

2004 Annual Inspection and Radiological Survey for the Piqua Nuclear Power Facility, Piqua, Ohio, Decommissioned Reactor Site

Summary

Piqua Nuclear Power Facility, a decommissioned nuclear power demonstration facility located on the east bank of the Great Miami River in Piqua, Ohio, was inspected on March 11, 2004. The site is in good physical condition. The annual radiological survey, which is performed in conjunction with the annual inspection, revealed no removable contamination at the 111 sample points. The only direct reading that exceeded the minimum detectable activity was at a floor drain, which has shown detectable beta activity in the past.

The cathodic protection system and the high water alarm system have been routinely inspected and maintained by the city of Piqua.

There is no requirement for a follow-up inspection.

1.0 Introduction

This report presents the findings of the annual U.S. Department of Energy (DOE) inspection of the Piqua Nuclear Power Facility (PNPF) in Piqua, Ohio. This facility is assigned to the DOE Grand Junction Office of Legacy Management (LM) for long-term custody and care.

M. R. Widdop (Chief Inspector) and M. E. Reed (Assistant Inspector), both of S.M. Stoller, the Legacy Management Contractor at Grand Junction, and L. McGee (DOE- Morgantown, WV) conducted the inspection on March 11, 2004. Mr. W. J. Sommer, the Piqua Power Systems (PPS) Director, was contacted during the inspection and briefed on the results. A copy of this report will be forwarded to Mr. Sommer.

The purpose of the inspection was to confirm the integrity of the visible features at the facility and to verify that no radiological hazards are present.

2.0 Inspection Results

Features discussed in this report are shown on the attached drawings. Photographs to support specific observations are identified in the text and on the drawings by photograph location (PL) numbers.

The reactor containment building and an associated auxiliary building are used by PPS as office, shop, and storage space. The inspectors walked around the outside of the facility to examine the exterior condition of the PNPF. The concrete decking between the auxiliary building and the reactor containment building that had significant deterioration during the 2003 inspection has been repaired. The inspectors also examined the facility interior looking for evidence of structural deterioration. Inspectors observed falling plaster and peeling paint at the bottom of the spiral staircase on the 56-foot level of the containment building (PL-1) as well as on the 79-foot

level wall of the auxiliary building (PL-2), which might be evidence of water damage. This damage has been noted on prior inspections and the condition remains unchanged. Peeling paint was observed on most areas of the interior dome walls; this condition also has been noted on prior inspections and the condition remains unchanged. During the 2003 inspection it was noted that on the 111-foot elevation of the reactor containment building insulation had fallen off piping components and could be potentially friable asbestos. PPS removed the existing plenum structure and piping insulation and converted the area to a storage location with shelving and a new stairwell for access. No evidence of activities that might affect the integrity of the PNPf was observed either on site or off site in the immediate surrounding area. No follow-up inspection is required.

2.1 Cathodic Protection System

A cathodic protection system is installed on the reactor building to protect the steel shell. Corrosion of the pressure vessel could allow water to enter and spread radioactive contamination beyond the entombment.

The system consists of 10 carbon (graphite) electrodes, buried radially approximately 10 to 20 feet from the building foundation, and a rectifier unit (PL-3) for providing DC current. The rectifier unit is mounted in the break room south of and outside the airlock on the 100-foot level. Each carbon electrode is 3 inches in diameter and 60 inches long. The electrodes are connected to the rectifier unit by a header cable; splices are protected in flush-mounted boxes (PL-4). A structure contact point for monitoring potential can be found on the shell associated with each electrode; some of the contact points also have cables remaining from an abandoned zinc anode protection system. The system also includes reference electrodes and test holes.

Maintenance of the cathodic protection system is specifically addressed in Contract AT(11-1)-1798, dated May 10, 1968, between the U.S. Atomic Energy Commission and the City of Piqua. The city agrees to maintain the system in an operational condition as long as required to maintain the integrity of the entombment until radiological decay renders the contents safe, estimated to be approximately 100 years. Maintenance requirements are not specified but include monthly inspections of the rectifier unit, recording the current and voltage output, and periodic (estimated to be every five years) inspections of the entire system by a qualified service provider. Operating and maintenance costs are borne by the city.

Inspectors found that output from the rectifier unit was recorded monthly. Mr. Sommer had received notification that the system was due for inspection and he intended to request budget for that purpose the following year. DOE will request a copy of the inspection results.

2.2 High Water Alarm System

An alarm system is installed in the sump on the 56-foot level to detect high water levels before they rise to the bottom of the pressure vessel. This system is designed to prevent immersion and accelerated corrosion of the vessel. The alarm triggers when the pit fills to near overflow, alerting personnel to both high water and possible sump pump failure. The alarm registers in the power plant on the Supervisory Control and Data Acquisition system, which is monitored 24 hours a day by an operator. The city confirmed proper functioning of the alarm system the day after the inspection and will include it on their monthly building inspection.

2.3 Radiological Survey

S.M. Stoller staff performed the annual radiological survey on the interior of the reactor containment building, auxiliary building, and exterior areas. A total of 111 sample points were investigated for both removable and surface contamination using direct measurements and smears for the detection of alpha and beta-gamma activity. Gamma dose rates also were measured. [Table 1](#) presents information on the instrumentation used to perform the survey. Background gamma dose rates, measured on the PNPf grounds, averaged 4 microrem per hour ($\mu\text{r/hr}$). General area gamma dose rates measured throughout the facility ranged from 2 to 7 $\mu\text{r/hr}$.

Table 1. Instrumentation for Radiological Survey

Type of Measurement	Radiation	Detector	Meter	Background	Correction Factor	Minimum Detectable Activity
Surface Activity	Alpha	Eberline Model SHP-340/ #16321	Eberline Model E-600/ #15762	30 dpm/100 cm ²	N/A	145 dpm/100 cm ²
Surface Activity	Beta	Eberline Model SHP-340/ #16324	Eberline Model E-600/ #16129	1200 dpm/100 cm ²	N/A	684 dpm/100 cm ²
Exposure Rate	Gamma	N/A	Bicron Micro-rem/ #16377	4 $\mu\text{r/hr}$	N/A	1 $\mu\text{r/hr}$
Removable Activity	Alpha	N/A	Protean WPC-9350/ #15686	0.550 cpm	Efficiency 30.38	5.80 dpm/100 cm ²
Removable Activity	Beta	N/A	Protean WPC-9350/ #15686	1.100 cpm	Efficiency 49.36	4.59 dpm/100 cm ²

key: cpm = counts per minute; dpm = disintegrations per minute; cm² = centimeters squared; $\mu\text{r/hr}$ = microrem per hour

[Table 2](#) presents direct surface and removable activity results. No removable contamination was found at any of the 111 sampling points. Direct surface reading results indicate the floor drain at the lowest level of the containment building exhibited a direct beta reading of 2,740 disintegrations per minute per 100 square centimeters, the smear from this location indicated that no removable activity is present. This result is consistent with previous surveys. All other readings were below the minimum detectable activity (MDA) level.

Attached are the survey maps that indicate the location of each direct measurement and smear location. The maps also indicate the results of the gamma dose rate survey conducted at PNPf.

Table 2. Results of the 2004 Radiological Survey at the Piqua, Ohio, Decommissioned Reactor Site

Location/ Building	Elevation ^a	Direct/ Smear #	Direct Reading Activity		Removable Activity		Remarks
			dpm/100 cm ² Alpha	dpm/100 cm ² Beta	dpm/100 cm ² Alpha	dpm/100 cm ² Beta	
Outside	111 ft.	1	<MDA	<MDA	<MDA	<MDA	Under exhaust vent
Outside	111 ft.	2	<MDA	<MDA	<MDA	<MDA	On HVAC unit
Outside	111 ft.	3	<MDA	<MDA	<MDA	<MDA	On flange
Outside	111 ft.	4	<MDA	<MDA	<MDA	<MDA	On chiller unit
Outside	111 ft.	5	<MDA	<MDA	<MDA	<MDA	On heat exchanger fins

Table 2. Results of the 2004 Radiological Survey at the Piqua, Ohio, Decommissioned Reactor Site (continued)

Location/ Building	Elevation ^a	Direct/ Smear #	Direct Reading Activity dpm/100 cm ²		Removable Activity dpm/100 cm ²		Remarks
			Alpha	Beta	Alpha	Beta	
Outside	111 ft.	6	<MDA	<MDA	<MDA	<MDA	On concrete platform
Outside	111 ft.	7	<MDA	<MDA	<MDA	<MDA	On concrete platform
Outside	111 ft.	8	<MDA	<MDA	<MDA	<MDA	On concrete platform
Outside	100 ft.	9	<MDA	<MDA	<MDA	<MDA	On concrete platform
Containment	56 ft.	10	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	11	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	12	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	13	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	14	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	15	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	16	<MDA	2,740	<MDA	<MDA	In drain
Containment	56 ft.	17	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	18	<MDA	<MDA	<MDA	<MDA	On pedestal
Containment	56 ft.	19	<MDA	<MDA	<MDA	<MDA	On drain
Containment	56 ft.	20	<MDA	<MDA	<MDA	<MDA	On sump grating
Containment	56 ft.	21	<MDA	<MDA	<MDA	<MDA	On HVAC unit
Containment	56 ft.	22	<MDA	<MDA	<MDA	<MDA	On drain
Containment	56 ft.	23	<MDA	<MDA	<MDA	<MDA	On drain
Containment	79 ft.	24	<MDA	<MDA	<MDA	<MDA	Floor
Containment	79 ft.	25	<MDA	<MDA	<MDA	<MDA	Floor
Containment	79 ft.	26	<MDA	<MDA	<MDA	<MDA	Floor
Containment	79 ft.	27	<MDA	<MDA	<MDA	<MDA	Floor
Containment	83 ft.	28	<MDA	<MDA	<MDA	<MDA	On top of HVAC duct
Containment	83 ft.	29	<MDA	<MDA	<MDA	<MDA	Grating
Containment	83 ft.	30	<MDA	<MDA	<MDA	<MDA	Pipe adjacent to plenum
Containment	83 ft.	31	<MDA	<MDA	<MDA	<MDA	In duct
Containment	83 ft.	32	<MDA	<MDA	<MDA	<MDA	In vent
Containment	83 ft.	33	<MDA	<MDA	<MDA	<MDA	Pump pedestal
Containment	83 ft.	34	<MDA	<MDA	<MDA	<MDA	In drain
Containment	83 ft.	35	<MDA	<MDA	<MDA	<MDA	In drain
Containment	83 ft.	36	<MDA	<MDA	<MDA	<MDA	Pump pedestal
Containment	83 ft.	37	<MDA	<MDA	<MDA	<MDA	Stairwell
Containment	100 ft.	38	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	39	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	40	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	41	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	42	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	43	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	44	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	45	<MDA	<MDA	<MDA	<MDA	On drain
Containment	100 ft.	46	<MDA	<MDA	<MDA	<MDA	In duct
Containment	111 ft.	47	<MDA	<MDA	<MDA	<MDA	Floor
Containment	111 ft.	48	<MDA	<MDA	<MDA	<MDA	Floor
Containment	111 ft.	49	<MDA	<MDA	<MDA	<MDA	Floor
Containment	100 ft.	50	<MDA	<MDA	<MDA	<MDA	Airlock floor
Aux. Bldg.	79 ft.	51	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	52	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	53	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	54	<MDA	<MDA	<MDA	<MDA	On drain
Aux. Bldg.	79 ft.	55	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	56	<MDA	<MDA	<MDA	<MDA	Floor

Table 2. Results of the 2004 Radiological Survey at the Piqua, Ohio, Decommissioned Reactor Site (continued)

Location/ Building	Elevation ^a	Direct/ Smear #	Direct Reading Activity dpm/100 cm ²		Removable Activity dpm/100 cm ²		Remarks
			Alpha	Beta	Alpha	Beta	
Aux. Bldg.	79 ft.	57	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	58	<MDA	<MDA	<MDA	<MDA	On drain
Aux. Bldg.	79 ft.	59	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	60	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	61	<MDA	<MDA	<MDA	<MDA	On drain
Aux. Bldg.	79 ft.	62	<MDA	<MDA	<MDA	<MDA	On sump cover
Aux. Bldg.	79 ft.	63	<MDA	<MDA	<MDA	<MDA	Pump
Aux. Bldg.	79 ft.	64	<MDA	<MDA	<MDA	<MDA	Floor under tank
Aux. Bldg.	79 ft.	65	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	66	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	79 ft.	67	<MDA	<MDA	<MDA	<MDA	Inside HVAC on floor
Aux. Bldg.	79 ft.	68	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	89 ft.	69	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	121 ft.	70	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	121 ft.	71	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	121 ft.	72	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	121 ft.	73	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	121 ft.	74	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	121 ft.	75	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	111 ft.	76	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	111 ft.	77	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	111 ft.	78	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	111 ft.	79	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	111 ft.	80	<MDA	<MDA	<MDA	<MDA	On vent duct
Aux. Bldg.	111 ft.	81	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	82	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	83	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	84	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	85	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	86	<MDA	<MDA	<MDA	<MDA	On floor drain
Aux. Bldg.	100 ft.	87	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	88	<MDA	<MDA	<MDA	<MDA	On floor drain
Aux. Bldg.	100 ft.	89	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	90	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	91	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	92	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	93	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	94	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	95	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	96	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	97	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	98	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	99	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	100	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	101	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	102	<MDA	<MDA	<MDA	<MDA	Floor
Aux. Bldg.	100 ft.	103	<MDA	<MDA	<MDA	<MDA	Floor
Containment	56 ft.	104	<MDA	<MDA	<MDA	<MDA	On drain
Containment	100 ft.	105	<MDA	<MDA	<MDA	<MDA	On drain
Outside	100 ft.	106	<MDA	<MDA	<MDA	<MDA	Concrete floor
Outside	100 ft.	107	<MDA	<MDA	<MDA	<MDA	Concrete wall

Table 2. Results of the 2004 Radiological Survey at the Piqua, Ohio, Decommissioned Reactor Site (continued)

Location/ Building	Elevation ^a	Direct/ Smear #	Direct Reading Activity dpm/100 cm ²		Removable Activity dpm/100 cm ²		Remarks
			Alpha	Beta	Alpha	Beta	
Outside	100 ft.	108	<MDA	<MDA	<MDA	<MDA	Floor under flange
Outside	100 ft.	109	<MDA	<MDA	<MDA	<MDA	Concrete floor
Outside	100 ft.	110	<MDA	<MDA	<MDA	<MDA	Concrete floor
Containment	74 ft.	111	<MDA	<MDA	<MDA	<MDA	On HVAC duct

^a Elevations are designated as feet above the lowest floor of the original plant.

key: dpm = disintegrations per minute; cm² = centimeters squared; MDA = minimum detectable activity; < = less than

3.0 Recommendations

On the basis of the inspection and radiological survey results, no follow up inspection is required.

The following action is recommended:

1. Cathodic protection system is due for an inspection by a qualified service provider (page 2).

Recommendation: Mr. Sommer (PPS Director) had received notification that the system is due for inspection and he intends to request budget for that purpose. DOE will request a copy of the inspection results.

4.0 Photographs

Photograph Location Number	Elevation	Photograph Description
PL-1	56 feet	Water damage at base of spiral stair well.
PL-2	79 feet	Water damage in auxiliary building.
PL-3	100 feet	Cathodic protection system rectifier.
PL-4	100 feet	Box containing electrode splice.

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PIQ 3/2004. PL-1. Water damage at base of spiral stair well.



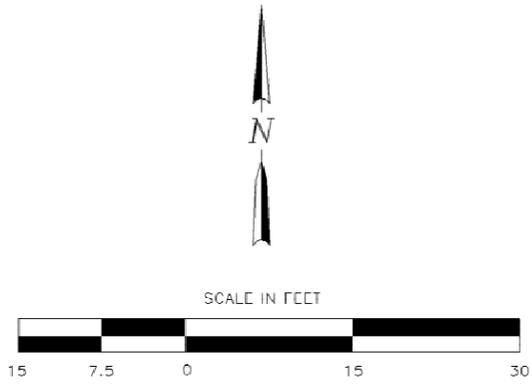
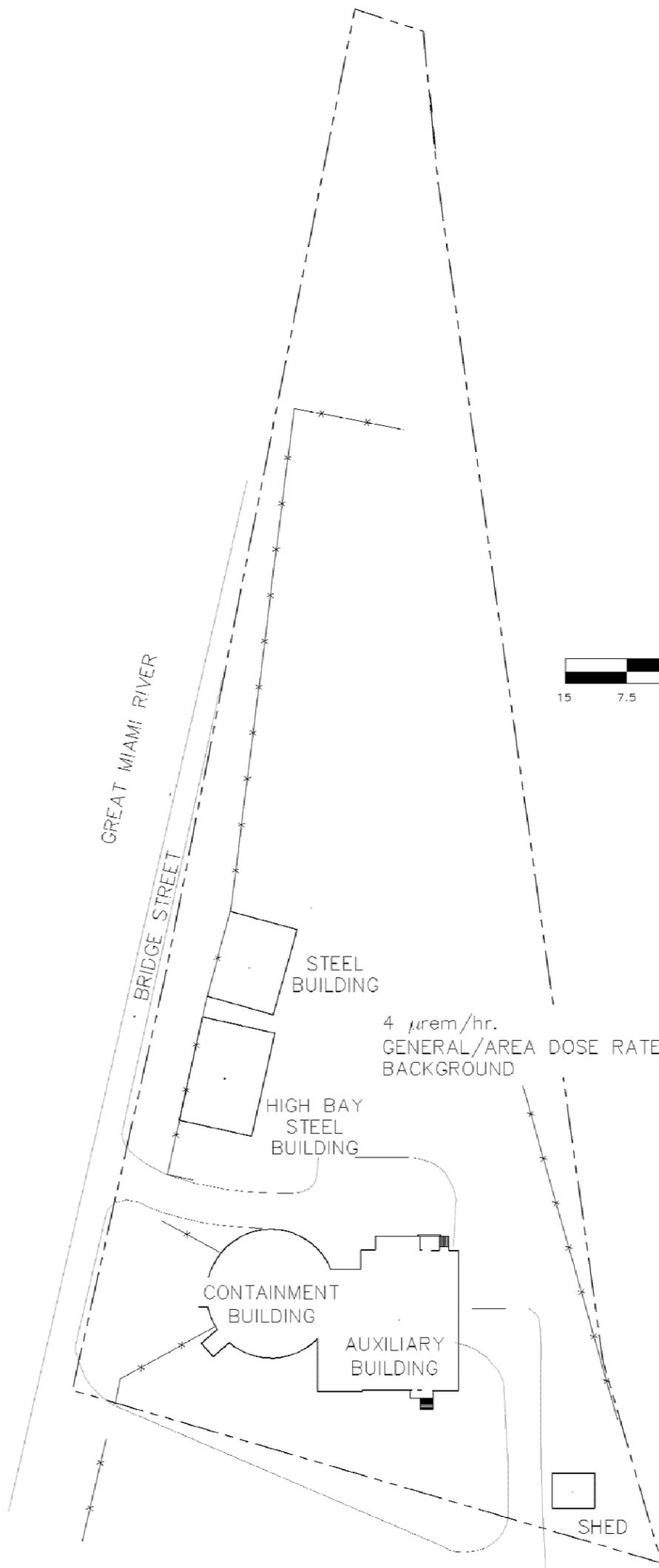
PIQ 3/2004. PL-2. Water damage in auxiliary building.



PIQ 3/2004. PL-3. Cathodic protection system rectifier.



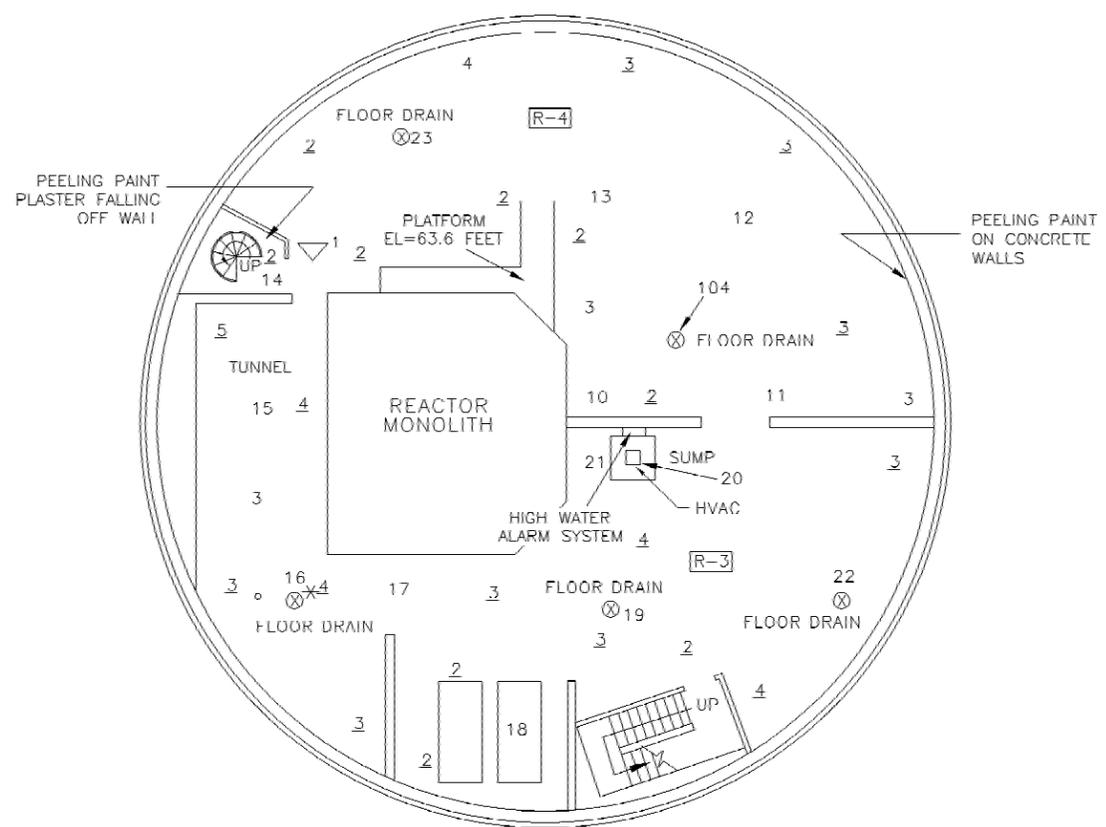
PIQ 3/2004. PL-4. Box containing electrode splice.



ANNUAL INSPECTION CONDUCTED
MARCH 11, 2004

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2004 ANNUAL INSPECTION DRAWING SITE PLAN PIQUA, OHIO	
DATE PREPARED: MARCH 23, 2004	FILENAME: S0098900

INSTRUMENT	E600/SHP340	WPC 9350	Bioron Micro-rem
SERIAL #	S15762/S16321	15686	S16377
CAL. DUF	2-4-05/3-8-05	4-28-04	1-6-05
CORRECTION FACTORS	NA	α EFF. 30.38 β EFF. 42.36	N/A
BACKGROUND	α 30 dpm/100 cm ² β 1200 dpm/100 cm ²	α 0.550 CPM β 1.100 CPM	2-7 μ rem/hr
KEY: NO. = GENERAL AREA DOSE RATE (μ rem/hr) *NO. = CONTACT DOSE RATE (μ rem/hr) NO. = SMEAR/DIRECT LOCATION R-4 = ROOM NUMBER		SURVEYED BY:	DATE:
		REVIEWED BY:	DATE:



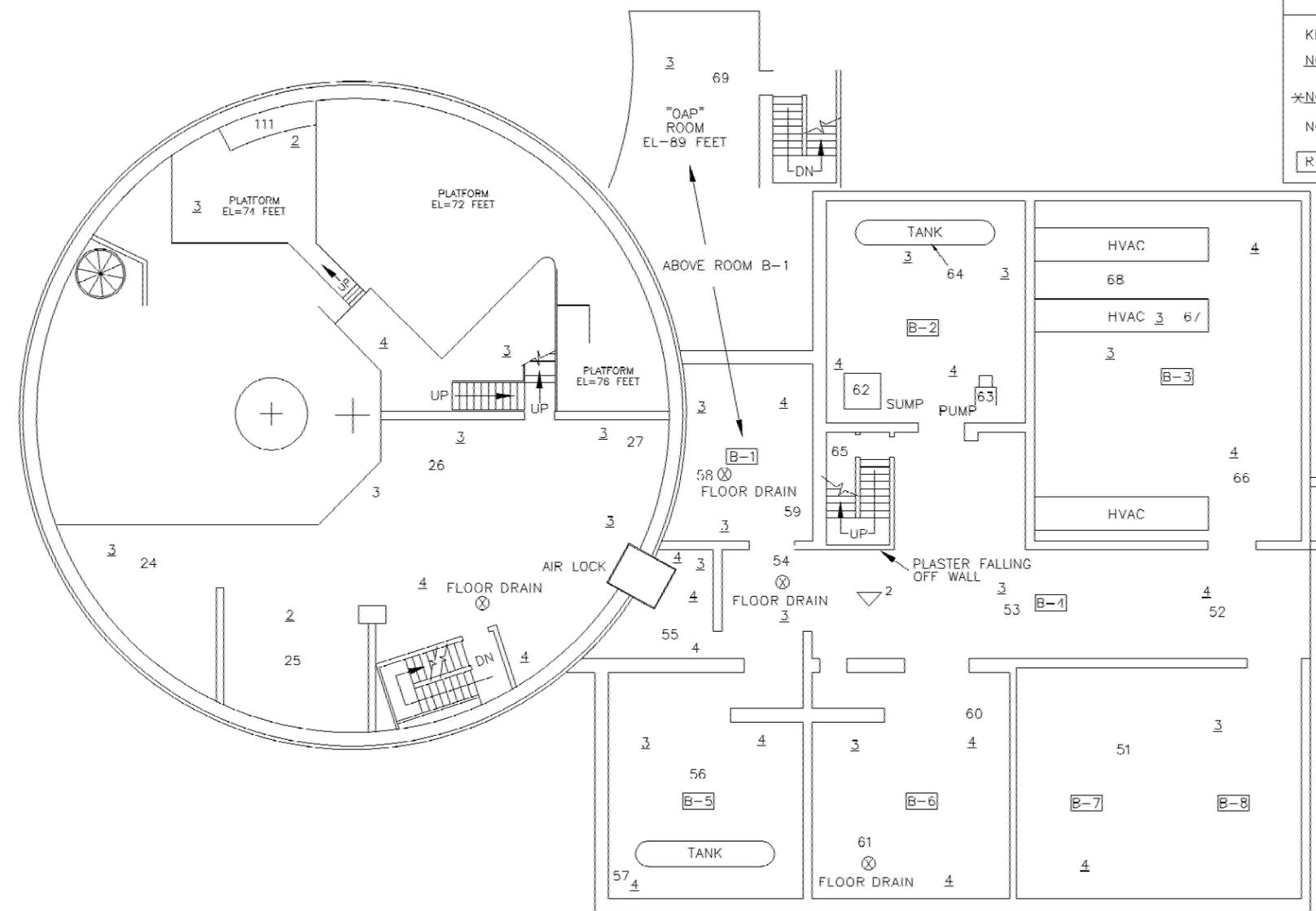
PLAN - 56 FOOT LEVEL

EXPLANATION
 PHOTO LOCATION AND NUMBER

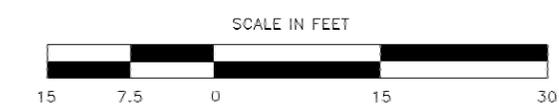
ANNUAL INSPECTION CONDUCTED
MARCH 11, 2004

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2004 ANNUAL RADIOLOGICAL SURVEY RESULTS PIQUA NUCLEAR POWER FACILITY PIQUA, OHIO 56 FOOT LEVEL	
DATE PREPARED: MARCH 25, 2004	FILENAME: S0098900-01

INSTRUMENT	E600/SHP340	WPC 9350	Bicron Micro-rem
SERIAL #	S15762/S16321	15686	S16377
CAL. DUF	2-4-05/3-8-05	4-28-04	1-6-05
CORRECTION FACTORS	NA	α EFF. 30.38 β EFF. 42.36	N/A
BACKGROUND	α 30 dpm/100 cm ² β 1200 dpm/100 cm ²	α 0.550 CPM β 1.100 CPM	2-7 μ rem/hr
KEY: NO. =GENERAL AREA DOSE RATE (μ rem/hr) *NO. =CONTACT DOSE RATE(μ rem/hr) NO. =SMFAR/DIRECT LOCATION R-4 = ROOM NUMBER		SURVEYED BY: DATE: REVIEWED BY: DATE:	



EXPLANATION
 2 PHOTO LOCATION AND NUMBER

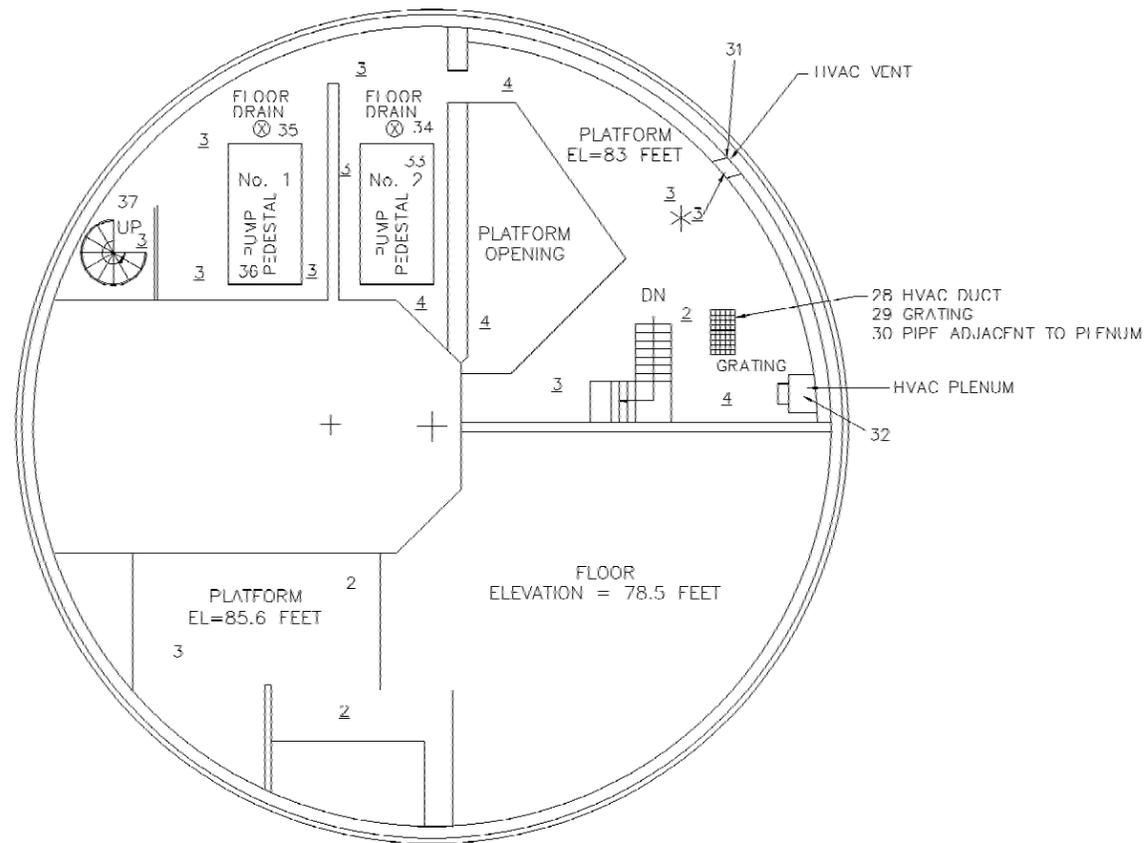


ANNUAL INSPECTION CONDUCTED
MARCH 11, 2004

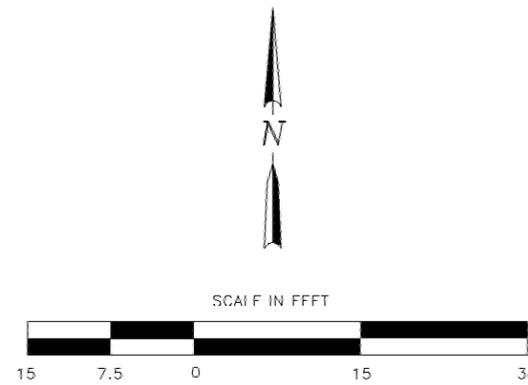
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2004 ANNUAL RADIOLOGICAL SURVEY RESULTS PIQUA NUCLEAR POWER FACILITY PIQUA, OHIO 79 FOOT LEVEL	
DATE PREPARED: MARCH 24, 2004	FILENAME: S0098900-02

PLAN - 79 FOOT LEVEL

INSTRUMENT	E600/SHP340	WPC-9350	Bicron Micro-rem
SFR# #	S15762/S16321	15686	S16377
CAI. DUF	2-4-05/3-8-05	4-28-04	1-6-05
CORRECTION FACTORS	NA	α EFF. 30.38 β EFF. 42.36	N/A
BACKGROUND	α 30 dpm/100 cm ² β 1200 dpm/100 cm ²	α 0.550 CPM β 1.100 CPM	2-7 μ rem/hr
KEY:		SURVEYED BY:	DATE:
NO. - GENERAL AREA DOSE RATE (μ rem/hr)		REVIEWED BY:	DATE:
*NO. = CONTACT DOSE RATE (μ rem/hr)			
NO. = SMFAR/DIRECT LOCATION			
R-1 = ROOM NUMBER			

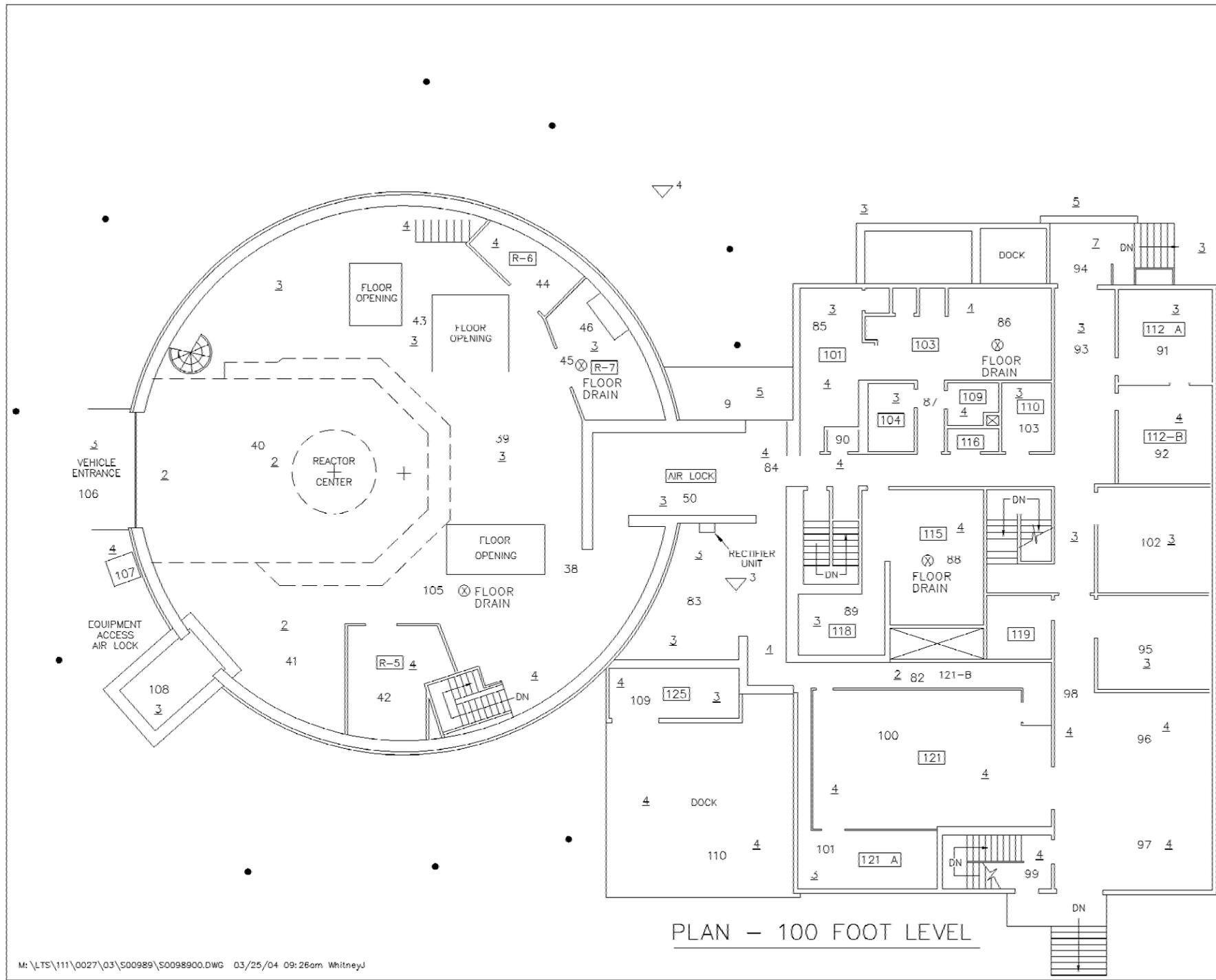


PLAN - 83 FOOT LEVEL



ANNUAL INSPECTION CONDUCTED
MARCH 11, 2001

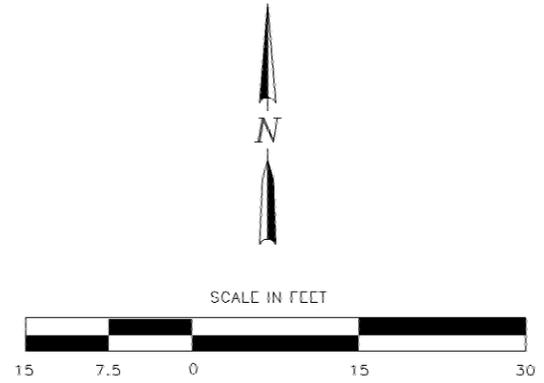
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2004 ANNUAL RADIOLOGICAL SURVEY RESULTS PIQUA NUCLEAR POWER FACILITY PIQUA, OHIO 83 FOOT LEVEL	
DATE PREPARED: MARCH 24, 2004	FILENAME: S0098900-03



PLAN - 100 FOOT LEVEL

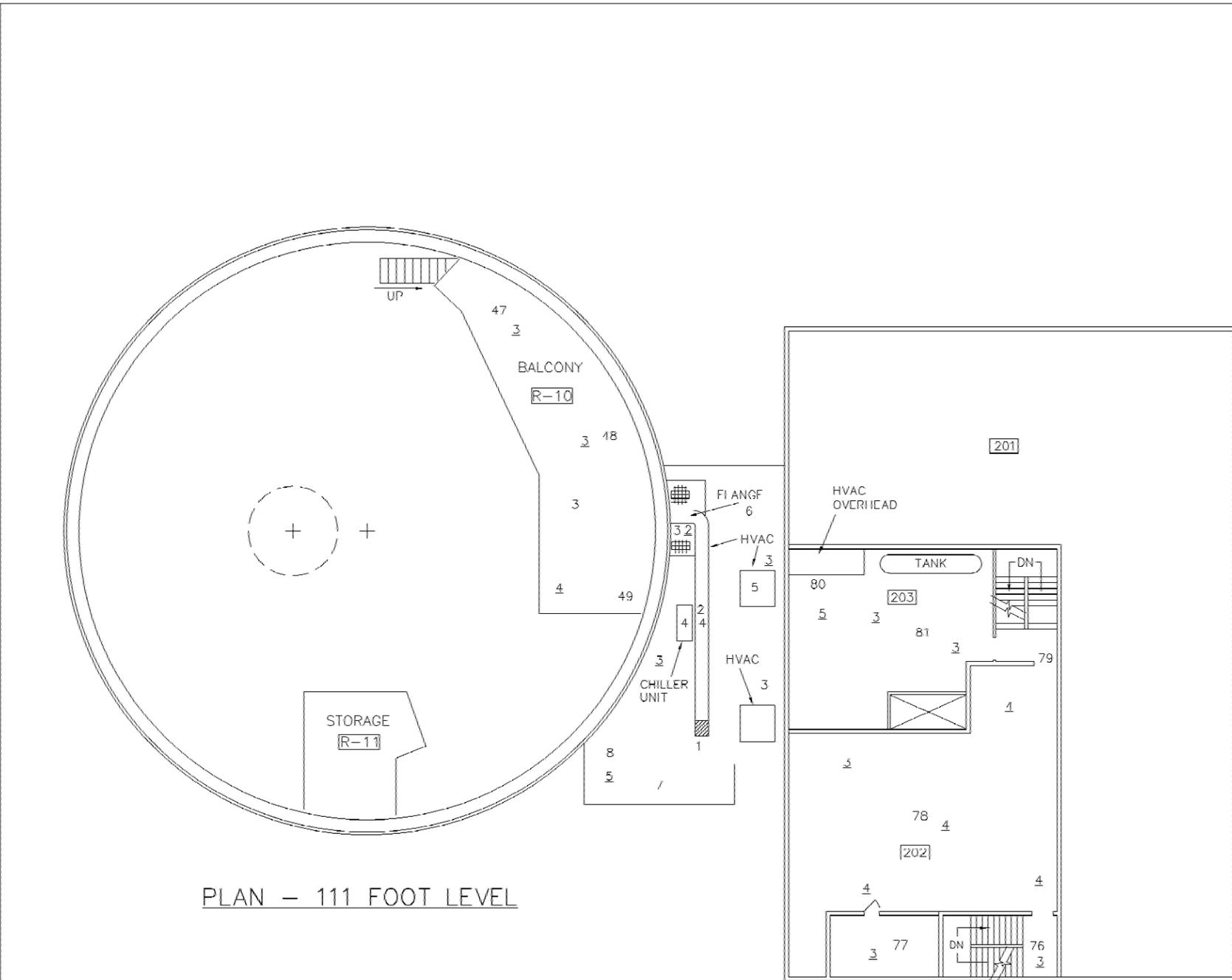
INSTRUMENT	E600/SHP340	WPC-9350	Bicron
SERIAL #	S15762/S16321	15686	Micro-rem
CAL. DUE	2-4-05/3-8-05	4-28-04	S16377
CORRECTION FACTORS	NA	α EFF. 30.38 β EFF. 42.36	N/A
BACKGROUND	α 30 dpm/100 cm ² β 1200 dpm/100 cm ²	α 0.550 CPM β 1.100 CPM	2-7 μrem/hr
KEY:	SURVEYED BY: DATE:		
NO. = GFNFRAI ARFA DOSE RATE (μrem/hr)	REVIEWED BY: DATE:		
*NO. = CONTACT DOSE RATE (μrem/hr)			
NO. = SMEAR/DIRECT LOCATION			
R-4 = ROOM NUMBER			

EXPLANATION
 ▽³ PHOTO LOCATION AND NUMBER
 ● GRAPHITE ANODES



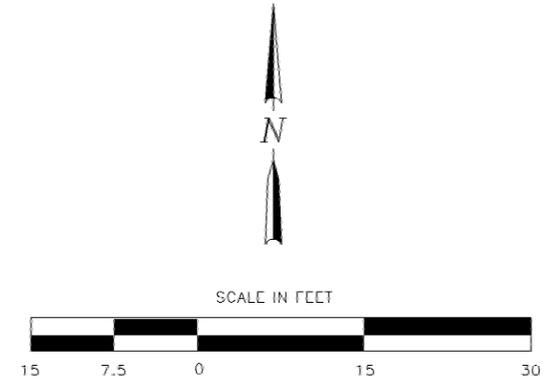
ANNUAL INSPECTION CONDUCTED
 MARCH 11, 2001

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2004 ANNUAL RADIOLOGICAL SURVEY RFSUI TS PIQUA NUCLEAR POWER FACILITY PIQUA, OHIO 100 FOOT LEVEL	
DATE PREPARED: MARCH 25, 2004	FILENAME: S0098900-04



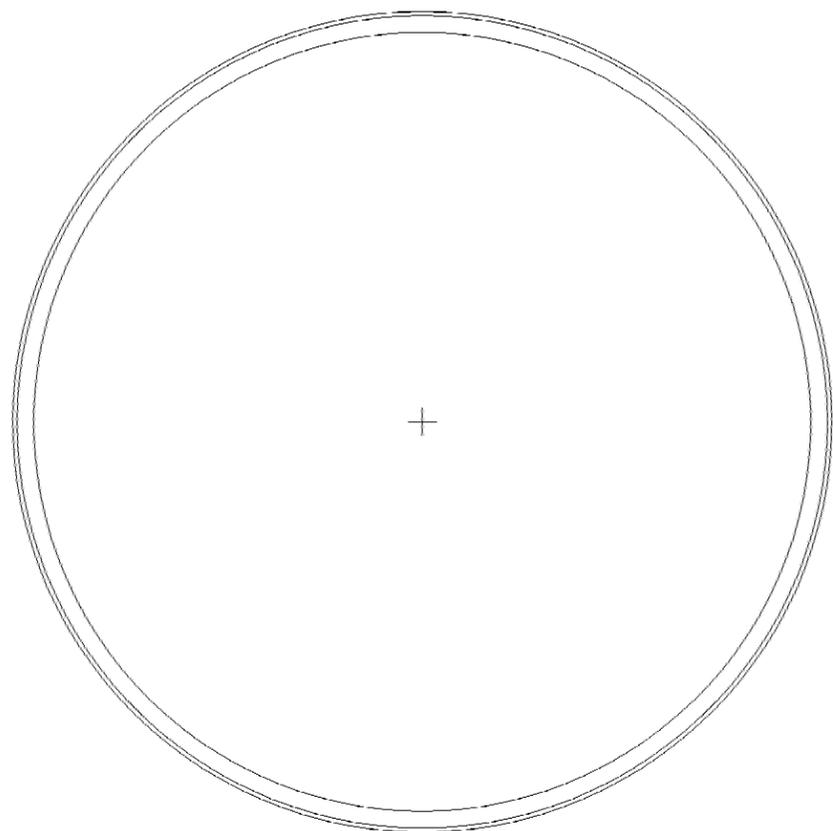
PLAN - 111 FOOT LEVEL

INSTRUMENT	E600/SHP340	WPC-9350	Bicron Micro-rem
SERIAL #	S15762/S16321	15686	S16377
CAL. DUE	2-4-05/3-8-05	4-28-04	1-6-05
CORRECTION FACTORS	NA	α EFF. 30.38 β EFF. 42.36	N/A
BACKGROUND	α 30 dpm/100 cm ² β 1200 dpm/100 cm ²	α 0.550 CPM β 1.100 CPM	2.7 μrem/hr
KEY:	SURVEYED BY: DATE:		
NO. = GENERAL AREA DOSE RATE (μrem/hr)	REVIEWED BY: DATE:		
✗NO. = CONTACT DOSE RATE (μrem/hr)			
NO. - SMEAR/DIRECT LOCATION			
[R-4] - ROOM NUMBER			

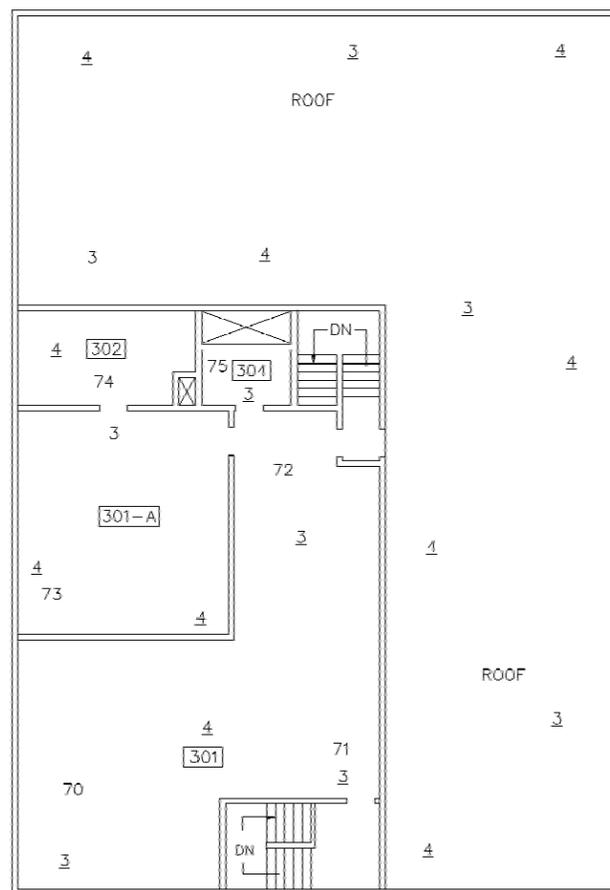


ANNUAL INSPECTION CONDUCTED
MARCH 11, 2001

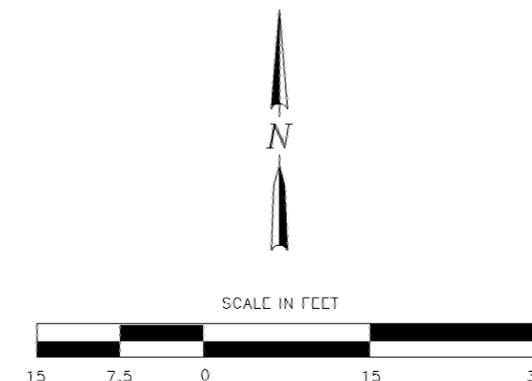
U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2004 ANNUAL RADIOLOGICAL SURVEY RESULTS PIQUA NUCLEAR POWER FACILITY PIQUA, OHIO 111 FOOT LEVEL	
DATE PREPARED: MARCH 24, 2004	FILENAME: S0098900-05



PLAN - 121 FOOT LEVEL



INSTRUMENT	E600/SHP340	WPC-9350	Bicron Micro-rem
SFRIA #	S15762/S16321	15686	S16377
CAI. DUF	2-4-05/3-8-05	4-28-04	1-6-05
CORRECTION FACTORS	NA	α EFF. 30.38 β EFF. 42.36	N/A
BACKGROUND	α 30 dpm/100 cm ² β 1200 dpm/100 cm ²	α 0.550 CPM β 1.100 CPM	2-7 μ rem/hr
KEY: NO. - GENERAL AREA DOSE RATE (μ rem/hr) *NO. = CONTACT DOSE RATE(μ rem/hr) NO. = SMFAR/DIRECT LOCATION R-1 = ROOM NUMBER		SURVEYED BY:	DATE:
		REVIEWED BY:	DATE:



ANNUAL INSPECTION CONDUCTED
MARCH 11, 2001

U.S. DEPARTMENT OF ENERGY GRAND JUNCTION, COLORADO	Work Performed by S.M. Stoller Corporation Under DOE Contract No. DE-AC01-02GJ79491
2004 ANNUAL RADIOLOGICAL SURVEY RESULTS PIQUA NUCLEAR POWER FACILITY PIQUA, OHIO 121 FOOT LEVEL	
DATE PREPARED: MARCH 24, 2004	FILENAME: S0098900-06