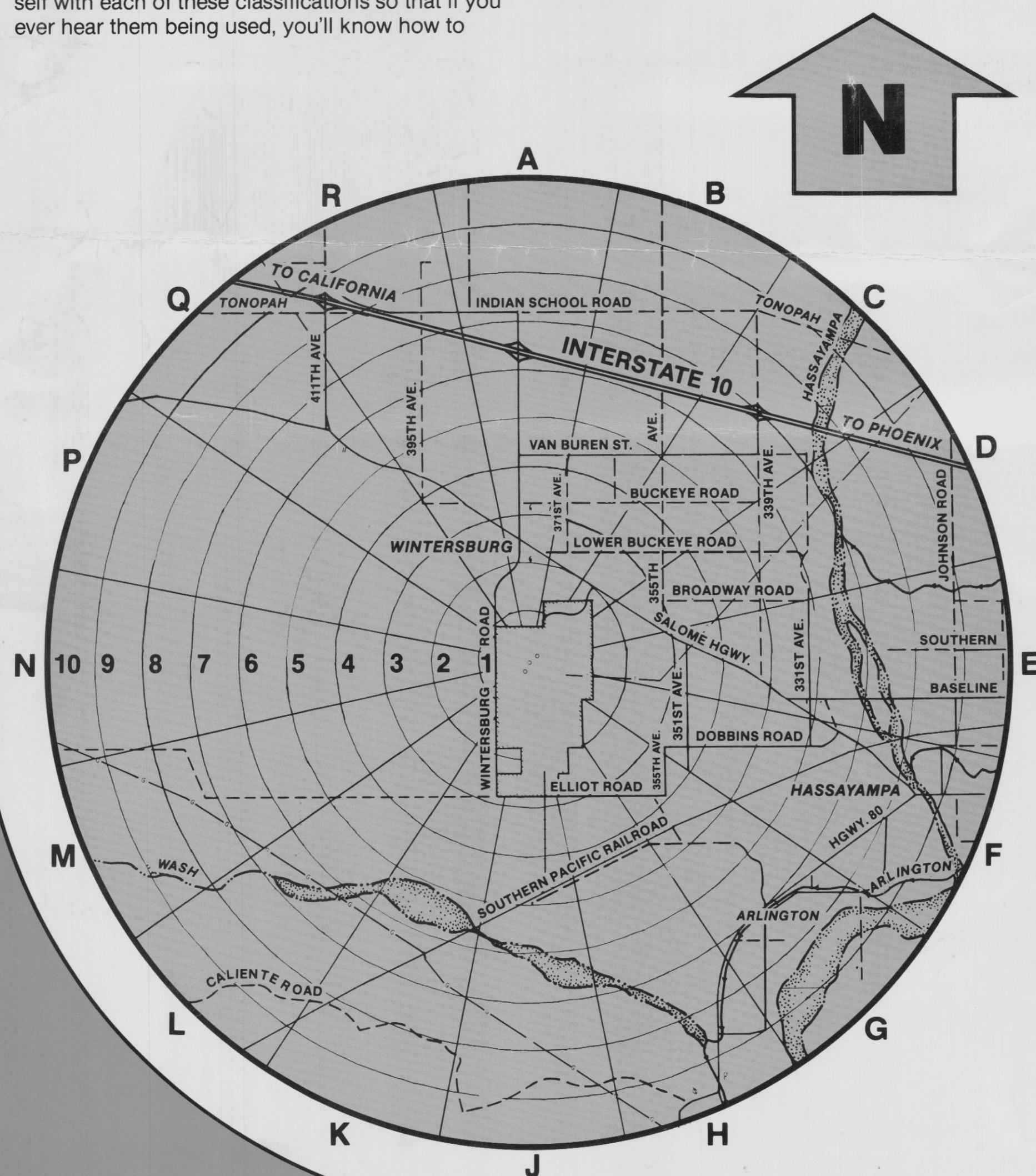
RECEPTION AND CARE CENTER LOCATIONS	
RCC	DIRECTION FROM PVNGS
• Agua Fria High School (Avondale)	East
• Buckeye High School	East
• Littleton Elementary School (115th Avenue & Buckeye — Avondale)	East
• Harquahala Valley Elementary School	West
• Gila Bend High School	South

**NOTE:** Those centers which are activated will be announced over the radio. Other Reception and Care Centers may be activated if necessary.

If you require assistance during an Emergency or Natural Disaster

CALL 273-1411

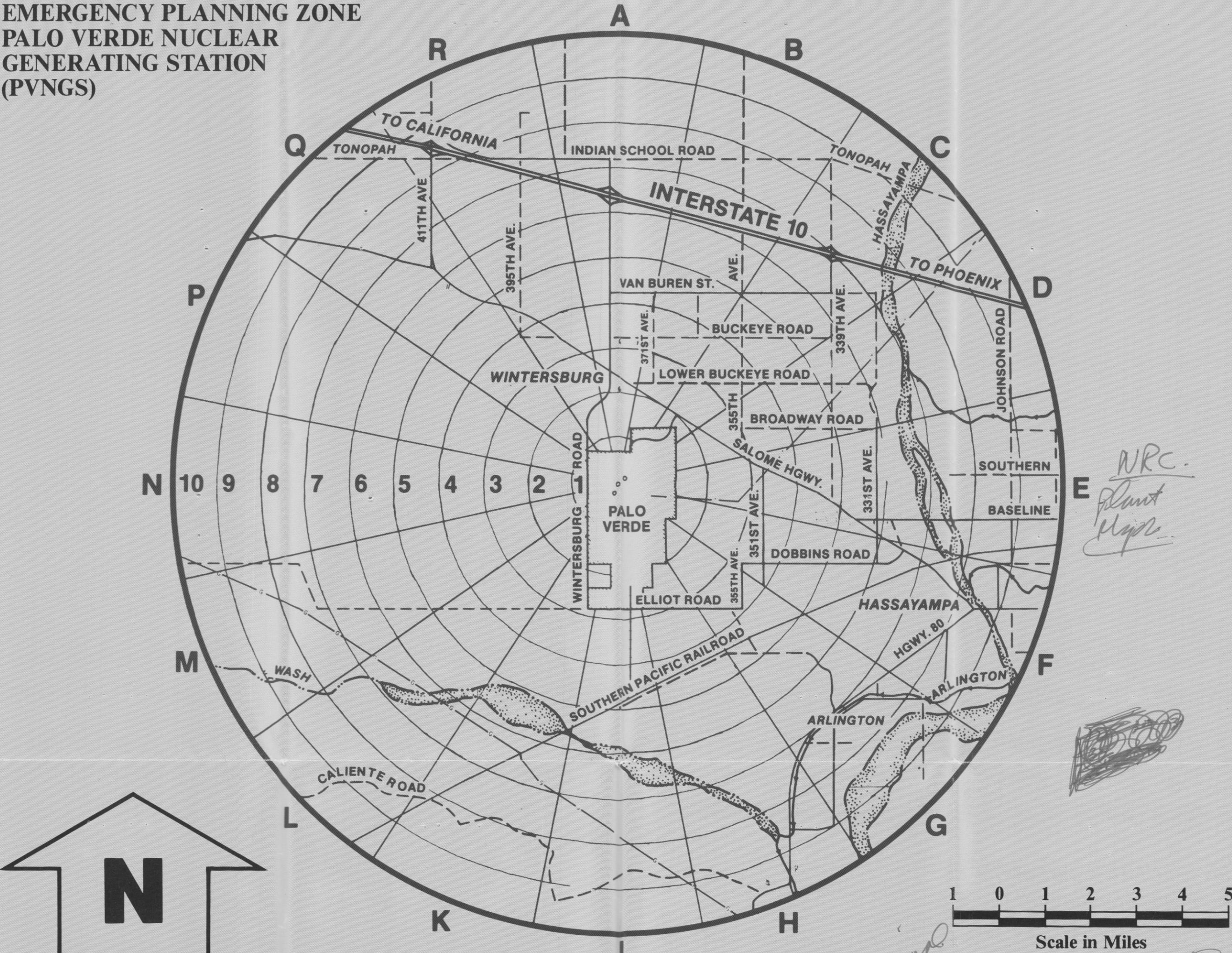
Maricopa County Department of Civil Defense and Emergency Services



8412040311-02



EMERGENCY PLANNING ZONE  
PALO VERDE NUCLEAR  
GENERATING STATION  
(PVNGS)



Emergency Classifications

You should take a few moments to familiarize yourself with each of these classifications so that if you ever hear them being used, you'll know how to respond. The four levels of emergency, from least serious to most serious, are:

- A. Unusual Event**—indication of a potential degradation of the level of safety of the plant. No release of radioactive material requiring offsite response is expected.
- B. Alert**—An actual or potential, limited release of radioactive material requiring offsite radiation monitoring.
- C. Site Emergency**—Releases, or potential releases, of radioactive material requiring offsite radiation monitoring and notification of local residents.
- D. General Emergency**—Releases, or potential releases, of radioactive material requiring protective measures for local residents.

Notification Information

If an emergency occurs, PVNGS operators would immediately notify federal, state, and Maricopa County emergency officials. These organizations are prepared to respond according to the Emergency Plan.

If it is necessary to warn the public, you will hear a siren:

- If you should hear the siren, tune to local radio or television stations for information and instructions—or NOAA weather radio frequencies 162.400 and 162.550MH3. The stations will keep you informed, and state and local officials will relay protective instructions and recommendations to you. The action you will be asked to take will depend on the nature of the emergency.

**NOTE:** Siren tests will be conducted periodically to meet NRC requirements. Tests will last one minute or less. Emergency warnings will last 3-5 minutes.

- Contact your neighbors to make sure they are aware of the emergency, but use your phone as little as possible. We need to leave the phone system open so that emergency calls can get through.

There are a number of protective actions you can take—under the direction of state, county and local governmental authorities—to ensure maximum protection from excessive exposure to radiation in the event of a nuclear accident. Depending upon the magnitude of the accident, government officials may direct implementation of one, or a combination of the following protective actions.

**Sheltering:** This action is the easiest protective action to implement since, in most cases, your home will provide adequate shelter from radiation. A "shelter-in-place" announcement means "stay indoors" or "get indoors." If you are outside at the time shelter is recommended, head for home immediately or for nearer shelter, if you're too far from home. Wherever you take shelter, however, even if you are in a car, take the following precautions to reduce the risk of excessive radiation exposure:

- Make sure the doors and windows are shut and tightly sealed.
- Turn off the combustion heating or cooling system if it's bringing air in from the outside.
- Take a radio or television and move to the basement if you have one; if not, stay away from the doors and windows.
- Keep everybody (including pets) inside. Stay calm and tune to a local radio or television station for further instructions.
- Refer to the "Evacuation" section in this booklet for information on evacuation routes and Reception and Care Centers in the event instructions are given to evacuate.
- If you are not within the hazard area, *do not* enter it. You will be informed when it is safe to re-enter the area.
- If you must go outside, place a handkerchief or a protective mask over your nose and mouth. Limit your time outside as much as possible.

**Selective Evacuation:** Involves a specific segment of the area population. Selective evacuation would be implemented if the severity of the situation warrants the evacuation of those people who are uniquely sensitive to radiation. It is designed to limit the exposure of pregnant females and children to age 18, because embryos, fetuses and the young are more sensitive to radiation than adults.

**Evacuation:** Implemented only when other protective actions cannot assure an appropriate level of protection from the anticipated hazard. This action is far less likely to be called for and, in many cases, would be directed after a period of sheltering-in-place. Simply stated, if you are required to evacuate, you will be directed to move out of the area of risk and into designated Reception and Care Centers in locations well outside the hazard area.

If you've been directed to evacuate, do not hesitate or waste time trying to take all your possessions with you. Instead:

- Stay calm; you are a lot more likely to get hurt by rushing than by the release of radiation.
- Gather your family together; children attending school will be moved, under adult supervision,

to a Reception Center where they may be joined by their families. Local radio and television stations will carry bulletins that indicate where parents can go to pick up their children.

- Pack only essential items (see checklist).
- Turn off gas, electricity, and water to the same extent as if you were leaving for a week.
- Lock the windows and doors.
- Do not get on the road with a car in poor running condition or one that has a nearly empty gas tank. Car pool with a neighbor or call your Maricopa County Department of Civil Defense and Emergency Services at 273-1411, if you need assistance.
- Keep your house pets, (small animals, birds, etc.) indoors and leave them unless you have plans to stay with friends or relatives outside the affected area. Reception and Care Centers *will not* accept pets. If you do have a place to take them other than the Reception and Care Centers, remember to take leashes, dishes, carriers, etc., and a supply of pet food.
- If you have livestock, shelter them, and if possible make provisions for feeding and watering them. Stored feed should be used if possible. As soon as it is safe, you will be permitted to return and care for them.
- Know where you are going... which routes are open, where you can stop for the night, etc. (refer to map).
- During your absence from home or business, local law enforcement officials will patrol the area to protect property. Unauthorized persons will not be permitted in the evacuated areas.

Remember, an evacuation may not be the initial protective action you are required to take. The first information may advise you that your area is not affected, that you should stay indoors, or that other actions should be implemented.

Follow the instructions.

Words to the Wise:  
Preparing for Emergencies

Since you may have to leave your home on short notice for any one of a number of emergencies such as nuclear accidents, flooding and chemical spills, you can do several things now to make it easier later. Here are four ways to prepare yourself for any emergency.

- Collect your important papers and store them in a safe place.
- Make a list of things you will need to take with you if directed to leave your home, and make sure you always have them on hand (see suggested list below).
- Set aside a place for emergency items that you intend to take with you such as prescription medicines, flashlight, extra batteries, extra sets of car keys, first aid kit, and fire extinguisher.
- Keep your car in good running order and fueled.

For the Disabled

Special provisions have been made to provide care and transportation for the disabled. It is important that you let your needs be known as soon as possible, so contact your Maricopa County Department of Civil Defense and Emergency Services, at 273-1411.

Things You May Want to Take

These are only general suggestions for any evacuation. They obviously do not apply to everyone. Shelters in designated Reception and Care Centers will provide food and bedding, as well as other emergency services.

Clothing

- Enough seasonal clothing for one week.

Medical Supplies

- First aid kit
- Medicines and prescriptions

Personal Items

- Soap and towels
- Shaving articles
- Toothpaste and toothbrushes
- Sanitary supplies
- Important papers (auto registration and credit cards)

Children and Infants

- Disposable diapers and powder
- Bottles
- Milk formula

Other supplies

- Flashlight
- Candles, matches
- Portable radio batteries
- Plastic or paper bags
- Hand tools (for car repairs)



The diagram illustrates the Pressurized Water Reactor (PWR) system. It shows a primary loop of water circulating between a Reactor Vessel and a Steam Generator. The Reactor Vessel is equipped with Control Rods. A Pressurizer maintains the pressure in the primary loop. The Steam Generator heats a secondary loop of water, which then circulates through a Turbine and back to the Steam Generator. A Condenser Cooling Water loop is also shown, entering the Condenser. The entire system is housed within a Containment Structure.

**Spent Feed Reactor** A tank that can no longer economically sustain a chain reaction, thus fuel must be reprocessed or disposed of in permanent repositories. If disposed, the resulting reduced volume of fission product wastes must be disposed of in permanent repositories.

**Reactor Trip or Scram:** The rapid insertion of control rods into the core of the reactor is used to halt the fission chain reaction.

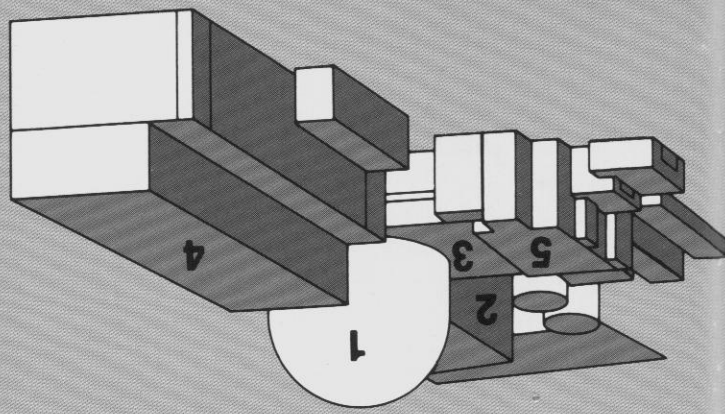
**Primary Coolant:** Water in the reactor system.

**Pressurizer:** The tank of steam and water that controls the pressure in the reactor coolant system.

**Pressurized Water Reactor (PWR):** A type of reactor in which the primary coolant in the reactor is kept under pressure so that it does not boil. The steam that turns the turbine is produced by heat transferred to a secondary loop of water by a heat exchanger called a steam generator.

**Pressurized Water Reactor (PWR):** A type of reactor in which the primary coolant in the reactor is kept under pressure so that it does not boil. The steam that turns the turbine is produced by heat transferred to a secondary loop of water by a heat exchanger called a steam generator.

**Electricity:** The flow of electrons through a material, such as a wire, which can be used to power machinery and other electrical equipment. It can travel more easily through most metals than through nonmetals, such as wood, which also travel more easily through most nonmetals than through metals.



1. **Containment Building (or reactor housing):** A steel lined, reinforced concrete structure housing the reactor, the pressurizer, the reactor coolant pumps, steam generators, piping, and other equipment.
2. **Reactor building:** A reinforced concrete structure located adjacent to the containment building. The two buildings house components of the primary loop, such as the pressurizer, steam generators, and the new hot leg storage area.
3. **Auxiliary Building:** Houses equipment and laboratories for operation of the plant, safety systems and backup systems.
4. **Turbine Building:** Contains the secondary (non-radioactive) system of water. Housed in this building are the condenser, steam generator, the condenser system.
5. **Control Building:** The control building is a rectangular, shielded, steel framed structure with a reinforced concrete shell. The control building primarily houses the control rooms, computer room, upper and lower cable spreading rooms, switchgear and battery rooms.

**Chain Reaction:** A self-sustaining reaction that occurs in a nuclear reactor. A neutron splits an atom, releasing energy and more neutrons. These neutrons cause further fission reactions, creating a continuous cycle.

**Control Rods:** Devices used to absorb excess neutrons and regulate the rate of the nuclear reaction, preventing it from becoming uncontrolled.

**Reactor Core:** The central part of the nuclear reactor where the nuclear fuel is located and the fission reaction takes place.

**Heat Exchanger:** A device that transfers heat from the reactor core to a secondary loop of water, which then circulates through a steam generator to produce steam.

**Steam Generator:** A heat exchanger that transfers heat from the primary loop to a secondary loop of water, causing it to boil and produce steam.

**Pressure Vessel:** A container that holds the primary loop of water under high pressure to prevent it from boiling.

**Containment Dome:** A large, dome-shaped structure that encloses the reactor core and steam generator, designed to contain any radioactive materials in the event of a leak.

**Emergency Core Cooling System (ECCS):** A backup system designed to remove heat from the reactor core in the event of a loss of coolant.

**Neutron Moderator:** A material that slows down neutrons to increase the likelihood of a fission reaction occurring.

**Reactor Vessel:** The main container that holds the reactor core and the primary loop of water.

**Primary Loop:** The first loop of water that circulates between the reactor core and the steam generator.

**Secondary Loop:** The second loop of water that circulates between the steam generator and the turbine.

**Turbine:** A mechanical device that converts the energy of the steam into electrical energy.

**Generator:** A device that converts the mechanical energy of the turbine into electrical energy.

**Condenser:** A heat exchanger that cools the steam from the turbine and returns it to the secondary loop.

**Pump:** A device that circulates the water in the primary and secondary loops.

**Shutdown:** The process of stopping the nuclear reaction and cooling the reactor core.

**Startup:** The process of starting the nuclear reaction and circulating the water in the primary and secondary loops.

**Load Following:** The ability of a nuclear reactor to adjust its power output to match the demand for electricity.

**Base Load:** The minimum level of power output that a nuclear reactor can maintain continuously.

**Peaking:** The process of increasing the power output of a nuclear reactor to meet a temporary increase in demand.

**Tripping:** The automatic shutdown of a nuclear reactor in the event of a safety violation.

**Scram:** A rapid shutdown of the nuclear reactor, typically achieved by inserting control rods.

**Refueling:** The process of replacing spent nuclear fuel with fresh fuel.

**Spent Fuel:** Nuclear fuel that has been used in the reactor and is no longer capable of sustaining a chain reaction.

**Spent Fuel Pool:** A pool of water that stores spent nuclear fuel, providing cooling and shielding.

**Decay Heat:** The heat generated by the radioactive decay of spent nuclear fuel.

**Decay Tank:** A tank that stores spent nuclear fuel after it has been removed from the reactor.

**Final Disposal:** The process of permanently disposing of spent nuclear fuel in a secure location.

**Reactor Safety:** The measures taken to prevent accidents and ensure the safe operation of a nuclear reactor.

**Emergency Preparedness:** The plans and procedures in place to respond to a nuclear emergency.

**Public Perception:** The way in which the general public views nuclear energy and nuclear reactors.

**Environmental Impact:** The effects of nuclear energy on the environment, including the release of greenhouse gases and the potential for radioactive contamination.

**Economic Viability:** The ability of nuclear energy to compete with other sources of electricity in terms of cost.

**Policy:** The government's stance on nuclear energy, including regulations and incentives.

**Research and Development:** The efforts to improve nuclear technology and develop new reactor designs.

**Small Modular Reactors (SMRs):** A new generation of nuclear reactors that are smaller, safer, and more flexible than traditional reactors.

**Advanced Reactors:** Next-generation nuclear reactors that use different fuels, moderators, and coolants to improve efficiency and safety.

**Fast Neutron Reactors:** Reactors that use fast neutrons to sustain a chain reaction, allowing them to burn a wider range of nuclear fuels.

**Thermonuclear Fusion:** The process of combining two light atomic nuclei to form a heavier nucleus, releasing a large amount of energy.

**Fusion Reactor:** A reactor that uses thermonuclear fusion to generate energy.

**Plasma:** A state of matter consisting of a hot, ionized gas of atoms and free electrons.

**Confinement:** The process of containing the plasma in a reactor to sustain a fusion reaction.

**Heating:** The process of providing energy to the plasma to maintain the high temperatures required for fusion.

**Stability:** The ability of a fusion reactor to maintain a steady state of operation.

**Scalability:** The ability of a fusion reactor to be scaled up to produce large amounts of power.

**Commercialization:** The process of bringing a fusion reactor to the market as a source of electricity.

**Challenges:** The difficulties associated with developing and operating a fusion reactor, including the need for high temperatures and the complexity of the technology.

**Advantages:** The benefits of fusion energy, including its potential for providing a clean, safe, and sustainable source of power.

**Future:** The potential for fusion energy to play a significant role in the world's energy mix in the coming decades.

**Investment:** The financial resources dedicated to the development and construction of fusion reactors.

**Collaboration:** The efforts of governments, universities, and private industry to advance fusion research and development.

**Breakthrough:** A significant discovery or achievement in the field of fusion energy.

**Realization:** The achievement of a functional fusion reactor that can produce net energy.

**Integration:** The process of integrating fusion energy with the existing power grid and infrastructure.

**Acceptance:** The public and political acceptance of fusion energy as a viable energy source.

**Deployment:** The large-scale implementation of fusion reactors for power generation.

**Legacy:** The long-term impact of fusion energy on the environment and society.

**Hope:** The optimism surrounding the potential of fusion energy to solve the world's energy needs.

**Challenge:** The recognition that significant challenges must be overcome before fusion energy can become a reality.

**Promise:** The potential of fusion energy to provide a clean and sustainable source of power for generations to come.

**Future:** The vision of a world powered by the clean and abundant energy of fusion.

**Hope:** The belief that the challenges of fusion energy will be overcome, leading to a brighter future for all.

**Challenge:** The determination to face the challenges of fusion energy head-on, with the goal of achieving a sustainable and secure energy future.

**Promise:** The commitment to the development of fusion energy as a key component of a clean energy portfolio.

**Future:** The aspiration for a world where fusion energy is a common and accessible source of power.

**Hope:** The faith that the scientific and engineering community will continue to push the boundaries of what is possible with fusion energy.

**Challenge:** The acknowledgment that the path to a fusion-powered world is long and filled with obstacles.

**Promise:** The assurance that the pursuit of fusion energy is worth the effort and investment.

**Future:** The dream of a world where the sun's energy is harnessed and used to power our lives.

**Hope:** The belief that the fusion of science and technology will lead to a better world for everyone.

**Challenge:** The recognition that the fusion of different perspectives and disciplines is essential for success.

**Promise:** The commitment to the fusion of knowledge and resources to achieve our common goals.

**Future:** The vision of a world where the fusion of human ingenuity and natural resources creates a sustainable future.

**Hope:** The belief that the fusion of our dreams and efforts will create a world of endless possibilities.

**Challenge:** The determination to overcome the challenges of fusion energy, one step at a time.

**Promise:** The commitment to the fusion of our strengths and weaknesses to create a stronger future.

**Future:** The vision of a world where the fusion of our talents and passions creates a world of opportunity.

**Hope:** The belief that the fusion of our hearts and minds will create a world of love and understanding.

**Challenge:** The recognition that the fusion of our fears and doubts will create a world of uncertainty.

**Promise:** The commitment to the fusion of our hopes and dreams to create a world of possibility.

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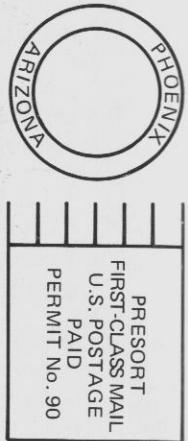
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*This brochure is part of the emergency planning for the Palo Verde Nuclear Generating station. Taking part in this planning are the Arizona Division of Emergency Services, the Arizona Radiation Regulatory Agency, the Maricopa County Department of Civil Defense and Emergency Services and Arizona Public Service Company. These offices can provide more detailed information for residents living within the 10 mile radius of the Palo Verde Nuclear Generating Station.*

Charles F. Tedford, Director  
Arizona Radiation Regulatory Agency



# Palo Verde Nuclear Generating Station Emergency Brochure



ion of the American Red Cross, 274-8061. Then, if inquiries come from concerned family members, the Red Cross will be able to contact you easily.

1071: If you reside on an area other than the designated Reception and Care Center, please contact the Arizona Department of Corrections at 602-255-2222.

(Measured in millirems)
Dental x-rays
Breast x-rays
Paranamic
Coast-to-coast airline flight
Color television
Living within one mile of a nuclear plant
1/10 per year
4
500-1000
40

Living in a brick house	45
Living in a stone house	50
Living in a wood house	35

Food	25
The Earth <td>15</td>	15
Air <td>5</td>	5
Commic rays <td>45</td>	45

(Measured in millions per year)

Sources and typical amounts of natural background radiation

- Gamma radiation consists of short-range gamma rays emitted from a nucleus, and beta particles, which are electrons or positrons.
- Alpha radiation is the least penetrating type of particle radiation. It can be stopped by a sheet of paper.
- Beta, and gamma.

Radioactivity is a property of unstable nuclei. The magnitude of radiation types emitted by a nuclear reactor or alpha, beta, and gamma.

some forms of radiation are of value or harmless. In fact, many of our modern conveniences rely on radiation. For example, the smoke detectors in many homes use a small amount of alpha radiation to detect smoke.

Radioactive

### III. LOCAL GOVERNMENT

facilities responding to the emergency. ARRA will also provide laboratory services to monitor the environment around Palo Verde to ensure the public's health and safety.

Under Emergency Management Commission (NRE): This federal agency provides the administration of nuclear power plants to assure the public safety and health.

Under Regulatory Commission (NRC): This federal agency provides the administration of nuclear power plants to assure the public safety and health.

II. STATE GOVERNMENT

The Arizona Division of Emergency Services (ADES): The ADES is responsible for coordinating the response of various agencies in the event of a serious accident involving state declared emergency. The division, acting in accordance with the plan, will coordinate state and local agencies' emergency response. The division will coordinate state and local agencies' emergency response of substances with a reasonable potential for a nuclear facility that could affect the public health and safety.

The Arizona Radiation Regulatory Agency (ARRA): The ARRA has the primary responsibility for the development of the radiological aspects of the office emergency response plan. In the event of an emergency, ARRA will evaluate the radiological health based on input from AFS and other agencies. The ARRA will provide health and physical status assessments, radiological monitoring, and will provide health and physical status support in response to requests from agencies and physicians.

## II. STATE GOVERNMENT

The Department is the single point of contact for requesting technical assistance. Federal Emergency Management Agency (FEMA). This agency serves as the single point of contact with the federal government for administering emergency management programs. FEMA's job is to assist state and local emergency management programs. Major cooperative emergency management programs are administered through the administration of joint federal-state and local emergency management programs. FEMA's objectives include the development of state and local capabilities to manage various life-threatening emergencies and coordination of federal assistance during recovery from the effects of such emergencies. The Federal Emergency Management Agency (FEMA) is responsible for the establishment of national emergency management standards for the regulation of nuclear power plants to assure the public inspection of nuclear power plants to assure the public

## 1. FEDERAL GOVERNMENT

**Government Agencies**

I. FEDERAL GOVERNMENT

8412060311-04



Government Agencies

1. FEDERAL GOVERNMENT  
Department of Energy (DOE): This federal agency is responsible for coordinating the radiological, technical assistance provided by various federal agencies assisting offsite response. The Department is the single point of contact for requesting federal technical assistance.

Federal Emergency Management Agency (FEMA): This executive agency serves as the single point of contact with the federal government for administering emergency management programs. FEMA's role is to assist state and local governments in developing emergency management capabilities through the administration of joint cooperative emergency management programs. Major program objectives include the development of state and local capabilities to manage various life-threatening emergencies and coordination of federal assistance during recovery from the effects of such emergencies.

Nuclear Regulatory Commission (NRC): This federal commission is responsible for the establishment of onsite emergency management standards for the regulation and inspection of nuclear power plants to assure the public health and safety.

II. STATE GOVERNMENT  
Arizona Division of Emergency Services (ADES): The Division, by state statute, is responsible for coordinating development of Arizona's offsite emergency response plan. In the event of a serious accident involving a state declaration of emergency, the Division, acting in accordance with the plan, will coordinate state and local agencies' emergency actions. These actions may include radiological contamination control of substances within a reasonable vicinity of a nuclear facility that could affect the public health and safety.

Arizona Radiation Regulatory Agency (ARRA): The agency has the primary responsibility for the development of the radiological aspects of the offsite emergency response plan. In the event of an emergency the agency will evaluate the radiological hazards and recommend subsequent protective actions based on plant condition, release data, dose assessment, and dose projections. The calculated, assessed information and recommended protective actions are cross-checked with the APS emergency response coordinator prior to submission to the Governor. The Agency also initiates and performs offsite emergency radiological monitoring and provides

health physicist support in response to requests from state and county agencies responding to the emergency. ARRA provides laboratory services to monitor the environment around Palo Verde to ensure the public's health and safety. ARRA initiates requests for additional necessary federal assistance.

III. LOCAL GOVERNMENT  
Maricopa County Department of Civil Defense and Emergency Services (MCDCD&ES): This department is responsible for coordinating and assisting in the development of the offsite response plan. In the event of a serious accident involving a state declaration of emergency, this agency, acting in accordance with the plan and the Arizona Division of Emergency Services, will direct and coordinate the response of county government agencies and volunteer services. The county's protective actions in the vicinity of the nuclear facility to protect the resident population of the area from excessive exposure if radioactive materials are released to the atmosphere.

Radiation

Radioactivity is a characteristic of certain elements in which energy is given off spontaneously in the form of waves or particles. The majority of radiation types emitted by a nuclear reactor are alpha, beta and gamma.

- Alpha radiation is the least penetrating type of particle. It can be stopped by a sheet of paper.
- Beta radiation is also in the form of particles. It can be stopped by thick cardboard or aluminum foil.
- Gamma radiation consists of electromagnetic waves emitted from a nucleus, and is essentially the same as X-rays. It can be stopped by heavy shielding such as lead or concrete.

The release of radiation is very unlikely, but it could happen. If an accidental release does occur, it could be harmful. You will be notified with time to take protective actions (see notification information). Follow the instructions completely to ensure your health and safety.

Sources and typical amounts of natural background radiation: (Measured in millirems per year)

Cosmic rays	45
Air	4
The Earth	15

Food	25
Building materials	
Living in a brick house	45
Living in a stone house	50
Living in a wood house	35

Typical amounts of man-made sources of radiation: (Measured in millirems)

Dental X-rays	
Biteewing series	40
Panoramic	500-1000
Coast-to-coast airline flight	4
Color television	1 per year
Living within one mile of a nuclear plant	1/10 per year

Who Would Be Affected

In the unlikely event of a serious emergency at the Palo Verde nuclear plant, the possibility that everyone in the entire EPZ would be affected is very remote. The severity of the accident, and weather conditions such as wind speed and direction, would determine the areas affected. Should it become necessary to evacuate some residents within the EPZ, the American Red Cross will open Reception and Care Centers (RCC).

Notice that the map (on the reverse side of this brochure) designates the Emergency Planning Zone and Sector designations. You would be directed to the appropriate RCC at that time. The primary RCC's including their general location from the Palo Verde Nuclear Generating Station, are as follows:

RECEPTION AND CARE CENTER LOCATIONS	ADDRESS
RCC	
Dysart High School	11405 N. Dysart Road
Trevor Browne High School	7402 W. Catalina Drive, Phoenix
Glendale High School	6216 W. Glendale Ave., Glendale
Agua Fria Union High School (South)	530 E. Riley Drive, Avondale
Agua Fria Union High School (North)	14802 W. Indian School Road
Tolleson Union High School	9419 West Van Buren, Tolleson
Gila Bend High School	308 N. Martin Avenue, Gila Bend

Gila Bend Elementary School	308 N. Martin Avenue, Gila Bend
Harquahala Valley	Van Buren/Harquahala Valley Road

NOTE: If you evacuate to an area other than the designated Reception and Care Center, please contact the Arizona Chapter of the American Red Cross, 264-9481 (256-3958 after business hours). Then, if inquiries come from concerned family members, the Red Cross will be able to contact you easily.

Emergency Plan

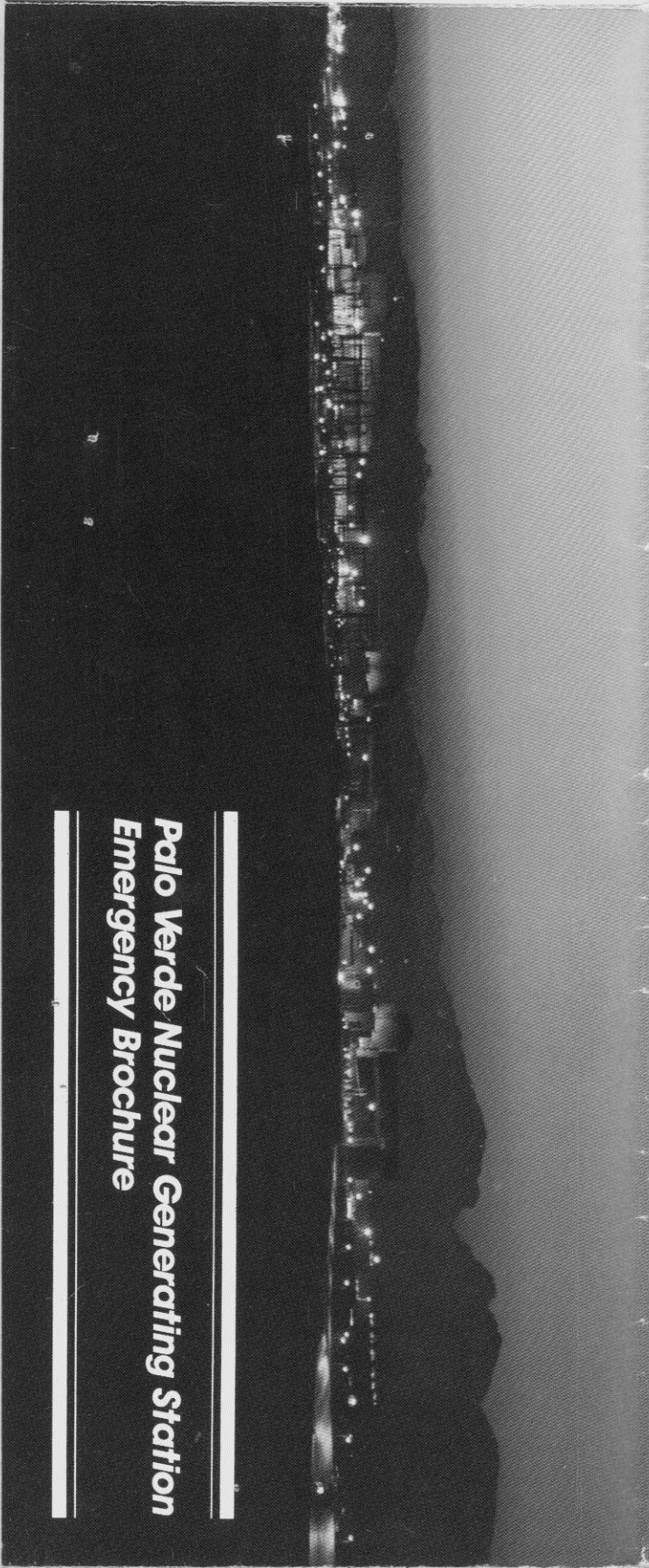
The Plan is a result of Arizona Public Service Company's commitment to safety and the statutory obligation of government to provide for the protection and the health of those living within the area surrounding Palo Verde.

The Emergency Plan is a step-by-step plan for taking protective action, including the possibility of warning and evacuation of all persons within an Emergency Planning Zone (EPZ).

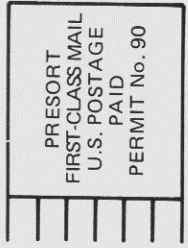
Emergency Instructions

Nuclear Generating Stations Cannot Explode. If there is an accident, there will be time to take precautionary measures. Also, depending on weather conditions, only limited areas may be affected. If there ever is a problem and you receive a public warning:

- Keep calm at all times. Panic is your greatest enemy.
- Go indoors and stay inside until you are instructed to do otherwise.
- Stay tuned to your local radio or television stations for information and instructions.
- Do not use the phone. Keep the circuits clear for emergency situations.



Palo Verde Nuclear Generating Station  
Emergency Brochure



Arizona Public Service Company  
Energy Affairs Department  
Station 1390  
P.O. Box 24666  
Phoenix, Arizona 85036

Charles F. Thelord, Director  
Arizona Radiation Regulatory Agency  
Edwin E. VanBuren, Vice President  
Nuclear  
Arizona Public Service Company  
Roy B. Bluhm, Director  
Maricopa County Department of  
Civil Defense and Emergency Services  
Richard Olson, Director  
Arizona Department of  
Emergency Services  
Kennis A. Allen  
at 386-6167  
255-4845, or Arizona Public Service Company  
Arizona Radiation Regulatory Agency at  
Defense and Emergency Services at 273-1411.

This brochure is part of the  
emergency planning for the  
Palo Verde Nuclear Generat-  
ing station. Telling part in this  
planning are the Arizona Divi-  
sion of Emergency Services,  
the Arizona Radiation Regu-  
latory Agency, the Maricopa  
County Department of Civil  
Defense and Emergency  
Services and Arizona Public  
Service Company. These  
offices can provide more  
detailed information for resi-  
dents living within the 10 mile  
radius of the Palo Verde  
Nuclear Generating Station.

This brochure is part of an extensive, on-going program by the State of Arizona, Maricopa County, and Arizona Public Service Company to ensure the safety of persons living near the Palo Verde nuclear plant. The actual risk posed by active materials are involved in the production of electricity at Palo Verde, an onsite emergency plan has been prepared by Arizona Public Service Company. In addition, an offsite emergency plan has been developed by the State of Arizona and Maricopa County Governments in cooperation with Arizona Public Service Company to provide area residents with minimum protection in the event of an accident involving the release or potential release of radiation. This brochure contains information about both Palo Verde and the emergency plan, and replaces the previously distributed emergency brochure. Please read it at your earliest convenience, and keep it with your other important reference papers. If you have any questions or would like additional information, please feel free to call the Arizona Division of Emergency Services at 273-9980, Maricopa County Department of Civil

Dear Resident:

A Nuclear Energy Glossary

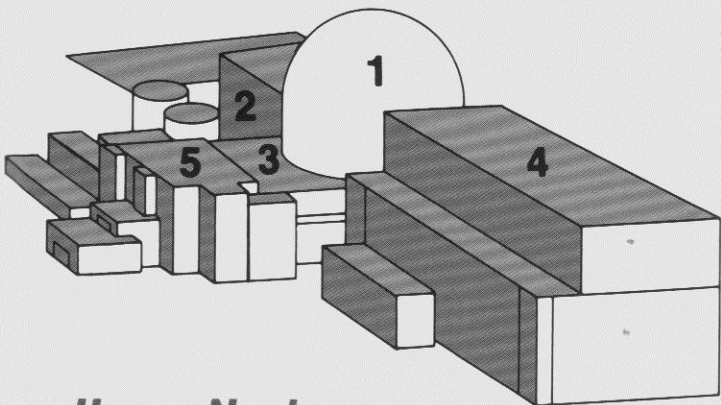
- Chain Reaction:** The process where a neutron splits an atom releasing heat and more neutrons. These free neutrons then split more atoms creating a self-sustaining reaction.
- Cold Shutdown:** The condition of the reactor when it is shut down and no longer operating. The coolant water in the reactor is below the boiling point.
- Control Rods:** Rods made of a neutron-absorbing material which, when inserted into the reactor core, control the rate of the nuclear chain reaction. When fully inserted, these rods will stop the nuclear reaction.
- Control Room:** The room from which all the major systems of the nuclear plant are operated, monitored and controlled.
- Core:** The central part of the nuclear reactor. This is the area where the uranium fuel is fashioned which creates the heat for the steam process.
- Criticality:** The point at which the nuclear fuel can sustain a chain reaction.
- Decay Heat:** Heat produced by the nuclear fuel after the reactor has been shut down.

- Dosimeter:** A device used to measure total doses of radiation exposure. These are worn by everyone entering a radiation-producing area.
- Emergency Core Cooling System:** A series of backup systems designed to provide cooling water to cool the reactor in case the primary cooling system is unable to function.
- Emergency Planning Zone (EPZ):** Defined area surrounding the plant for which emergency response plans are developed. These areas are subject to local authorities recommending some protective action, such as sheltering or evacuation, in case of a plant emergency.
- Engineered Safety Features:** Systems to prevent or lessen the consequences of an accident at the nuclear plant. Parts of these systems are tested periodically throughout the year.
- Fissionable Materials:** Special forms of elements which can sustain a chain reaction. Palo Verde uses Uranium 235 as the fissionable material in the fuel assemblies.
- Fission Products:** The atoms of new elements that are formed after the uranium atom splits during the fissioning process.

- Fuel Assemblies:** There are 236 fuel rods in each Palo Verde fuel assembly and 241 of these fuel assemblies make up Palo Verde's reactor core. The fuel rods, which contain the uranium pellets, are 13.4 feet long. The fuel rods are arranged in each assembly to allow water to flow around each rod and absorb the heat given off in the fission process.
- Gieger Counter:** An instrument used to detect and measure radiation.
- Half Life:** The length of time it takes for any radioactive substance to lose one-half of its radioactivity. The half-life may vary in length from a fraction of a second to many years, depending on the radioactive substance.
- Meltdown:** An accident in which all or part of the fuel core would melt.
- Millirem:** A unit used to measure radiation exposure—1/1000th of a REM (Roentgen Equivalent Man).
- Neutrons:** Particles with no electrical charge that are found in the nuclei of all atoms except hydrogen. These particles can travel easily through most matter. Some elements, such as boron, will absorb neutrons easily and are called absorbers.

- Pressurized Water Reactor (PWR):** A type of reactor in which the primary coolant water is kept under pressure so that it does not boil. This water goes through a heat exchanger that heats up a separate water system. This separate water system is not under a lot of pressure and boils into steam. This steam is then used to spin the turbine-generator that produces electricity.
- Pressurizer:** The tank of steam and water that controls the pressure in the reactor coolant system.
- Primary Coolant:** Water in the reactor system.
- Reactor Trip or Scram:** The rapid insertion of the control rods into the core of the reactor to stop the fission chain reaction. This is also known as a reactor shutdown.
- Spent Fuel:** Nuclear fuel that has been used in the reactor and can no longer economically sustain a chain reaction. Such fuel must be removed from the reactor and shipped to a federal storage area.
- Shielding:** The material within the nuclear plant that prevents or reduces the escape of radiation. Shielding can be steel, lead, concrete or water.

1. **Containment Building:** A steel-lined reinforced concrete structure housing the reactor, the pressurizer, the reactor coolant pumps, steam generators, piping, and other equipment.
2. **Fuel Building:** A reinforced concrete structure located beside the containment and auxiliary buildings, but physically separated from them. The fuel building houses both the spent fuel pool and the new fuel storage area.
3. **Auxiliary Building:** Houses equipment and laboratories for operation of the plant, safety systems and backup systems.
4. **Turbine Building:** Contains the secondary (non-radioactive) system of water. Housed in this building are the steam turbines, the electric generator, the condenser system, and other turbine auxiliary systems.
5. **Control Building:** The control building is a rectangular, multilevel, steel framed structure with a reinforced concrete shell. The control building primarily houses the control room, computer room, upper and lower cable spreading rooms, switchgear and battery rooms.

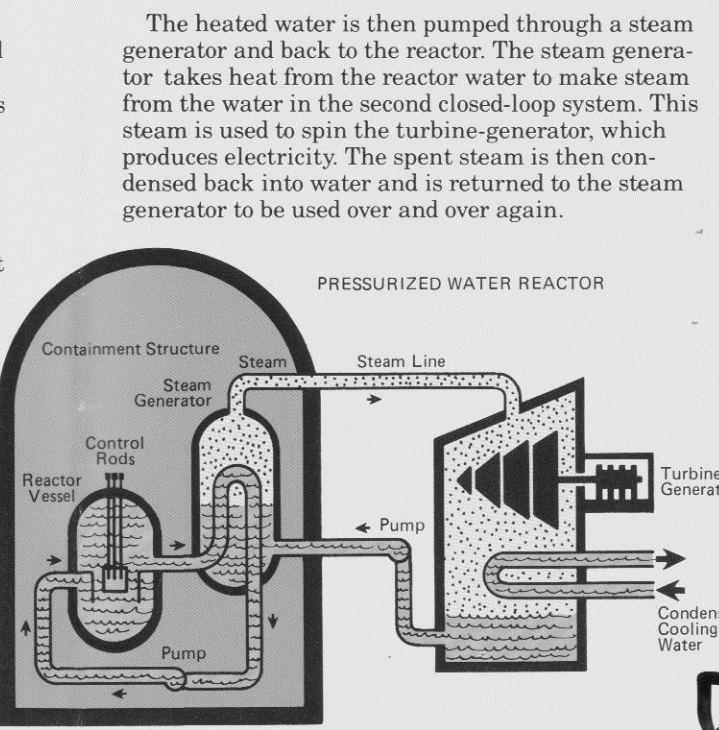


How a Nuclear Power Plant Works

In most power plants, steam is required to produce electricity. In fossil-fueled electric plants, the heat source used to create the steam is the combustion of natural gas, coal, or oil. At Palo Verde, heat will be produced by splitting uranium atoms, a process known as fission.

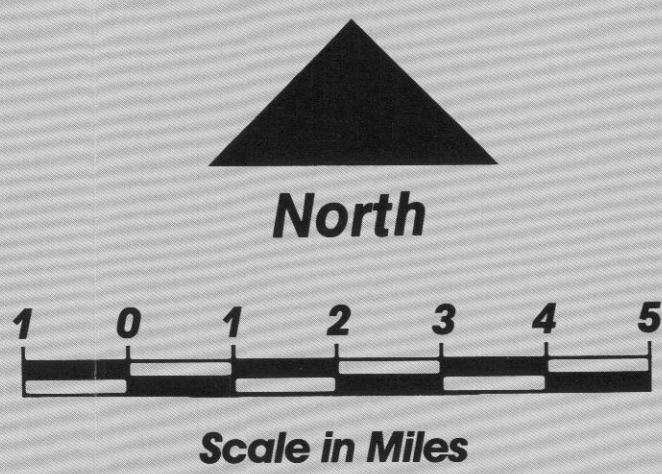
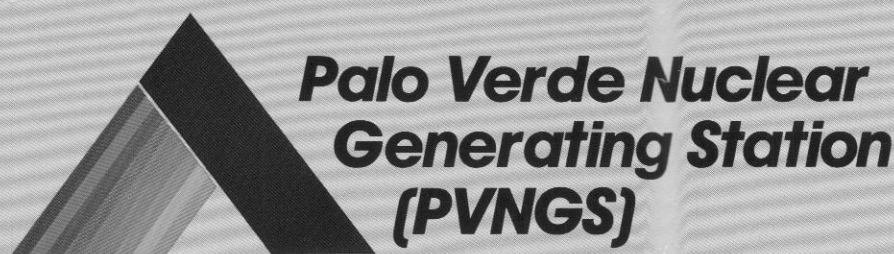
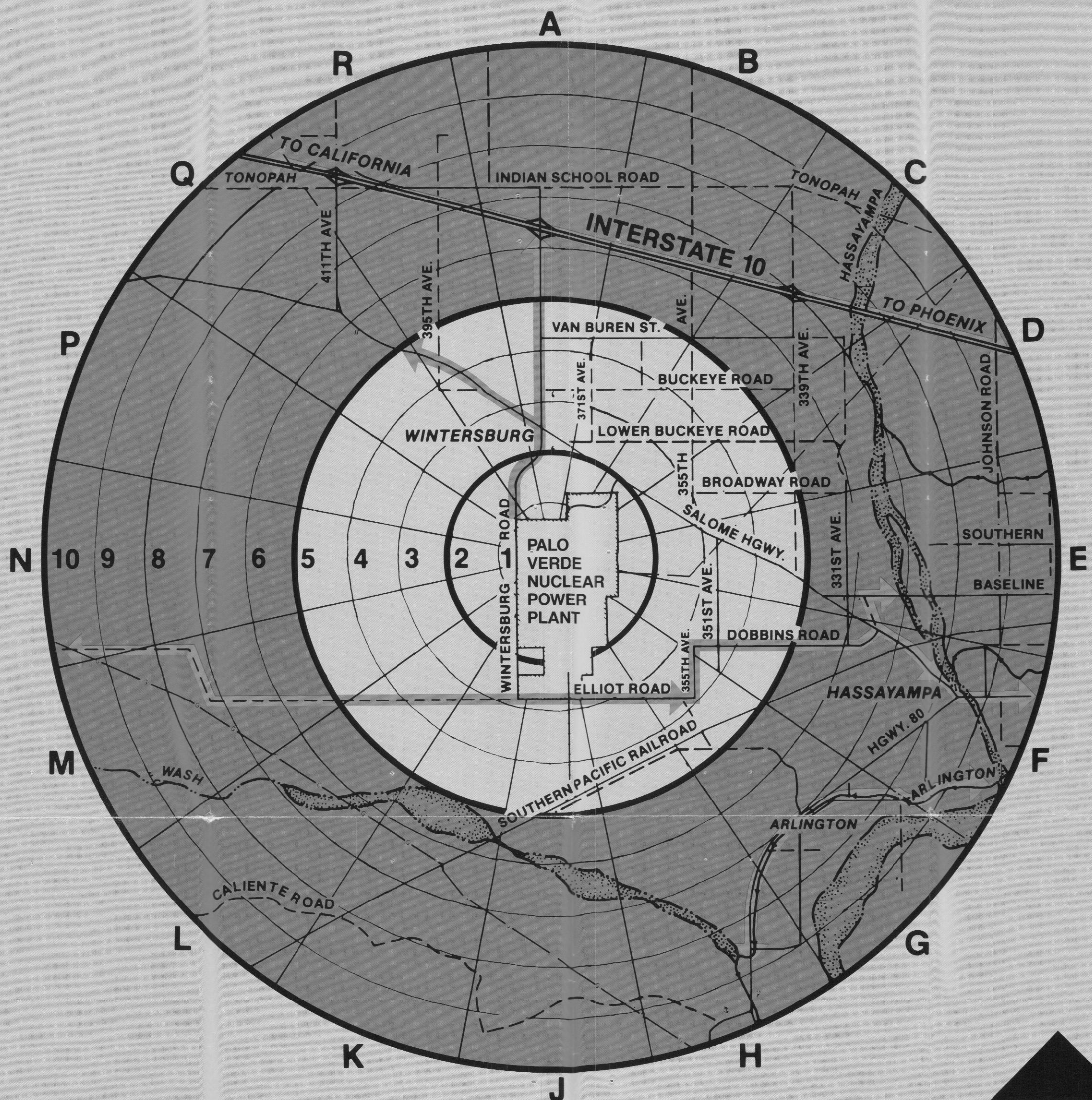
Once the heat is produced in a nuclear plant, the generating process is essentially the same as in fossil plants. Heat turns water into steam. The steam drives a turbine that turns a generator that produces electricity. The atom-splitting process takes place inside a nuclear reactor which acts like a boiler in a fossil plant. A tiny sub-atomic particle called a neutron strikes the nucleus of a uranium atom, splitting it into fragments. This "fissioning" process creates heat and releases more neutrons, which in turn collide with and split other uranium atoms, thus producing more heat. The process continues as a carefully controlled "chain reaction."

The type of reactor at Palo Verde is a Pressurized Water Reactor (PWR), which features two separate closed-loop systems: the primary system and the secondary system. In the primary system, water is pumped through the core of the reactor and heated by the nuclear fuel to about 620 degrees Fahrenheit. Since the reactor vessel is pressurized, the water doesn't boil.



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# Emergency Planning Zone

## Emergency Classifications

You should take a few moments to familiarize yourself with each of these classifications so that if you ever hear them being used, you'll know how to respond. The four levels of emergency, from least serious to most serious, are:

**A. Unusual Event**—Indication of a potential degradation of the level of safety of the plant. No release of radioactive material requiring off-site response is expected.

**B. Alert Notification**—An actual or potential, limited release of radioactive material requiring offsite radiation monitoring.

**C. Site Area Emergency**—Releases, or potential releases, of radioactive material requiring offsite radiation monitoring and notification of local residents.

**D. General Emergency**—Releases, or potential releases, of radioactive material requiring protective measures for local residents.

## Notification Information

If an emergency occurs, the Palo Verde nuclear plant operators would immediately notify federal, state, and Maricopa County emergency officials. These organizations are prepared to respond according to the Emergency Plan.

If it is necessary to warn the public, you will hear a siren:

1. If you should hear a siren, tune to local radio or television stations for information and instructions. The stations will keep you informed, and state and local officials will relay protective instructions and recommendations to you. The action you will be asked to take will depend on the nature of the emergency.  
All instructions will be keyed to certain areas within the 10 mile zone around the plant depending on the wind speed and direction. Locate your residence on the map above, then record the Sector (A, B, C, etc.) and mile ring (1 through 10) that refers to your location. Post this information in an easily seen place (e.g., on your telephone, TV, etc.) for ready reference.
2. Contact your neighbors to make sure they are aware of the emergency, but use your phone as little as possible. We must leave the phone system open so that emergency calls can get through.

There are a number of protective actions you can take—under the direction of state, county

and local governmental authorities—to ensure maximum protection from excessive exposure to radiation in the event of a nuclear accident. Depending upon the magnitude of the accident, government officials may direct implementation of one, or a combination of the following protective actions.

**Sheltering:** This action is the easiest protective action to implement since, in most cases, your home will provide adequate shelter from radiation. A “shelter-in-place” announcement means “stay indoors” or “get indoors.” If you are outside at the time shelter is recommended, head for home immediately or for the nearest shelter, if you're too far from home. Wherever you take shelter, however, even if you are in a car, take the following precautions to reduce the risk of excessive radiation exposure:

1. Make sure the doors and windows are shut and tightly sealed and close fireplace damper.
2. Turn off the combustion heating or cooling system if it's bringing air in from the outside.
3. Take a battery-operated radio or television and move to the basement if you have one; if not, stay away from the doors and windows.
4. Keep everybody (including pets) inside. Stay calm and tune to a local radio or television station for further instructions.
5. Refer to the “Evacuation” section in this booklet for information on evacuation routes and Reception and Care Centers in the event instructions are given to evacuate.
6. If you are not within the hazard area, do not enter it. You will be informed when it is safe to re-enter the area.
7. If you must go outside, place a handkerchief or a protective mask over your nose and mouth. Limit your time outside as much as possible.

**Selective Evacuation:** Involves a specific segment of the area population. Selective evacuation would be implemented if the severity of the situation warrants the evacuation of those people who are uniquely sensitive to radiation. It is designed to limit the exposure of females of child-bearing age and children to age 18, because embryos, fetuses and the young are more sensitive to radiation than adults.

**Evacuation:** Implemented only when other protective actions cannot assure an appropriate level of protection from the anticipated hazard. This action is far less likely to be called for and, in many cases, would be directed after a period of sheltering-in-place. Simply stated, if you are required to evacuate, you will be directed to move out of the area of risk and into designated Reception and Care Centers in locations well outside the hazard area.

If you've been directed to evacuate, do not hesitate or waste time trying to take all your possessions with you. Instead:

1. Stay calm; you are a lot more likely to get hurt by rushing than by the release of radiation.
  2. Gather your family together; children attending school will be moved, under adult supervision, to a Reception Center where they may be joined by their families. Local radio and television stations will carry bulletins that indicate where parents can go to pick up their children.
  3. Pack only essential items (see checklist).
  4. Turn off gas, electricity, and water to the same extent as if you were leaving for a week.
  5. Lock the windows and doors.
  6. Do not get on the road with a car in poor running condition or one that has a nearly empty gas tank. Carpool with a neighbor or call your Maricopa County Department of Civil Defense and Emergency Services at 273-1411, if you need assistance.
  7. Keep your house pets, (small animals, birds, etc.) indoors and leave them unless you have plans to stay with friends or relatives outside the affected area. Reception and Care Centers will not accept pets. If you do have a place to take them other than the Reception and Care Centers, remember to take leashes, dishes, carriers, etc., and a supply of pet food.
  8. If you have livestock, shelter them, and if possible make provisions for feeding and watering them. Stored feed should be used if possible. As soon as it is safe, you will be permitted to return and care for them.
  9. Know where you are going . . . which routes are open (refer to map).
  10. During your absence from home or business, local law enforcement officials will patrol the area to protect property. Unauthorized persons will not be permitted in the evacuated areas.
- Remember, an evacuation may not be the initial protective action you are required to take. The first information may advise you that your area is not affected, that you should stay indoors, or that other actions should be implemented.
- Follow the instructions.**

## Words to the Wise: Preparing for Emergencies

Since you may have to leave your home on short notice for any one of a number of emergencies such as nuclear accidents, flooding and chemical spills, you can do several things now to

make it easier later. Here are four ways to prepare yourself for any emergency.

1. Collect your important papers and store them in a safe place.
2. Make a list of things you will need to take with you if directed to leave your home, and make sure you always have them on hand (see suggested list below).
3. Set aside a place for emergency items that you intend to take with you such as prescription medicines, flashlight, extra batteries, extra set of car keys, first aid kit, and fire extinguisher.
4. Keep your car in good running order and fueled.

## For the Disabled

Special provisions have been made to provide care and transportation for the disabled. It is important that you let your needs be known as soon as possible, so contact your Maricopa County Department of Civil Defense and Emergency Services, at 273-1411.

## Things You May Want to Take

These are only general suggestions for any evacuation. They obviously do not apply to everyone. Shelters in designated Reception and Care Centers will provide food and bedding, as well as other emergency services.

**Clothing**  
1. Enough seasonal clothing for one week.

**Medical Supplies**  
1. First aid kit  
2. Medicines and prescriptions

**Personal Items**  
1. Soap and towels  
2. Shaving articles  
3. Toothpaste and toothbrushes  
4. Sanitary supplies  
5. Important papers (auto registration and credit cards)

**Children and Infants**  
1. Disposable diapers and powder  
2. Bottles  
3. Milk formula

**Other supplies**  
1. Flashlight  
2. Candles, matches  
3. Portable radio batteries  
4. Plastic or paper bags  
5. Hand tools (for car repairs)