NLS-90-159

ATTACHMENT A

Carolina Power & Light Company

H. B. Robinson Steam Electric Plant, Unit No. 2

NUMARC Aquatic Resources Survey Responses

9111110059 911111 PDR NUREG 1437 C PDR

CAROLINA POWER & LIGHT COMPANY H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT 2 NUMARC AQUATIC RESOURCES SURVEY

Background

On July 31, 1970 the Atomic Energy Commission (AEC) issued Carolina Power & Light Company (CP&L) a facility operating license DPR-23 for the H. B. Robinson Steam Electric Plant (SEP), Unit 2 (hereafter referred to as Unit 2). The low power level restriction was removed on September 23, 1970, and the plant was declared commercial on March 7, 1971. In April 1975, the Nuclear Regulatory Commission (formerly the AEC) issued a Final Environmental Statement (FES) recommending "continuation of Facility Operating License DPR-23 to Carolina Power and Light Company for H. B. Robinson Unit 2, Docket No. 50-261" (copy provided).

The 2,250-acre Robinson Impoundment supplies cooling water for Unit 2 and an associated coal-fired unit (Unit 1). No other facilities operate on or discharge to the impoundment. The impoundment waters are darkly stained (blackwater), acidic, and relatively low in primary productivity. The aquatic biota consists of organisms typical of blackwater systems with bluegill, largemouth bass, and warmouth as the dominant fish species. A canal (4.2 miles long) discharges heated water approximately mid-impoundment. A 316 Demonstration [P.L. 92-500; Sections 316 (a) and (b)] submitted in 1976 provided the basis for operation of the unit at maximum heat rejection with once-through cooling and an exemption from intake modifications to minimize impingement/entrainment. After the 316 Demonstration was completed, environmental monitoring studies continued to be conducted each year through the present to confirm the results of the 316 Demonstration and to identify any additional measurable impacts to the aquatic resources.

RESPONSES TO NUMARC AQUATIC RESOURCE SURVEY QUESTIONS H.B. ROBINSON SEP, UNIT 2 (ROBINSON IMPOUNDMENT)

Several environmental reports including a 316 Demonstration document, the NRC FES, and a series of CP&L environmental monitoring reports serve as the basis for CP&L's response to the NUMARC survey for the H. B. Robinson SEP, Unit 2. These reports are referenced in responding to the following questions.

1. Post-licensing modifications and/or changes in operations of intake and/or discharge systems may have altered the effects of the power plant on aquatic resources, or may have been made specifically to mitigate impacts that were not anticipated in the design of the plant. Describe any such modifications and/or operational changes to the condenser cooling water intake and discharge systems since the issuance of the Operating License.

Response:

No intake/discharge modifications have been made since the issue of the operating license to mitigate environmental impacts. Minor changes (e.g. replacing a pump, etc.) have been made but none that have measurably altered the effects of Unit 2 on the aquatic resources.

Summarize and describe (or provide documentation of) any known impacts on aquatic resources (e.g., fish kills, violations of discharge permit conditions) or National Pollutant Discharge Elimination System (NPDES) enforcement actions that have occurred since issuance of the Operating Leense. How have these been resolved or changed over time? (The response to this question should indicate whether impacts are ongoing or were the result of start-up problems that were subsequently resolved.)

Response:

Localized impacts to fish, benthos, zooplankton, and aquatic vegetation from the heated discharge are known to occur in the impoundment. The 316 Demonstration originally described the effects of the discharge on aquatic organisms (CP&L 1976b). The extent of the thermal impact was considered limited by state (South Carolina Department of Health and Environmental Control) and federal (U. S. Environmental Protection Agency) regulatory agencies and no action was required.

Skeletal deformities in fish, particularly bluegill, were detected during fisheries monitoring programs in the mid to late 1970's. The deformities were described in detail in CP&L (1979a). In 1979, fish population declines were noted downstream of the discharge concomitant with a increase in deformity

incidence rates in bluegills (CP&L 1980). Intensive bioassay studies were begun to determine the cause of both problems and ultimately copper loading in the impoundment was found to be responsible (CP&L and LMS 1981). The copper source was determined to be corrosion/erosion of the Admiralty Brass® condenser tubes within the power plant. The tubing was replaced in 1981 eliminating the copper loading in the impoundment. Fish populations recovered after the tubing change and the skeletal deformities disappeared. The fishery has maintained a higher standing crop than the period when Admiralty Brass® tubing was in use.

No fish kills have been detected or reported in the impoundment since the issue of the operating licerse.

DES permit violations directly related to the operation of Unit 2 have been mermal in nature (exceedances of daily and monthly average temperature limits). These occurrences were reviewed with the appropriate regulatory agencies at the time, and it was understood that enforcement actions would not be taken, pending continued biological monitoring by the Company to verify that no adverse consequences occurred. Most of these exceedances occurred in 1986, during a recorded-breaking drought. The only other permit violations were indirectly associated sewage treatment plant exceedances related to difficulties in start-up of that facility in 1986.

3. Changes to the NPDES permit during operation of the plant could indicate whether water quality parameters were determined to have no significant impacts (and were dropped from monitoring requirements) or were subsequently raised as a water quality issue. Provide a brief summary of changes (and when they occurred) to the NPDES permit for the plant since issuance of the Operating License.

Response:

Unit 2 has had no water quality-related changes to the permit except for the addition of thermal limits following the 316 Demonstration in the mid-70's (see question 9). The original post-operating license NPDES permit required that biological studies be conducted to determine the effects of cooling water on the lake, and after those studies made the successful demonstration, the permit was modified in 1978 to incorporate thermal limits. The last permit was issued in 1983 and continued to incorporate thermal limits on the once-through cooling water at the end of the discharge canal. In the current NPDES permit renewal application, the Company has requested modification of the thermal limits to lessen the possibility of thermal permit violations (see response to question 2 for explanation). This effort is expected to have a favorable resolution because the new requested maits allow for a more natural and even rise in lake the temperatures.

4. An examination of trends in the effects on aquatic resources monitoring can indicate whether impacts have increased, decreased, or remained relatively stable during operation. Describe and summarize (or provide documentation of) results of monitoring of water quality and aquatic biota (e.g., related to NPDES permits, Environmental Technical Specifications, site-specific monitoring required by federal or state agencies). What trends are apparent over time?

Response:

A document that best describes long-term trends of water quality variables and aquatic organisms is the Interpretive Report (CP&L 1988). One documented trend was the response of the fish population to the increase and subsequent decline of copper input into the impoundment (described in response 2 above). Another trend described in the report is a decline in zooplankton populations beginning in the early 1980's and continuing to the present. This trend was attributed to a significant increase in predation from fish populations which were increasing during that period.

5. Summarize types and numbers (or provide documentation) of organisms entrained and impinged by the condenser cooling water system since issuance of the Operating License. Describe any seasonal patterns associated with entrainment and impingement. How has entrainment and impingement changed over time?

Response:

The 316 Demonstration document (CP&L 1976a) contains information on the types and numbers of fish entrained (1975-1976) and impinged (1973-1975) by the unit intake structure (Tables 4.8.1 and 4.9.2). Entrainment samples were dominated by percid larval fish (Etheostoma sp.). The only other larvae collected in the entrainment samples were small numbers of centrarchids (Lepomis sp.) and catastomids. Density was reported in number/100 m³ in the 316 Demonstration but in subsequent years densities were reported in number/1000 m³. Comparing densities from 1976-1980, entrainment remained relatively constant with respect to species and numbers (CP&L 1979b, 1980, and 1982). These same documents describing entrainment contain the impingement data collected from 1973-1980. Bluegill was the major species collected (> 90%) in impingement samples from 1973-1975 [316 (b) demonstration, CP&L 1976b]. Similar rates were found in 1980 (CP&L 1982). Based on a determination in 1977 by the EPA and agreed upon by regulatory agencies that entrainment and impingement was not significantly impacting the fishery, this sampling was deleted from the monitoring program in 1980.

6. Aquatic habitat enhancement or restoration efforts (e.g., anadromous fish runs) during operation may have enhanced the biological communities in the vicinity of the plant. Alternatively, degradation of habitat or water quality may have resulted in loss of biological resources near the site. Describe any changes to aquatic habitats (both enhancement and degradation) in the vicinity of the power plant since the issuance of the Operating License including those that may have resulted in different plant impacts than those initially predicted.

Response:

No aquatic habitat improvement has been required for mitigation in Robinson Impoundment; however, a few artificial reefs were installed in an attempt to increase fishing success for anglers by concentrating fish in an accessible location.

Degradation of habitat from heated water in vicinity of the discharge [described in the 316 (a) Demonstration] and by the effects from copper loading in the impoundment in the late 1970's and early 1980's were both detailed in the response to Question 2.

7. Plant operations may have had positive, negative, or no impact on the use of aquatic resources by others. Harvest by commercial or recreational fishermen may be constrained by plant operation. Alternatively commercial harvesting may be relatively large compared with fish losses caused by the plant. Describe (or provide documentation for) other nearby uses of waters affected by cooling water systems (e.g., swimming, boating, annual harvest by commercial and recreational fisheries) and how these impacts have changed since issuance of the Operating License.

Response:

Robinson Impoundment is open to the public for recreational purposes. One public access ramp and two privately owned access ramps exist on the lake. Uses include swimming, boating, water skiing, fishing and hunting. Privately owned property with houses and boat docks exist along the eastern shore of the lake. No restrictions on the recreational uses have been documented for Robinson Impoundment, but it is likely that some limit on swimming and skiing in the area of the discharge exists during the hottest months of the year (usually July and August) because of the warm water temperatures. However, the warm water likely extends the swimming and skiing season in spring and fall. Winter fishing in the vicinity of the discharge canal also occurs. No commercial fishing occurs at the Robinson Impoundment.

8. Describe other sources of impacts on aquatic resources (e.g., industrial discharges, other power plants, agricultural runoff) that could contribute to cumulative apacts. What are the relative contributions by percent of these sources, including the contributions due to the power plant, to overall water quality degradation and losses of aquatic biota?

Response:

The Company is not aware of any other significant industrial or agricultural input into the lake that could potentially impact aquatic resources. Monitoring Black Creek upstream of the lake has not revealed any unusually elevated water quality variables. The Sandhills National Wildlife Refuge, peach orchards, and a small winery are located within twenty miles upstream of the Robinson Impoundment but are thought to have no significant influence on the impoundment.

9. Provide a copy of your Section 316 (a) and (b) Demonstration Report required by the Clean Waste (sic) Act. What Section 316(a) and (b) determinations have been made by the regulatory authorities?

Response:

The 316 Demonstration (CP&L 1976b) performed in the early 1970's provided the basis for regulatory exemption (EPA 1977) from the construction and use of cooling towers [316 (a)] and intake structure modifications to limit entrainment/impingement impacts [316 (b)]. Regulatory authorities have determined that the demonstration showed that a balanced and indigenous population of fish and shellfish could be maintained in the absence of such plant modifications. A copy of the demonstration document and the EPA's Findings of Fact is provided. Entrainment and impingement sampling was deleted from the monitoring program after 1980.

DOCUMENTS CITED

- CP&L. 1976a. H. B. Robinson Steam Electric Plant 316 Demonstration. Summary. Carolina Power & Light Company, Raleigh, NC. 1976b. H. B. Robinson Steam Electric Plant 316 Demonstration. Volume II. Carolina Power & Light Company, Raleigh, NC. 1979a. H. B. Robinson Steam Electric Plant 1976-78 environmental monitoring program results. Volume I. Summary. Carolina Power & Light Company, Raleigh, NC. 1979b. H. B. Robinson Steam Electric Plant 1976-78 environmental monitoring program results. Volume II. Carolina Power & Light Company, Raleigh, NC. 1980. H. B. Robinson Steam Electric Plant environmental monitoring program. 1979 annual report. Carolina Power & Light Company, Raleigh, NC. 1982. H. B. Robinson Steam Electric Plant environmental monitoring program. 1980 annual report. Carolina Power & Light Company, Raleigh, NC. 1988. H. B. Robinson Steam Electric Plant environmental monitoring program. Interpretive report June 1988. Carolina Power & Light Company, Raleigh, NC. CP&L and LMS. 1981. Investigations of deformities and lowered recruitment of bluegill
- CP&L and LMS. 1981. Investigations of deformities and lowered recruitment of bluegill (Lepomis macrochirus) in Robinson Impoundment. Carolina Power & Light Company, New Hill, NC and Lawler, Matusky, and Skelly Engineers, Pearl River, NY.

ATTACHMENT 1

RESPONSES TO NUMARC QUESTIONNAIRE TO SUPPORT PART 51 RULE CHANGE SOCIOECONOMIC QUESTIONS

Carolina Power & Light Company

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

DOCKET NO. 50-261/LICENSE NO. DPR-23

Responses Apply to Entire Site

SOCIOECONOMIC IMPACT OF H. B. ROBINSON, NO. 2

1. Estimate the number of permanent workers on-site for the most recent year for which data are available.

The number of permanent workers on-site for 1990 is 650 utility and contractors for HBR2.

Estimate the average number of permanent workers on-site, in 5
year increments, starting with the issuance of the plant's
operating license.

1970 Estimates Not Available

1975 Estimates Not Available

1980 356 Permanent Workers

1985 709 Permanent Workers

1990 650 Permanent Workers

- 3. Provide for the following three cases:
 - A. a typical planned outage

B. an ISI outage

- c. the largest single outage (in terms of # of workers involved) to date.
 - (1) estimate of additional workers involved

(2) length of outage

(3) months and year in which work occurred, and cost

(4) exposure.

Response for 3A - Typical Planned Outage

Length: 8 Weeks

Cost: 8 Million Dollars

Dose: 350 man rem

Manpower: 1200 to 1500 temporary and permanent plant workers.

Response for 3B - ISI Outage:

Length: 170 days (February 26, 1982 through August 19, 1982.)

Cost: 15.844 Million Dollars

Dose: 1242.956 man rem

Manpower: 1195 temporary and permanent plant workers (breakdown by task is not available.)

SOCIOECONOMIC IMPACT OF HBR2 (CONT'D)

Response for 3C - Largest Single Outage - Steam Generator Replacement

Length: 349 Days (January 26, 1984 to Jonuary 9, 1985)

144 Million Dollars Cost:

Dose: 3355.954 manrem

Manpower: 1250 Temporary and Permanent Plant Workers (breakdown by principal tasks not available)

Attached is a dose breakdown by major tank

HBR2 Exposure Breakdown 1984 Steam Gonerator Replacement Outage

1.	Mod 713 - Steam Generator Replacement	Actual Man-Rem 1206.820
2.	Steam Generator Inspections	
	a. Eddy current inspection prior to steam gamerator replacement	35.650
	b. Eddy current inspection after steam generator replacement	8.470
3.	Health physics coverage	
	a. total exposure for tage b. Exposure for steam generator replacement	389.888 (119.100)
4.	Valve operation, inspections and surveillance	149.707
5.	Decon and radwaste	156.036
6.	ISI inspection and 79-14 hanger inspection wal.down	137.253
7.	Refueling work includes all head work except initial defueling	136.691
	a. Initial defueling (included in Steam Generator Replacement	(34.275)
8.	Valve Work, (removal, repair, replace and repack)	41.350
9.	I&C Work	17.490
	a. Calibration b. Misc. equ. oment replacement c. NIS detective replacement d. RTD repair e. Heat tracing f. Penetration work g. ILRT setup h. Pull cables i. Repair PAS j. Repair elevator k. Repair emergency lighting	10.830 2.315 0.450 0.150 0.600 0.425 0.900 0.150 0.400 0.875 0.395
10.	Insulation - (Pressurizer, and Mod 806	27.110

HBR2 Exposure Breakdown 1984 Steam Generator Replacement Outage

	Anna Laura	
11.	Bellows repair (SP-587)	16.390
12.	Misc. grouting and painting	15.750
13.	Fire watch in containment and auxiliary building	74.767
14.	Service water piping repair	97.004
15.	Seismic support repairs (Mod 492)	240.765
16.	Replace level transmitters in CV sump (Mod 525)	6.965
17.	Reactor vessel level indication system (Mod 526)	94.310
18.	Relocation of pressurizer spray valves (Mod 612)	111.305
19.	Service water pipe relocation (Mod 686)	3.370
20.	Pressurizer safety and relice valve system (Mod 729)	18.940
21.	Steam generator blowdown and wet layup system (Mod 747)	164.298
22.	Hydrogen recombiner (Mod 750)	6.720
23.	Dedicated alternate shutdown system (Mods 755 and 795)	28.200
24.	Charging system improvements (Mod 7660	21.533
2.F	100SE PARTS MONITOR (mOD 783)	23.745
26.	"C" accumulator support (Mod 816)	0.735
27.	"A" RTD bypass loop valves (Mod 827)	8.650
28.	Misc. work	44.284
	a. Filter 1. waste holdup tank 2. Seal water injection 3. Reactor coolant 4. Spent fuel pit	2.373 0.660 1.760 0.210

HBR2 Exposure Breakdown 1984 Steam Generator Replacement Outage

	b. Numbers 1 and 2 sumps c. Boric acid evaporator d. Waste evaporator e. Boric acid storage tank area f. HVE and HVH g. Spent fuel pit (sip fuel) h. Repair debris screens i. Reactor coolant pumps j. Misc. pumps k. Pour concrete l. Snubber m. Waste gas compressor n. Charging pump room o. Painting p. Fire barriers q, RHR pit r. Repair grating s. Repair doors t. Rotate pump shafts	2.105 5.695 2.480 1.025 1.315 1.940 1.774 1.015 1.665 1.825 0.770 0.670 0.185 0.990 0.670 0.345 0.025 0.370 0.035
	u. Misc. insulation work	14.380
29.	Hands on inspection	35.434
3G.	General maintenance	36.324
	TOTAL	3355.954

RADIATION EXPOSURE BREAKDOWN DURING

198015 390 5 5 5 5 5 5 5 5 5	10 10 10 10 10 10 10 10 10 10 10 10 10 1			The second secon	CATEGORY CALEGORY
198015 390 5 5					207,920 14.45
temove Missile Shield 240 390 5 bisconnect 625 380 5 connect 625 380 5 finstall Cavity 20 40 1 antwalk 20 40 1 antwalk 20 25 2 kepair Stud Tentioners 750 25 2 kepair Stud Tentioners 750 25 2 kemove Duct Work 6480 695 8 90 Remove Duct Work 5400 1420 6 6 Remove Stud Fand 700 15 8 150 Remove Stud Polts 27000 3630 15 10 Remove Blind Flange 300 120 8 150 Remove Blind Flange 1000 85 2 10 Retucing Makepair 680 120 2 10 Retucing Equipment 1000 85 2 10 Ports 240 86<			2772	68	
Disconnect		-		L	
Thermocouples			390	60 9	
Install Cavity	-		410	12 26	
Repair Stud Tentioners 750 25 2 Remove Duct Work 6480 695 8 90 And Shroud 5400 1420 6 90 Remove Conoscals 5400 1420 6 90 Remove Stad Polts 27000 3630 15 8 Remove Blind Flange 300 1240 8 150 Change Nis Detectors 1240 8 150 Refueling Equipment 680 120 7 10 Install Instrument 1900 85 2 10 Pull Flux Thimbles 240 620 5 8 45 Remove Fie Blocks 230 530 8 45 .	1000	7	-		
Remove Stad Pults 5400 1420 6 90	707		+	L	
Accorded Shroud	3 2265	6	3050	20 155	
Remove Stud Polts 5406 1420 0 Remove Stud Polts 27040 3630 15 Remove Blind Flange 300 8 150 Change Nis Derectors 1240 8 150 Check and Repair 680 120 2 10 Refugilag Equipment 1000 85 2 10 Ports Ports 240 620 5 Remove Fie Blocks 230 530 8 45	145		1565	1 174	
Remove Stud Polts 27000 3630 15 Remove Bl.nd Flange 300 1240 8 150 Change Nis Derectors Class and Repair 686 120 7 10 Charge Nis Derectors Class and Repair 686 120 2 10 Peression Nis Brushest 1900 85 2 Ports Pull Flux Thimbles 240 620 3 Remove Fie Blocks 230 530 8 45	12 330	25	6330	807 . 05	
Remove Bl.nd Flange 300 1240 8 150 Change Ris Derectors Change Ris Derectors Chack and Repair 680 120 2 10 Refueling Equipment 1000 85 2 2 Ports Ports 240 620 5 5 620 5 620 5 620	2014		64.5	2 323	
Change Nis Detectors 1240 8 150 Chack and Repair 680 120 2 10 Refuciling Equipment Instrument Instrument Ports 1000 85 2 2 Ports 240 620 5 45 650 6	243	T	-	_	
Change Nis Defectors Chack and Repair Refuciling Equipment 1000 85 2 Ports Pull Flax Thimbles 240 620 5 Recove Fie Blocks 250 530 8 45	7		1 190		
Refueling Equipment 680 120 Install Instrument 1900 85 2 Ports 240 620 3 Remove Fie Blocks 230 530 8 45	1 290	60	420	16 26	
Ports Ports Ports Ports Ports Ports Ports Pull Flox Thimbles 240 620 S Remove Fie Blocks 230 530 8 45 Ports	335	2	420	501 5	
Pull Flax Thimbles 240 620 5 Remove Fie Blocks 230 530 8 45			0.00	12 68	
Remove Fie Blocks 200 530 8 45	200	0	-		
	7	9	+	L	
Inspect Lawer 15 15	1 60	2	+		
	365	2	-		
15. 15r Blend 1600 1065 17	1045	18		35	
	163		1480		

RADIATION EXPOSURE BREAKBOWN DURING

H. B. ROBINSON UNIT NO. 2 REFUSLING - ISI OUTAGE - 1982

NEN NEN TAN 1415 9 2025 15 1	-		PREDICTED	PLANT		NON-PLANT	PLANT	VIETN I	I MEN	NAEH	MEN	MREH	PER	PER
Hordell Number 1 1 2 2 2 2 2 2 2 2			MREM	HREH	MEN	MREM	TEN	/ AND				PER JOB	CATECORY	CAIE
Replace SFP Canal Case 250 30 2 2 30 30 30 30 30	1	The state of the s		590	9			1435	6	2025	15	135		
Secund Carter 20 2 1 40 3 13 Remove SFP Canal Gate 20 3 2 3 2 3 30 Replace SFP Gotal Gate 20 3 3 3 3 3 30 Replace SFP Gotal Gate 300 830 3 3 6 860 9 1210 15 81 Remove CRIM 1920 8 8 123 16 2115 27 23 413 Remove CRIM 1902 5 7 34 2 215 17 22 22 22 15 22 23 413 413 413 413 413 413 413 414	10.	Instatt Administrat	400	076	7			403		579	20	32		
Replace SFP Gard Cate 480 20 1 20 3 20 3 20 3 20 3 20 3 20 3 20 3 20 3 20 3	19.	Setup Cavity Filter						10		70	*	13		
Replace SPF Holat Cabl.	20.	Remove SFP Canal Gate	20	300	,					20	200	20		÷
Remove Coll Stacks 1900 830 13 1285 16 2115 29 73 18 18 18 18 18 18 18 1	21.	Replace		_	1									
Remove Coll Stacks 3000 830 13 1285 16 2115 25 413 73 Remove Coll Stacks 1920 8 9 128 17 1035 2 22 2 22 22 22 22 22 2 22 2 <td< td=""><td>3.3</td><td>Insaget</td><td></td><td>350</td><td>9</td><td></td><td></td><td>860</td><td>6</td><td>1210</td><td>2</td><td>010</td><td></td><td></td></td<>	3.3	Insaget		350	9			860	6	1210	2	010		
Remove CAI Statical 1920 8 8405 17 1935 23 413 Remove CAI Statical 1920 5 5 7 22 153 7 22 22 23 23 23 23 23				830	13			1285	16	2115	239	73		
Remove Literal ated Uniformy of Literal Sample Plug 105 5 110 7 153 7 22 Remove Literal Sample Plug 105 7 25 2 20 2 2560 44 58 Remove Fheal Lifting Ris 215 3 2 20 2 20 2 2560 44 58 Remove Fheal 160 215 3 2 20 2 256 4 58 Clean 3rd Level Area 160 215 3 8 4 290 14 21 Remove Service Totale 160 213 10 8 80 4 290 14 21 Remove Invertible Literals First Time 315 9 255 5 260 8 830 2 36 a. Removal 2000 1515 17 0 665 6 2180 2 33 c. Observation 20 1 90 13 90	23.			1920	00					10325	2.5	413		
Remove Figel Lifting Rip 105 7 105 7 110 7 110 7 110 15 14 15 15 15 15 15 15	24.	Remove		105	5			20		155	2	22		
Semove Fuel 10920 2515 40 25 20 2 2560 44 58 58 54 54 58 58 58	25.	Rohous	5	105	7			110		215		15		
Clean 3rd Eevel Area 215 3 545 7 760 10 Nanhpulator Clane 160 210 10 60 4 290 14 Nanhpulator Clane 160 210 10 60 10 Nanhpulator Clane 160 210 10 60 10 Nanhpulator Clane 160 210 10 60 10 A. Removal 2300 1515 17 20 1 900 13 920 14 A. Attark Supports 240		Barmond		2515	07	25	2	20	.74	2560	444	285		
School Section of Natherland Coane 160 210 10 10	100			215	es			545	2	760	10	76		
Remove Lower Internals First Time 315 9 255 5 260 8 830 22 a. Preparation 2000 1515 17 665 6 2180 2 c. Observation 20 1 35 2 4 160 7 d. Attack Supports 20 1 909 13 920 14	29	1	163	210	10			69	4	062	27	. 23		
a. Preparation 315 9 255 5 260 8 830 22 b. Removal 2000 1515 17 665 6 2180 2 c. Observation 20 1 35 2 ACS 4 160 7 d. Attack Supports 20 1 909 13 920 14	30.													1
Removal 2300 1515 17 665 6 2180 2 Observation 20 1 35 2 405 4 160 7 Attack Supports 20 1 900 13 920 14		, i		315	6	255	2	260	80	830	E I	38		1
Observation 20 1 35 2 405 7 Attach Supports 20 1 900 13 920 14			2300	1515	1.7			599	9	2180	eq.	45		
Attach Supports 20 1 900 13 920 14		1		20	1	35	14	507	d	160	2	52		
						20	-		. 33	920	14	99		

RADIATION ENFOSURE BREAKDOWN DURING

Hostall Lower Lower Loyer Loye	1		PREDIVIED	MARN MARN	NEN	MARK MEN	NEW	MEEK	MEN	MREN	MES	PER JOB	CATEGORY
Superioral State S	1	Install Lower		00.71	12			200	-	1830	13	141	
Internals 2nd Time	1	Internals First Time Remove Lower	2000	100	4	1.10	1	810	13	1525	30	76	
Remove Head Insulation 2280F 525 17 70 6 815 25 1410 46 46 46 46 46 46 46 4		internals 2nd Time Install lower		055					6	096	12	80	
Clean Stud Bolts 280° 215 11 10 23 11460 23 11460 23 Remove Head Insulation 2000 200 4615 25 815 2 11460 38 16900 65 L-11 800 3485 29 270 6 9500 38 15215 93 Replace (SDM's & RPI's 6600 5485 39 270 6 9500 38 15215 93 Replace (SDM's & RPI's 6600 5485 29 270 6 9500 38 15215 93 Replace (SDM's & RPI's 6600 5485 2 140 2 11460 38 15215 17 Replace (SDM's & RPI's 6600 525 4 8 1 1725 1 1 1725 1 Remarke 5mdplage 800 423 5 1 1 50 2 1 1 1 1 1 1 1 1 1 1 1		Internals 2nd Time					4	815	25	1410	97	31	
Repart Heal Insulation 39000 4615 25 825 2 11110 45 65 L-J1 2000 4615 25 825 2 11460 38 16900 65 L-J1 2000 4615 25 230 6 9900 38 15215 93 Replace CKDN's RPIG 6600 5485 39 230 6 9900 38 15215 93 Core Sample Sample 1200 425 5 140 2 1215 13 175 17 Motor Motor 800 425 5 4 6 900 3 175 17 Remark Simplicians 800 425 5 5 120 3 17 405 3 17 <td>1</td> <td>Clean Stud Boits</td> <td>2800</td> <td>525</td> <td>17</td> <td>20</td> <td></td> <td></td> <td>4</td> <td>112.60</td> <td>25</td> <td>458</td> <td></td>	1	Clean Stud Boits	2800	525	17	20			4	112.60	25	458	
Remove and Replace 2000 4615 25 825 2 11460 38 16900 657 L-11 Replace CRDM's & RP1's 6600 5185 39 230 6 9500 38 15215 93 Replace CRDM's & RP1's 6600 5185 39 230 6 9500 38 15215 93 Coro Samples Kapair Wender 1200 425 4 4 1725 17 17 Kapair Wender 800 425 5 120 80 1 505 6 Inspect Faul 1200 470 7 495 5 1200 5 2177 17 Inspect Faul 1080 20 3 1230 5 2175 17 17 Fibar Thimbles 6000 1205 2 245 1045 4 1045 4 1045 4 1045 4 1045 4 1045 4 1045		R. more Read Insulation		70	1	80		11310	4.3				
Replace CRDM's b RPI's 6600 5485 39 230 6 9500 38 13215 9 Cortosco Samples Cortosco Samples 373 2 140 2 1215 13 1725 1 Cortosco Samples Repair Upender 400 525 4 6 600 3 925 1725 1 Repair Upender 1000 425 5 140 3 400 3 925 Remove Sambles 800 425 5 1206 3 1205 7 925 Inspect Finel 100 473 7 495 5 1200 3 2175 Inspect Finel 100 1205 16 175 3 883 18 2265 Refuel 100 1205 4825 54 245 10 405 405 Refuel 100 115 5 30 4 100 405 Refu		Remove and Roplace		1615	25	825	73	11460	38	16900	69	260	
Replace CRRN 5 b Ret Decre Samples 1725 140 2 1215 13 1725 1 Replace CRRN 5 b Ret . 1600 525 4 . 600 525 4 . 600 3 . 600 . 7 495 5 . 1230 . 175 . 1200		0.77	Ы	51.85	39	230	40	9500	3.8	15215	63	164	
Core Samples Core Samples 4 4 4 923 4 923 4 923 4 923 9	4	Replace CRDM 5 b Kri		373	2	140	12	1215		1725	fis all	101	
Motor Abortor 1000 323 5 80 1 505 Remeve Sindplugs 800 425 5 1200 470 7 495 5 1230 5 2175 Inspect Fuel 1200 470 70 3 6 70 70 Inspect Fuel 180 70 3 6 1205 3 883 18 2265 Flax Thisbles 6000 1205 2 2 1045 4 12°0 Refuel 10920 4825 54 245 10 215 7 2285 Change Cavity Filters 100 115 5 30 4 4005 Install Upper Internals 720 600 8 50 3 700	4	Robalt Opender			4			400	£*1,	925	1	132	
Remove Sandplugs 8000 425 5 1230 5 1230 5 2155 Inspect Fuel 1206 470 7 495 5 1230 5 2155 Inspect Fuel 180 70 3 6 70 70 Inspect Fuel 6000 1205 16 175 3 885 18 7265 Flax Thimbles 6000 1205 2 7 1045 4 1279 Repair RV Vent 205 2 2 10 215 7 5285 Refuel 10920 4825 54 245 10 215 7 5285 Change Cavity Filters 100 115 5 30 4 405 Install Upper Internals 720 600 8 50 2 3 700		Motor	1	000						305	ú	100	
Inspect Fuel 1200 470 7 495 5 1230 5 2173 Inspected Conera 180 70 3 885 18 7265 Flax Thimbles 6000 1205 16 175 3 885 18 2265 Repair RV Vent 205 2 2 4 1273 4 1273 Refuel 10920 4825 54 245 10 215 7 5285 Change Cavity Filters 100 115 5 30 4 405 Install Upper Internals 720 600 8 50 2 3 700	- 1	Remove Sandplugs	800	425	5			000				* 15.00	
Inspected Conera 180 70 3 885 18 2265 Flax Thimbles 6000 1205 2 7 104.5 4 1279 Repair RV Vent 205 2 2 4 104.5 4 1279 Refuel 10920 4825 54 245 10 215 7 5285 Change Cavity Filters 100 115 5 30 4 405 Install Upper Internals 720 600 8 50 3 700		Taranama Mail	1206	473	14	495	SA.	1230	^	2153		177	
Inspected Conera 100 1205 16 175 3 885 18 2265 Flax Thimbles 6000 1205 2 6 1045 4 1253 Repair RV Vent 10920 4825 54 245 10 215 7 5285 Refuel 100 115 5 30 4 160 4 405 Change Cavity Filters 120 600 8 50 2 30 3 700	+	Mayou	Ça.	7.0	-					70		23	
Flax Thimbles 6000 1203 19 1203 2 104.5 4 1273 Repair RV Vent 10920 4825 24 10 215 7 5285 Refuel 109 115 5 30 4 160 4 405 Change Cavity Filters 100 115 5 30 4 405 Install Upper Internals 720 600 8 50 3 700	1	Inspected Camera	707		7.0	175		885	18	2265		6.1	
Repair NV Vent 205 2 104.5 245 10 215 7 5285 Refuel Change Cavity Filters 100 115 5 30 4 160 4 405 Install Upper Internals 720 600 8 50 . 50 3 700	100	Flax Thimbles	9009	1702	100		1	2.707		1253		208	
Refuel 10920 4825 54 245 10 215 7 2263 Change Cavity Filters 100 115 5 30 4 160 4 405 Install Upper Internals 720 600 8 50 3 700	1			205	2			104.3			L	1.0	
Change Cavity Filters 100 115 5 30 4 160 4 405 Install Uppor Internals 720 600 8 50 . 50 3 700	1 2		10920	4825	34	245	10	215	1	0787	1		
Change Cavity filters 8 720 650 8 50 3 700	6 .	Actors		1115	5	30	-7	160	-3	405		33	
Install Uppor Internals /20	0	Change Cavity		600	1	20	0.03	320	25	700		7.7	
The second contract of	the .	Install Uppor			1								

RADIATION EXPOSURE BREAKDOWN DURING

B. B. ROTINGON UNIT NO. 2 REFUELING - ISI OUTAGE - 1982

		The Residence of the State of t				The second name of Street, or other Designation of the last of the	TOMORES -	TOTAL L	N. T. C. N.	2012	MEN	FER I TAIN
		MREM	PRES	MEN	MAEN MEN	MEN	FISER	Client			PER JOS	CATEGORY CATEGORY
		800	170	2			270	5	970	7	63	
48.	Replace	24100	395				19570	61	20165	20	1008	
	Todd insulation	906	1365	17	1150	100	2790	2.2	5245	4.7	112	
200.	flacion Country	9009					2750	29	7750	29	267	
32.	Replace & Tention Stud Boits		3565	2.5	5970	17	23490	34	33025	73	452	
53.	Ruplace Conoscals		3765	5	950	3	20	7	4735	10	474	
54.	Replace Shroad	33003	225	2	685	. м	2410	173	3320	17	195	
55.	Replace Duct Work		190	3			1880	10	2670	33	159	
56.	Replace Bland Clange	009	2.0		80	. 2	355	C4	25.5	un.	16	
57.	Remove Cavity Filtration System	400	160	ď	785	16	185	4	1130	23	5.5	
3	Tournil Pic Blacks	200					70	5	70	0	14	
0	Adjust Fitting in Seal Table Room	079			55	2			55	2	X	
69	Nove Read Cable Trace & Missile Shaell	n	425	1			415	13	840	21.	700	
130	Hook Up Rod Drive Motors		380	m			790	9	1170	2	167	
1	-	320	515				0.77	0	635	30	179	
5					1115	2			1115	12	88	
79		1200	4210	6	175		1130	-04	5515	13	424	

65. [Install Bitrophones or 1924] 13. 1938 MEN		Address of the last parties	Diam's	1	NON-PLANT	CONTRA	13		ToTAL	MUEN	PER S	753
65. Integal Mirrolicones or 655 14 50 2 705 18 66. Sec Missile Shishly 220 55 3		MREN	MACA		NAEN NEW	MENN	MEN		grego.	PER JOB	CATEGORY CA	TECONY
Sec 20 55 3 20 1 75 4	THE RESIDENCE OF THE RE					20	51		16	63		Ī
966. Sect Massile Shishid			569			30			-7	6.1		
	.99	240	255	3								
									A			
											-	
				-								
												Ī
												1
							-					
												Ī
									Ī			
	And the second s											-
		and the state of t	Printer of the Paris of the Par	-	take stall rather translate day could she have	CALLED STATE OF THE STATE OF TH	ASSESSMENT NAMED IN	-	-	-	-	

RADIATION EXPOSURE BREAKDOWN DURING

H. B. ROBINSON UNIT NO. 2 REFUELING - ISI OUTAGE - 1982

110 3 210 4 2140 23 2845 34 78 78 78 78 78 78 78 7	PREDI	PREDICTED	PI NREM	PLANT MEN	NON	NON-PLANT	CONTRACT	NEN NEN	KEE	NEW NEW	MEEN JOS	PER CATEGORY CATEGORY 94,395 6.56	CATEGORY 6.56
3 205 3 315 % 7 210 4 2140 23 264: 34 4 3 310 23 264: 34 5 110 2 21,425 36 22,360 65 5 310 3 3453 40 3 5 310 35 3453 40 2 10 10 115 45,680 14.7 2 30 75 2 41,320 115 45,680 14.7 10 10 1155 9 1155 9 117 5 2 41,320 115 45,680 14.7 5 10 1155 9 1155 9 10 1 2375 14 2375 14 5 10 1 2315 3 46 7 1 1 1 2 3													
7 210 4 2140 23 264: 34 4 . 965 20 1063 24 2 . 965 20 1063 24 2 . . 965 20 1065 24 3 . <		-	01.	-			- 1	3	315	0	23		
4 1065 24 4 110 2 21,425 36 22,369 65 2 110 2 21,425 36 22,369 65 5 3170 35 3455 40 30 75 2 41,320 113° 45,680 147 16 15 2 41,320 115° 45,680 147 16 15 2 41,320 115° 45,680 147 16 15 2 41,320 147 140 147 16 1155 9 1155 9 1175 9 5 10 1 7315 36 26 3805 31 5 10 1 7315 36 26 3805 36 5 10 1 7315 7 330 10 1 1 1 2 315 7 350 <			110		1		2140	23	2645	34	78		
4 4 4 4 4 5 21,425 56 22,360 65 5 5 22,360 65 5 22,360 65 310 2 40		1	295	7	710		96.5	20	1065	24	277		
5 110 6 1170 35 3455 40 .2 3170 35 3455 40 .2 41,320 113 45,680 147 .2 41,320 115 45,680 147 .2 1155 9 115 9 .2 2575 14 2575 14 .2 3640 26 3805 31 .2 10 1 7315 38 7855 46 .2 10 1 7315 38 7855 46 .2 10 1 7315 38 7855 46 .2 10 2 315 7 530 10 .2 10 2 315 7 530 10		1	100	7			21 625	96	22,360	6.5	344		
5 310 2 30 75 2 41,320 115* 45,680 147 10 115* 9 1175 9 1175 9 10 1155 9 1155 9 5 36.70 14 2575 14 2575 1A 5 1030 18 1235 23 13 5 100 1 7315 38 7855 46 7 10 1 7315 38 7855 46 1 130 2 315 7 830 10 1 130 2 315 7 830 10		-	825	7	110	,	1170	35	3655	40	9.5		
2 2 61,320 115 45,680 147 10 10 1155 9 1155 9 10 1155 9 1155 9 2577 14 2575 1A 5 36.0 36.0 31 5 10 1 7315 38 7855 46 7 10 1 7315 38 7855 46 1 130 2 315 7 530 10 1 130 2 315 7 530 10			285	~			200		310	ř.	155		
36 75 6 16 1155 9 1155 9 1155 14 2575 14 2575 14 5 36.70 26 3805 31 5 1030 18 1235 23 7 10 1 7315 38 7855 46 1 130 2 315 7 530 10 1 130 2 315 7 530 10			310	E4			61.320	115	45,680	14.7	307		
16 1155 9 1155 9 1155 9 1155 9 1155 9 1155 9 1155 9 1155 14 1155 14 155 14 155 14 155 14 155 15 15 15 15 15 15 15 15 15 15 15 15			3985	1	75	4			1670	10	167		
5 3470 26 3805 34 5 10 1 7315 38 7855 46 7 10 1 7315 38 7855 46 1 130 2 315 7 530 10			1670	1			1155	21	1155	5	128		
5 36.70 26 3805 31 5 1030 1 1235 23 7 10 1 7315 38 7855 46 1 200 2 340 3 1 130 2 315 7 530 10 1 130 2 315 7 530 10						Carlotte State Company	2575	14	2575	7.7	184		
5 5 10 1 130 1 130 1 130 1 130 2 315 1 530 2 340 3 10 1 130 1 315 1 530 10							3470	56	3805	31	123		
2 10 1 7315 38 7855 46 1 2 200 2 340 3 1 1 130 2 315 7 530 10			335				1030	18	1235	- 2	54		1
2000 2 340 3 11 130 2 315 7 530 10 10 10 10 10 10 10 10 10 10 10 10 10			507	1	0,	-	7315	38	-7855		171		
1 130 2 315 7 530 10			530			-	200	2	340	6	113		
			144		100		315	to.	530	10	53		
			90		2								1
		1											

-	Commence of the Control of the Contr	COUNTERD	FLANT	7.0	1 1000	Supply &	The same of the last	Alanda de	REEK	MEN		PES LES
		MAEM	MREM	NEW	MREM	M MEN	MREN	uro.			PER JOS	CATEGORY CATEGORY
												113,705 7,90
10	RCF	49,725										
-	Unwire Motor	08*	98	-			353	2	740		-1	
3	Remove RCP Notor	1210	520	9	30	1	735	80	1285	15	86	
		4230	480	6	270	22	840	11	1590	78	57	
	Democratic Manual Principles		596	15	320	7	4370	17	5655	36	157	
3 1	Demyte and a Adaptor	12,000	1515	12	570	3	8800	1.2	10,885	23	103	
. E.		10,800	885	1			9460	23	10,345	28	369	
1.	Blacesemble & Reassemble		21,040	13	1680	2	10.365	756	3,085	759	361	
	Electro Polish Impoller						8,105	7	8,105	2	1158	
00	Clean & Test Bolt		330	- 64					330	2	167	-
o i	1	15,000					11,685	19	11,685	61	615	
3	Replace Diffuser &		3390	15	180	2	12,655	33	16,225	20	325	
	1		3565	24	05	1	3815	95	7430	73	105	
11.	Set Rotating Element &	4915	705	Φ			6516	77	7215	51	141	
14.		1120	959	V					079	(A)	128	-
15.	. Insulate Pump (PPM)						0209	5	6070		* 10	
16.	. inspect Motor		555	11	10		730		12%	6.2	30	
	1											
	The second secon									_	ergen.	

The state of the s	The same story is probable.	T DIANT		I-NON .	PLANT	CONTRACT	1	TOTAL	7	MOUNT	0.460	PER
	MREM	MREM	Mark	MREM HEN	HEN	MREM	MEN	-	MEN	PER JOB	PER JOB CATEGORY CATEGORY	CATECORY
						185	ф	385	=	35		Ī
17. Misc. Pump Mork		7007		No.		160	2	310	,.	45		
18. and Out of CV		140		200		730	6	730	Ø.	81		
19, semove Insulation												
									1			
		l.								The second		
		1				-						
madrama of mode is interest stands distinctive, within a general Resembly state, on which is	STATE OF STREET		And Annual Property and		donard of the same	Section of the Company						

RADIATION EXPOSURE BREAKBOWN DURING

off RCP Agentic Nation	March Marc	PREDICTED	PLANT	TN	NON-PLATE	PLACT	MAEN NEW	T. MEN	MREN	NEW NEW	MREN PER JOB	PER PER CATEGORY
4C. RCP 1. District Meter 240 3 2 240 3 6 64 a 500 2. Satisfied Meter Security 13.5 3 3 2 2110 31 3475 40 87 3. Satisfied Meter Security 13.0 1 3 3 3 45 11,410 46 43 44 <th>1. Uncure Meter 2. Discussibility & Microe 3. Discussibility & Microe 4. Discussibility & Microe 5. Discussibility & Microe 6. Di</th> <th>MRTM</th> <th>MARK</th> <th>Comment of the Comment of the Commen</th> <th></th> <th></th> <th></th> <th></th> <th>T</th> <th>I</th> <th></th> <th>Al .</th>	1. Uncure Meter 2. Discussibility & Microe 3. Discussibility & Microe 4. Discussibility & Microe 5. Discussibility & Microe 6. Di	MRTM	MARK	Comment of the Commen					T	I		Al .
1. State before 1. State before 2. State 2.	1. Butter before: 2. Saals & Meter Feter: 3. Saals & M											+
Description 240 1 30 2 2110 31 3475 40 67 Description 13.5 7 30 2 2110 31 3475 40 67 Seals & Medical Experiment 13.5 1 1 1 1 1 1 1 1 1 Reserve Diffuser 13.0 6 64540 15 64540 15 64540 15 15 15 Assemble States 13.0 2 5440 15 64540 15 15 15 Assemble States 13.0 2 5440 15 54540 15 15 15 Assemble States 13.0 18 17 18 17 Assemble States 13.0 18 18 18 18 Assemble States 13.0 18 18 18 18 Beary Install Foreign Experiment 13.0 18 18 18 Beary Install Foreign Experiment 13.0 18 18 18 Beary Experiment 13.0 18 18 18 18 Beary Experiment 13.0 Bear	Description 240 3 30 2 2110 31 345 40 87 Description 240 3 3 3 3 3 3 3 3 3 Description 240 3 3 3 3 3 3 3 3 3								240	0	80	
Spains & Mater 13.5 1 0 11,090 45 11,410 46 348 Remove Diffuser 1210 6 2 1210 6 202 Delt Moles 1210 6 5 202 35 190 Replace Diffuser 150 2 5 5 35 190 Assemble Smales Set Con-Place Diffuser 150 2 5 5 197 81 Assemble Smales Line 110 18 8 6 8 8 10 8 Remove Insulation 2 2 7 7 10 8 9 15 15 7 Conge Oil 2 2 7 1 7 7 7 7 7	Spains & Macron 13.5 1 0 45 11,610 46 248 Remove Different 1210 6 6 702 1210 6 202 Sepine Different 150 2 6 50 35 190 Assignible Stat Cour 150 2 56.60 29 5795 31 -37 Assignible State State Cour 150 2 56.60 29 5795 31 -37 Assignible State State Cour 110 18 9495 63 16 177 Toron 1 Lange Bolts 8 860 8 860 8 168 Remove Insulation 255 2 770 8 920 5 1445 15 0 Change Oil 2 2 770 8 920 5 1445 15 0		240		98	2	2110	33	3475	40	7.8	
Remove Diffuser 1210 6 202 1 1210 6 202 1 1210 6 202 1 1210 6 1210 6 1210 6 1210 6 1210 6 1210	Remark 1210 6 202 1 1210 6 202 1 1210 6 202 1 1210 6 202 1 1210 6 202 1 1210 6 202 1 1210 1 1 1 1 1 1 1 1 1		13.5		200		11 690	4.5	11,410	9.9	248	
September 1210 Colores September	Sult Holes		320				44.000		1210	9	202	
Replace Diffusive 155 2 5640 29 5795 31 -37 Assuchle Smile, Ser Gou-Assuch 1110 18 9195 63 10,305 81 127 Torque Lingue Boil's Torque Insulation 1110 18 860 8 80 8 108 Remove Insulation 255 2 770 8 929 5 1945 13 70 Change Oil 255 2 770 8 929 5 1945 13 70	Supplied Diffigs.t		1210	0			6650	2	6650	22	190	
110 18 195 63 10,105 81 127 Torqu' Flange Bair's 1110 18 860 8 860 8 108 Ramove insulation 255 2 770 8 920 5 1945 15 10 Change Oil 255 2 770 8 920 5 1945 15 10 Change Oil	11.0 18 19.5 19.30 18 127 10.304 11.0 11.0 18 11.0 18 11.0 18 11.0 18 11.0 18 11.0 18 19.0						5640	5.8	5795	H	37	
Turcy Finige Bol's Remove Insulation Turch Finite Change Oil Change Oil Change Oil	Turque Remove Insulation 860 6 860 6 108 Remove Insulation 7760 34 7760 14 554 Invital Insulation 255 2 770 8 920 5 1945 15 70 Change Oil 5 255 2 770 8 920 5 1945 15 70	-	155	18			9195	63	10,305	81	173	
Remove Insulation 255 2 770 8 920 5 1945 15 70 Change Oil Change Oil .<	Remove Insulation (Change Oil 255 2 770 8 920 5 1945 15 70 Change Oil 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		11110				84.0	8	860	nia.	108	
Install Insulation 255 2 770 8 920 5 1545 15 70	Change Oil Change Oil	*					7260	34	2760	4	354	
Change 0il 255 2 770 0	Change Oil 255 2 770 0						000		1945	15	Ŕ	
			255	2	770	0						
										1		
			1									
							and the					

RAPIATION EXPOSURE BREAKDOWN DURING

NON-PLANT CONTRACT TOTAL AVERAGE TREN * OFF. FER PER PER PER PER PER PER PER PER PER P	10 1 240 9 27		650 7 93	370 7 376 7 53	145 4 36	30 1 215 4 54	* P0	+			523 6 00	40 4 20		770 6 770 6					
PLANT MEN HREM		230 8	1	290 4 965			1	80 3 33		195 4		7 095	20 2 2 20						
PAEDICIED	E. Misc. Pump Work	1.	2. Detectors	3. Repair Thermocouples	4. Install Oil Shields	s Remove Bolt Heaters			And From CV	1	9. Clean RCP Bolts	2.4 CO 0.7 C	70	11. Salance MCP	12. In Cavity			The second secon	

12 300 3 1035 15 69 14			PREDICTED	PLANT	NEW TA	NON-1	MON-PLANT	CONTRACT	THEN	HREM	NL NEW	MAENAGE MAEN PER JOR	PER FER CATEGORY
STACK GENERALY 124070 12			Modern	THE PERSON NAMED IN COLUMN 1									
Sembore Minkarys 1600 735 12 900 3 1035 13 14 15 15 15 15 15 15 15	1	H GENERATOR PRIMARY	124020										
a. Remove Knimays 1600 735 12 300 3 405 7 2420 21 11 c. Replace Strongbacks 160 3 3 1155 4 22 d. Replace Karndays 2400 3160 21 705 7 3140 31 7025 59 11 c. Clean Bolts 2400 3160 21 705 7 3140 8 10 8 10 8 10 8 11 2 243 12 4 2 4 2 4 2 4 2 4 2 4 2 4 2 12 12 12 12 1 2 12 12 12 12 12 12 12 12 12 1 2 12 12 12 12 12 12 12 12 12 12 12 12 12 12 <		Gnways								3000	-	6.9	
6. Replace Strongbacks 1995 14 455 7 2420 21 11 4 22 11 4 22 11 4 22 22 22 22 21 11 4 22 23 31 4 22 23 3 11 4 22 23 3 11 4 22 23 3 11 4 22 23 3 11 22 23 11 23 11 23 11 23 23 2 4 23 3 3 2 4 23 11 22 11 23 11 23 11 23 11 23 11 23 23 23 13 13 23 13 13 23 13 13 23 13 13 23 23 13 13 23 23 23 23 23 23 23 23 23	1	Remove Manways	1600	735	12			300		1033			
c. Remove Strongbacks 150 1 465 3 1155 4 22 d. Replace Strongbacks 2400 3180 21 705 7 3140 31 7025 39 1 e. Clean Bolts 340 8 30 2 405 12 240 240		1		1995	34			425	Po	2420	21	115	
c. Remove Strongbacks 2400 3180 21 705 7 3140 31 7025 39 12 d. Replace Namerys 2400 3180 21 705 3 2 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405 12 405		1		120				685	-0	1145	of .	286	
d. Replace Hunways 2400 3180 21 403 2 35 2 405 12 e. Clean Bolts 340 8 30 2 35 2 405 10 g. Then late Market 250 5 30 2 35 11 2 g. Then late Market 25300 95 1 2613 34 2736 36 10 8 a. Flatform Market 25300 2 3640 60 34040 60 40 40				7007			,	21100	33	7025	59	119	
E. Hove Equipment 260 5 30 2 35 2 70 10 E. Howlete Narvays 250 5 105 10 20 10 20 10 10 10 10 10 10 10 10 10 10 10 10 10			2400	3180	21	702				2007	1.1	34	
E. Nove Equipment 260 5 105 5 363 10 g. Insulate Narways 95 1 2515 12 2710 13 2 Eddy Current Inspection 25300 25300 25300 34040 60 34040 60 34040 60 5 4 c. Platform Nork 25420 2520 34040 60 34040 60 34040 60 5 4 c. Platform Nork 25420 3640 60 34040 60 34040 60 34040 60 5 4 d. Tube Marking 1600 1600 1600 1600 44 55960 44 55960 44 1735 46 3 g. Tibe Marking 4000 160 13 1670 7 3670 7 3670 7 5 g. Clean Bowle 3670 7 3670 7 3670 7 5		Н		340	60	30	2	35	7	Car			
g. Insulate Manwarys 95 1 2015 12 2710 11 2 Eddy Current Inspection 23309 23380 34 23350 34 8 a. Equipment 25300 34040 60 34040 60 34 b. Plant Drobe 25300 5 40 5 4 c. Hand Probe 5 610 8 610 5 4 d. Tube Marting 16000 188 189 44 121 e. Plug Tabes 40000 13 15375 31 17055 46 3 f. Metal Repairs 9800 1680 13 15375 7 3670 7 3670 7 5 g. Clean Bowls 7 3670 7 3670 7 5 5	-			260				105	10	365	10	37	
Eddy Current Inspection a. Equipment 25509 b. Plant Probe c. Hand Probe d. Tube Marking f. Weld Repairs g. Clean Bowle g. Clean Bowle g. Clean Bowle g. Sidy Current Inspection g. 1800 g. 25509 g. 23369 g				95				2615	17	2710	=	208	
a. Equipment 25509 34040 50 34040 60 34 2382) 34 8 E. Flatform Kork 25420 34040 60 34040 60 3 c. Hand Probe 6.0 34040 60 3 34 8 d. Tube Marking 16000 8 610 8 610 8 e. Plug Tubes 40000 1680 13 17355 33 17055 46 3 f. Weld Repairs 9800 1680 13 3670 7 3670 7 5 g. Clean Bowle 7 3670 7 3670 7 5		Eddy Current Inspection											
Piant Probe 16000 1680 13 15375 31 17355 46 34040 60 34040 60 34040 60 5 60 5 60 5 60 60	1	Install and Semicve	25500					23380	34	23383	34	200	
Hand Probe 1600C 5 2180 5 4 Tube Marking 1600C 44 55960 44 55960 44 12 Plug Tubes 40000 1680 13 15375 33 17055 46 3 Lican Bowle Clean Bowle 3670 7 3670 7 5			25420					34040	69	34040	0.9	298	
Hand Probe Hand Probe Tube Marking 1600c Tube Marking Tubes Plug Tubes 40000 Plug Tubes 9800 1680 13 Clean Bowle Clean Bowle		1						2180	10	2180	\$	436	
Tube Marking 16000 44 55990 45 Plug Tubes 40000 1680 13 17055 46 Wetd Repairs 9800 1680 13 3670 7 3670 7 Clean Bowle								019	80	019	60	316	
Plug Tebes 40000 13 15375 33 17055 46 Weld Repairs 9800 1680 13 3670 7 3670 7 Clean Bowle 7 3670 7 3670 7 3670 7			16000							CCOKI	2.5	1272	
Weld Repairs 9800 1680 13 17033 33 17033 C. Clean Bowle			40000					22,460	100	and a		321	
Clean Bowle			9800	1680	13			15375	33	26.70		524	
								3670		2010			
	-									-	-	The second second	

RADIATION EXPOSUE. . . . N DURING

20 2640 9 11920 29 446 565 14 40 21430 1149 6 21 21 21 21 21 8 23 23 23 23 1 23 23 23 23 1 3375 18 3195 19 129	PREDICTED PLANT MREM MREM MEN
230 4 1555 14 40 230 4 1555 15 10530 21 501 230 4 1555 15 10530 21 501 230 4 1555 15 10530 21 501 230 4 1555 15 1055 3 232 3375 18 3195 19 279 18 3195 19 279	3000 10280 20
230 4 1555 15 10520 21 501 230 4 1555 15 5075 40 127 2495 7 705 3 235 3375 18 3395 19 179	300
230 4 1545 15 10530 21 501 230 4 1545 15 5075 40 127 493 2 705 3 232 3375 18 3395 19 879	15,100
230 4 1555 15 5075 40 127 495 3 705 3 232 3375 18 3195 19 179	12600 1145
230 4 1555 15 5075 40 157 495 2 705 3 235 3375 18 3195 19 879	
1775 8 222 1705 3 235 1375 18 3395 19 179	2500 3290
3375 18 3195 19 179	1775
18 3395 19	213
33.50	
	20

	PREDICTED	PLANT MREM :	TNEN	NON-I MREM	NON-PLANT	HREA M	MEN	NAEM	MEN	NREN PER JOB	PER PER CATEGORY	PER
	110 Jan										169,735	11.80
T. HEALTH PHYSICS	119580					Name of Street	35	174030	3.3-	2116		
CV Coverage, Surveye,		40,750	- 50	70		83710						
		15,070	65	340	str	29940	90	25510	9	3.6		
c. Instrument Calib.		215	9									
		J.									134135	9.15
I. VALVE OPERATION & INSPECTION	69280											
1, 62								300.000	46	543		
A Chaerat 10ths	22640	29245	99					(35542		33%		
		14190	63					14190	63			
D. Eskinski a		12605	39					12605	999	500		
c. Others (Plant)				5177	7.0			4415	70	63		
d. CPSL Corporate	15000					15380	142	15380	162	198		
e. Visitors												
2. Auxiliaty Building								33540	900	382		
a. Operations	24640	30540	80					3823	67	78		
b. Englawers (Plant)		3820	67									
									I			
									Ī			
And a second second section and section of the second section of the section of the second section of the sectio	in house, it was not not be the second of the second	A STATE OF THE PARTY OF	Andreas and the state of the second	ACCRETATION AND THE RESIDEN	Barrier Street, Sept.	A CONTRACTOR OF THE PARTY OF TH	-	Coddinate designation of the con-				

RADIATION EXPOSURE BREAKDOWN DURING

NEET		PREDICTED	PLANT.		NON-PLANT	LANT	CONTRACT	Trees	TAT THE	AL. NO.N	MAEN	PER	FER
Compare Chants Comp		MREM	NSEN	MEN	MAGN	MEN	MACH	rien.	1		PER JOS	CATEGORY CAI	TECOR
G. Visitors 4335 70 4335 70 62 d. Visitors 4. Visitors 7. 700 4335 70 232 9733 232 939 DECON Availlary Bailding 29,000 445 18 255 8 71669 92 72,00 118 613 1. Availlary Bailding 29500 445 18 255 8 71669 92 72,00 118 613 2. CV Availlary Bailding 29500 445 18 255 8 71669 92 72,00 118 613 2. CV Availlary Bailding 2900 51 815 12 43-65 12 43-68 190 24-7 2. CV Availlary Bailding 2000 15 815 12 43-65 12 43-68 190 24-7 2. CV Availary Bailding 200 15 20 20 20 20	15		9830	95					9830	9.5	103		
PECNN PRINCE PR	1	10 000			4335	7,0			4335	70	29		
DECON 1.		20,000						252	9775	252	39		
1192400 1	1												1
1. Anvillary Building 72,700 445 18 255 8 71660 92 72360 130 247 2 2 2 2 2 2 2 2 2												-	8,139
1. Auxiliary Building 29506 445 18 255 8 71004 7- 100 247 2. CV DRUNHING ROOM 1. Compart and prepare 1. Compart and prepare 2. Solidity Master From 3. ""A Maste Brapertore 1. Solidity Master Brapertore 3. ""A Maste Brapertore 4. Repair Compart High Red Gate 5. Repair High Red Gate 6. Repair High Red Gate 7. Repair High Red Gate 7. Auxiliary Master Brapertore 8. Solidity Master Brapertore 9. Solidity Master Brapertore 10. 1 20. 2 250 8 250 8 31 10. 1 20. 2 250 8 30 10. 1 30 10. 1 30 10. 1 30 10. 1 30 10. 1 30 10. 1 30 10. 1 30 10. 1 30 10. 1 30	DECON	72,700					******	6.0	17360	118	613		
2. CV CV CV CV CV CV CV CV		29506	445	38	255	00	71560	3.5	14.300				
1, Compart and propare 3600 1530 26 125 5 60505 53 47160 84 502 202 2014dify Master 2000 1530 26 125 5 60505 53 47160 84 502 202 2014dify Master 2000 200		43200	2090	51	825	12	43965	123	46880	061	247		1
Totality Master 1500 1530 26 125 5 40503 53 42160 84 502 125													1
Solidity Waste, 3600 1530 26 125 5 40505 53 42160 84 54 54 54 54 54 54 54			-										5.03
Compact and prepare Compact and prepare 3600 1530 26 125 5 40505 53 42160 84 5 Sclidity WHOT Slide Sclidity WHOT Slide \$600 1530 26 985 9 11 Sclidity Whote from "C" Waste Evaporator Robert From 250 8 250 8 Robair Compactor 10 1 20 2 250 8 Repair Drum Hoist 65 3 130 3 1 Repair High Sad Gate 5 3 1 30 1	700 (. 3600											
Schidify Will Sindge	-												
Solidity WHUT SI 'dge Solidity Waste Trough "C" Waste Evaporator Rhom Rhom Repair Compactor Repair Drum Hoisk 65 3 130 3 190 1 Repair Migh Rud Cate Repair Migh Rud Cate	for shipment	3600	1530	56	125	>	40505	5.5	42160	.e.	205		ŀ
Schidally Waste from Schidally Waste from							985	đi	985	6	109		
Ropein Compactor 10 1 20 2 8 250 8 Repair Compactor 10 1 20 2 30 3 Repair Drum Noist 65 -3 130 3 195 6 Repair High Rud Cate 30 1 30 1													
Repair Compactor 10 1 20 2 30 3 Repair Drum Noisk 65 3 130 3 195 6 Repair High Rid Gate 30 1 30 1 30 1	1						250	00	250	-10	35		1
Repair Drum Hoist 65 3 130 3 195 6 Repair High Rud Gate 30 1 30 1			10	-	20	74			30	15	10		
Repair High Rid Gate 1 30 1	Donate a		59	.3	130	8			195	4	33		
0	Constr Bich						30	-	30	-	30		
	0												
					-	-							

RESPURATORS Repark 2 Repark 2 Repark C Replace Replace Replace Replace			38.30	5 10	1155	8	231	3311	0.08
DECON RESPIRATORS LAUNDRY FACTLITY LAUNDRY PACTLITY 1. Repack 200 B&C 2. Repack 200 B&C 2. Repack CVC-113 B 3. Install 203 4. Repair 2048 5. Aeplace CVC-209 6. CVC-245 6. CVC-245			3830 3830 20 20 20 570	2 01	1100	T	-	1000	
. LAUNDRY FACILITY . LAUNDRY FACILITY . VALVE WORK 1. Repack 200 B&C 20 2. Repack CVC-113 B 20 3. Install 203 755 4. Replace CVC-209 60 5. Aeplace CVC-209 6. CVC-245 6. CVC-245			38.30 186.0 20 57.0	10					
1AUNDEN FACTLITY 1. Repack 200 B&C 2. Repack CVC-113 B 3. Install 203 4. Replace CVC-209 8. Aeplace CVC-209 6. CVC-245 6. CVC-245	2		3830 1860 20 570	10					-
AALVE WORK 1. Repark 200 B&C 2. Repark CVC-113 B 3. Install 203 4. Repair 204B 5. Aeplace CVC-209 60 CVC-245 60 CVC-245	2.2		1860 20 20 570		3830	10	383	3830	0.27
1. Repark 200 B&C 935 2. Repark CVC-113 B 20 3. Install 203 4. Repair 204B 5. Aeplace CVC-209 6. CVC-245 6. CVC-245	2		1860 20 20 570						
VALVE WORK 47000 1. Repack 200 B&C 20 2. Repack CVC-113 B 20 3. Install 203 70 4. Repair 204B 755 5. Aeplace CVC-209 60 8eplace Diaphragm 5 6. CVC-245 23	3.5		1860					37185	2.58
1. Repack 200 B&C 935 2. Repack CVC-113 B 20 3. Install 203 4. Repair 204B 755 5. Aeplace CVC-209 6. CVC-245 6. CVC-245	2		20 570				1		
Repack CVC-113 B 20 Install 203 70 Repair 204B 755 Replace CVC-209 60 Replace Diaphragm 5 CVC-245 25	2		20	2	2795		337		
Repark CVC-113 B 70	15		\$70		07	2	20		
Repair 2048 755 75			200		655	130	61 30		
Repuir 2048 Acplace CVC-209 Replace Diaphragm CVC-245							Soc.		
Replace CVC-209 Replace Diaphragm 5 CVC-245	07	3	530	00	GEI			-	
Replace Diaphragm CVC-245			20	***	80	d	20		
CVC-245					32	d	0		
1000	The state of the s		200		5	3/1			
			30	4			***		
8. Repair CVC-310A			1630	9	2787	2	67.9		
					10		10		
			100		99		20		
10. Reputr CVC-387 50 2	2					,	-		
11. Repair 516	1 20	1	15		9	2	7		
1									
The second secon					name.		-		

The second second	And in case of the last of the	I with many washington it	i PI ANT	2.00	- 4357 PCT	Children	The second secon	The second second	A STREET, T	Charles - J. Shine	DEN	200	Target St.
		MRENICALE	MREM	NSN	MRIF KEN	MEN	MAEN	MEN	MARK	FIEM	PER JOB	CATEGORY	CATEGORY
							25		06	64	4.5		
12,	Repair RC-556		59				245	3	305	9	51		
13.	Repair PC-605		20	-	40	7				77	54		
14.	Repack 7448		125	3			90						
			100						20		20		
15.	Replace 747 A & B		07				5.0	154	165	(P)	55		
16.	Repair 754		115	1					101		- CX		
			185	5					100				
2/4	1		05	2	170	-4	160	-	380	6	124		
18.	Repair /blA				904		260	4	880	-	80		
16	Repair 706 & 786		435	ø	103	,				4	91		
28.	Repair 841C		30	3			01		,				
	ŀ.					Allen	35	2	35	2	E .		
43:	Repark oron						10	**	5.	-7	13		
223	9e1d 855D		07	,					20		200		
23.	Repair 856		20				20	14	2				
	ŀ						310		210	200	103		
24,	803		100						7.50		200		
36	100000000000000000000000000000000000000		80	1	370	1			7.77				
2300	100000			-	130	7	320	1	07.0	91	19		1
12 June	Sepuir 869						777		745	11	99		
27	Repuir 875D		007	9									
										1			L
-													
													The Land
Street, Square, Square,	The state of the s							i e					

H. B. ROBINSON UNIT NO. 2 REPUELING - ISI OUTAGE - 1982

		REDICTED	PLANT	NEW	NALEN NEN	MEN	NEH	MEN	NALM	NEW	PER JOB	CATEGORY CATEGORY
									0.0		17	
28	Kepack 883 A. D.		20	2	65				0.2			
29.	Acpair 891 A. B. C & I		1750	19	430	111	730	14	2910	99	90	
30.	Repack 8998		10						10		10	
100	Repair 956		860	11	599	10	150	-	1475	19	78	
32.	Repair 1622 &		20	-			10		30	7		
33	4		4.5	3					50%	3	15	
34.	Replace WD-1708		\$5	-			99	24	115	-	7	
35.	1		175	e)	275	2	120		570	2	100	
ł	Revisesant		110	2	305	7	80	2	565	10	6.2	
1 6	P		140	-					140		140	
38.			340	111			800	100	1140	10	69	
.66		5000	2315	35	06	ed	2715	9.	5120	72	7	
707			1545	75	80	2	305	60	1930	7.70	-2	
112			20	1			20	200	07	7	20	
1 9	1		1195	13	350	112	350	UN.	1695	98	. 9	
			110	a	375	11	310	0	295	23	38	
	1											
		The second second second			-	-						

RADIATION EXPOSURE BREAKBOWN DURING

	PREDICTED	PLANT	NT HEN	NON-PLANT	PLANT	CONTRACT	EN LES	HREN	NEW HEN	NREH PER JOB	PER CATEGORY CATEGORY	CATEGORY
Misc. Valve Work										51		
Charging Pump		80	100	10				165	2	24		
Boric Acid Storuge		95	4	70	-			1.00	10	20		
		50	3	90	2	98	2	130	2	90 50		
Sample Room						1115	2		0.5	177		
Druming Room Boron Injection		25	i/A	10	-	20	4	NIA.	2 2	100		
Tank Soon		2010	24	1940	17	820	17	2295	38	54		
Pipe Aires		535	13	905.	10	655						
						100		19300	68	217	19300	3.35
	25900	11195	54	7285	27	0.79						
											81405	99.0
	94935						0 0 0 0	65130	1976	336		
Inspection & Hydro Remove & Replace Insulation Disassemble, Inspect	74935	2311	E) 85 111	1610	100	14360	2 12 9	1915	24 24	48.00		
100 731												
		1										

1145 1816 8 500 10 1815 39 47			COUNTYFE	I PLANT	NT	NON-PLANT	PLANT	CONTRACT	MEN	MREN	KEN	MEEN	PER PER	PER
Paragraphistor & Polar Crame 1145 21 1490 8 500 10 1855 94 27 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 1855 94 94 94 94 94 94 94			MREM	MREM		MEN	MEN	THE PERSON NAMED IN		1		PEN 305	CALLIAGRI	
Hungbulator & Polar Cross 8935 47 7860 15 4580 33 2195 95 235 2195 18 Reargin Conternet, for Wark 93169 47 7860 15 4580 33 2195 95 235 2195 13 1. Hostity SiG Renewy 21g 4500 2 400 2 400 2 700 7500	9.	Pump Work		1145	23	190	85	900	10	1835	39	7.7	1835	0.0
Hamipalister & Polar Crame 8955 47 7860 15 4580 33 21395 95 225 2130 110	,												2000	
Neargin Construction Work 91160	×.	Manipulator 6 Polar Crane Inspection 6 Operation		8955	47	7860	15	4580	33	21395	95	225	06017	7
Yeargin Construct, loo Mork 91160 91260 15 450 15 450 15 450 3								-					73645	100
Cur Bolt on Cuide Tabe 100 1 100 2 400 2 2 400 2 2 200 2 Equivor and replaces	š	Yeargin Construction Work	91160							750	15	30	1 0 0 K	
Cut Bolt on Cuide Tube **Ranove and Yeplace** **Rano								997	N	7007	04	290		
Nad. 445 - Fire Nad. 524 - Fire Nad. 524 - Fire Nad. 525 - Fire Nad. 535 - Fire Nad. 699 Nad. 6					,			705	10	335	11	69		
First 1080 40 1 100 25 4450 26 172 100 40 1 1200 44 170 1200 45 120 45 120 45 120 45 1200 44 1200 44 1200 45 1200				30	1	5	-	1075	1.2	1085	50	2.5		
Funct List Nod 524 - TM Funch List Nod 525 - Zunch List Nod 545 Nod 545 Nod 555 Nod 546 Nod 555 Nod 55		Mod. 445 - Fire Protection Posch	1080			100		4440	2.5	4480	26	1772		
Nod 535 Nod 545 Nod 699 Nod			1200	40	,			3050	43	3080	5.5	.70		
Mod. 502 = SunCh List 3600 205 2 205 -2 103 2 504 505 -2 103 504 505 502 = SunCh List 3600 75 4 19 504 699 505 505 505 505 505 505 505 505 505 5			1200	30	1			585	12	585	e)	356		
Mod. 502 - Zunch List		20	645					205	74	265	.2	103		
Mod. 699 Install "A" Frame on Operating Deck in C.V.								75	.7		4	62		
								215	5%	215	Fa.	31		
												The second second second		
				-										
													-	
	-								The second second	-	the same particular of	-	-	-

11. Mod 636 18900			The second second second		PER JOB	CATECORY ALEMANA
1. Mod 836 18900 18900 18. Mod 836 18900 18. Mod 836 18900 18. Mod 17. S/C Platform 18. Mod 17. S/C Platform 18. Mod 17. S/C Platform 19. Pite						
8. "8" S/C Platform 55 3 40 C. "C" S/C Platform 55 3 40 Rodiny S/G 10 10 10 10 Rodiny S/G for 10 10 10 10 Replacement 10						
b. "B" S/G Platform 55 3 40 c. "C" S/G Platform 55 3 40 d. Bloudown Line 20 2 40 lassure S/G for 40 Noul S82 Rad Doors 6750 sepalar ement 6750 linetall High 6750 linetall Jib Crane 30 linetall Sib Crane 7560 linetall Wires 7560 linetall Wires	3380	27	3380	27	125	
C. "C" S/G Platform 555 3 40 ModIfy S/G d. Blowdown Line 20 2 40 12. Build Scaffolds 6750 13. Replarement S/C for Install High 6750 14. Mod.582 Rad Doors 6750 15. Install Jib Crane 7560 16. Door to Pipe Alley 7560 18. Pull Wires 7560	3070	18	3070	00	171	
12. Build Scaffolds 4. Blowdown Line 13. Replacement 14. Mod. 582 Rad Doors 15. Install Jib Crane 16. Boor to Pipe Alley 17. Control Rod Mechanism 18. Pull Whres 19. Pice 19. Pice	8875	38	8970	42	214	
12. Build Scaffolds	520	17	520		177	
Heasure S/C for Install High 6750 14. Mod.582 Rad Doors 6750 15. Install Jib Crune 15. Repair Roberto Alley 17. Control Rod Mechanism 18. Pull Wires Repair RV Heat Yent 7560	996n	47	10020	23	189	
14. Mod. 582 Rad Doors 6750 15. Install High 6750 15. Install Jib Crane 750 16. Boor to Pipe Alley Cut 17. Control Rod Methanism 18. Pull Wires 7560 18. Pull Wires 7560	2530	12	2530	114	181	
15. Install Jib Crane 16. Book to Pipe Alley Cut 17. Control Rod Methanism 18. Pull Wires 19. Pire 7560	2430	37	5430	37	147	
15. Install Jib Crane Repair 16. Boor to Pipe Alley Cut 17. Control Rod Methanism 18. Pull Wires Repair RV Heat Vent 19. Pice	225	ð	275	0	25	
Cut Control Rod Mechanism Control Rod Mechanism Pull Wires Repair RV Heat Vent 7560	85	5	115	7	16	
Control Rod Methanism Pull Wires Repair RV Heat Vent 7560	075	- 5	540	2	270	
Pull Wires Repair RV Heat Sent 7560		o.	2130	0.0	116	
Repair RV Heat Sent 7560	2120	1				
	6350	175	6350	14	654	
						1
and the same of the principal state of the principal state of the same of the						
		-				

7 24 PER 208 CATECORY 24 172 A4 208 CATECORY 26 91 26 21 26 21 26 21 26 21 26 21 26 21 26 21 26 21 26 21 2 26 21 2 26 21 2 26 21 2 26 21 2 26 21 2 26 21 2 2 26 21 2 2 26 21 2 2 2 2		Contraction of the last of the		200									
Note 513 Four Accident			PREDICTED	MREM	1	MERM	MEN	MAEN	MEN	MREA	MEN	PER 108	CATEGORY
Note		Nod 537 Post Accident	4100	07	2	20	-	075'	41	7560	777	177	remotification
Non-to-figure Non-to-figur	1	Mod. 604 - HVH Motor							7	305	2	44.6	minima in
Dungtall Platens on	1	Mod. 650 Fire				10		533	5	545	10	- 16	ini katri di ila
Courside Mail An St Room	-	Damper Install Plates on						165	To.	165	7	579	eriorisco de de
Corating Corating Pointing Hampers 10 1 30 3 1630 22 1670 26 Nod. 624 - Replace FM 10 1 95 6 105 7 Nod. 624 - Replace FM 10 1 95 6 105 7 Install Bracket 1 10 1 95 6 105 7 Install Bracket 1 300 8 300 8 300 8 Nod. 527 TMI Funch 6750 85 4 30 2 3165 25 3480 31 List List 1 1120 15 1150 16 Nod 672 Hunger Hod 300 1 1120 15 115 16 Nod 672 Hunger Hod 300 1 1205 11 2315 12 Nod 672 Hunger Hod 10 1 2305 11 2315 12		Dutside Wall in SiRoom Repuir Stairs and						240	9	540	9	06	en i terdiri
Pointing Hangers Nod. 522 - Replace FM Line Bellous Nod. 522 - Replace FM Line Bellous Nod. 522 - SFP, Linstall Bracket TAR 80-018 Nod. 525 TMI Punch 6750 885 4 300 2 3367 25 3480 31 List Pripe Alley Hanger Mod Nod 672 Hunger Mod Nod 673 Hun	3	Grating						1255	f-s	1255	FH.	179	9000004
Line Belfows Nod. 527 - 587. Install Bracket TAR 80-018 Nod 325 - 376		Psinting Hangers Nod. 652 - Replace FW		0,6		30		1630	21	1070	2.6	2 3	Or consider
Tark 80-018 300 8 300 8 Nod. 525 131 Funch 6750 85 4 30 2 3365 25 3480 31 List List 275 6 275 6 275 6 Rod 672 Hanger Mod 30 1 1120 15 16 Nod Trigb on "A" 5/G 3000 10 1 2305 11 2315 12	100	Line Bellows Nod. 632 - Sr?,		2		10	1	92	9	105	-	15	era interesi, gina
TAR 80-018 Rad. 523 IMI Funch List List Pipe Ailey Hanger Mod Nod 672	7							300	83	300	10	38	
List List 6 275 6 Pipe Alley Hanger Mod 30 1 1120 15 16 Mod 672 Hanger Mod Mod 672 Hanger Mod 10 1 2305 11 2315 12 Tigb on "A" 5/G 3000 10 1 2305 11 2315 12	90	TAR 80-018 Mod. 525 IMI Funch	6750	85	4	30	2	3365	50	3480	31	112	7
Pipe Alley Hanger Mod 30 1 1120 15 1150 16 Nod Install New 10 1 2305 11 2315 12 TLBD on "A" S/G 3000 1 2305 11 2315 12	6	List						273	9	275	-0	99	_
Nod 672 Hunger Mod Nod Instell New 10 1 2305 11 2315 12 TIBD on "A" S/G 3000		Pipe Ailey Hanger Mod				97	,	1120	15	1150	16	7.2	
Mod Instell New 10 1 2305 11 2315 12 11.8D on "A" S/G 3000 10 1 2305 11 2315 12	-	Nod 672 Ranger Mod											
3000	01								1.0	222.6	13	193	4
		TLBD on "A" 5/G	3000			10	-	7.303	177	7 7 7	T		-
											Ī		
											Ī		-
											I		
	1												

NECK NEW NEET NEE				-	T SCORE	Pr ANT	CONTRACT	170	TOTAL		AVERAGE	MAEZ	A NAMES
T. BRANCH STUDIEST 2000 170 5 90 6 85 4 295 13 20 12 1		PREDICTED	MARY		MREM	MEN	とは、		MRESI	MEN		CATECORY	CATEGORY
T. BORTEL ACTO EVANORATIONS 25000 172 5 900 6 815 6 2945 115 200												2885	0.35
1.		2000							300	1.5	20		
Separate of Caraginates Ca			120	S	06	9	85						
2. Recombant Fracting 100 1 45 2 145 6 45 36 3. Valved Hoat Fracting 100 1 100 1 495 11 1140 26 42 90 "Valved Hoat Reserved Spoaker 573 14 70 1 495 11 110 26 42 90 2 48 90 26 48 90 2 48 90 2 48 90 2 48 90 2 48 90 2 48 1623 48 1623 48 1623 48 1623 48 1623 48 1623 48 1623 48 1623 48 1623 48 1623 48 1623 48			2.5.00	33	02		1805	18	6305	23	121		
3. Chrosite Licenset 575 14 70 1 495 11 110 26 44 90 4. Ropalry Cushet 575 14 70 1 110 2 90 2 90 2 40 90 2 40 2 40 1 40 2 90 2 40 1 40 2 40 1 40 2 90 1 1605 4 1805 1 1805 4 1805 1 1805 4 1805 <td< td=""><td></td><td></td><td>100</td><td>-</td><td></td><td></td><td>59</td><td>77</td><td>145</td><td>-7</td><td>36</td><td></td><td></td></td<>			100	-			59	77	145	-7	36		
4. Repairs Repairs 90 2 90 2 45 90 10 10 90 2 45	1		7 V	14	70	24	569	11	1140	58	44.6		
1.			272									- 206	0.01
1. Wiring 1000 2 90 1 100 4 1	- 4						06	74	96	2	4.5		
Remove F'ange 6	1: Wiring											1675	27.75
1. Remove Funge 4 40 1 40 2 90 1 170 4 2. Repair Rings 2 555 6 10 4 325 5 755 16 3. O'TUNE Repairs Sign 2 50 2 100 4 3. Sample Sink Repairs 50 2 100 3 50 2 100 4 5. Sample Sink Repairs 50 1 100 3 50 2 100 4 7. Sample Discharge 6 40 1 100 3 40 1		1000											
2. Respire Rings 100 4 100 4 2. Respire Runture Disc. 100 4 315 3 380 10 3. Varvek Runits 390 7 50 4 325 5 765 16 4. Sample Lines 50 2 7 50 2 70 4 5. Sample Lines 50 2 7 50 2 100 4 6. Lowel Tr. Smitter 20 1 100 3 120 4 7. Gauge 40 1 40 1			707		07	2	80		170	4	17		
Pupplace Rapsure Disc. 1000 4 115 3 380 10 1 115 3 380 10 1 12 12 12 13 10 1 12 13 13 13 14 15 15 15 15 15 15 15									100		25		
Sample Kines			100	4									
Operate A Drain & Semple Lines 390 7 50 4 325 5 765 16 Sample Lines Sample Lines 50 2 20 2 100 4 Sample Lines Scendle Sink Repairs 20 1 100 3 20 2 120 4 Repair Discharge 40 1 40 1 40 1 Gauge Gauge 40 1 40 40 1			255	9	10	1	3115	3	780	107	000		
Sample Kines 50 2 100 4 Repair Active 3 50 2 100 4 Repair Discharge 40 3 40 1 Gauge 40 3 40 1	-		200		20	~3	325	2	765	16	80		
Scample Sink Repairs 50 2 30 4 Repair 20 1 100 3 120 4 Level Tr. Smitter Repair Discharge 40 1 40 1 Younge 40 1 40 1	1		230						1001				
Repair 20 1 100 3 120 4 Level Tr-Smitter 40 1 40 1 Gauge Gauge 40 1 40 1			50	2			30	,					
Repair Discharge Gauge	Б		90		100				120	7	90	-	
Carling 40 I									40	1	40		
			0.0	-	-								
										Ī			
										Ī			
	The second secon												

RADIATION EXPOSURE BREAKDOWN DURING

H. B. ROBINSON UNIT NO. 2 REFUELING - ISI OUTAGE - 1982

		PREDICTED	PLANT NREM	T HEN	- NON -	NON-PLANT	CONTRACT	MEN	MREM	REN	MREW PER JOB	PER PER CATEGORY	PER
												4595	0.32
3	Section 19	3000						1			4 100		
	Remove Notor and replace	3000	290	1	70	7	2990	16	3350	26			
1	H		270	Q	420	80	380	111	1070	25	43		
1			100	1 4			70	2	140	0	23		
1	3. Check Snubbers						35	2	35	60	18	-	
	4. General Inspection			-	-							10515	0.73
X.	RHE HEAT EXCHANGER	7650											
	E	coos	6585	-15	165	4	2075	34	6875	33	707		
	A. Mg. HX GASRets	0000	1	3.6	130	,	1050	11	2575	31	83		
	2. Valve Repairs		1193	7.0				1	980	ø	104		
		2650	110				830	0	200				
1	3. Is tail Caps on 'A'		20	2			125	64	175	3	254		
	4. HX Drain Valves		200									350	0.05
2	TIA THE BILL PIT									100	3.8		
	Remove, Cut and Load		130	00	20		30	1	180	10			
	1. irradiated Core Sample			1	900		30	, , ,	130	m	4.3		
	2. Pump		80	-	0.7				. 20	1	20		
1	A terral Thinkle Plug		20	1					1				
1	Change Underwater		000						20		20		
	4. Light Bulbs		07	-									
-													
1													
1													
										man.			
and description of						The state of the s	Contraction of the second	Andrews of the state of	Charle Bracketter, and say	middles a hearth.	On the contract of the contract of	-	-

RADIATION EXPOSURE BREAKDOWN DURING

H. B. ROBINSON UNIT NO. 2 REFUELING - ISI OUTAGE - 1982

320 9 35 2 155 11 32 315 32 320	1		PREDICTED	PLANT MREM	T MEN	MARH	M NEW	MEN	MEN	MREM	EM 123	MRCM PER JOB	PERCORY	CATEGOR
1. Replace Recent Temp 310 9 15 15 15 15 15 15 15					-									0.03
1. Replieder Relite 200		SPENT FUEL PIT RECIRC PURP											700	
1. Sepilace Ricity Simple 240 7 140 4 100 4 20 2 20 2 20 2 20 2 2	1	ROOM		2000	9			35	. 2	355	11	32		
2. Check gos b lines 330 7 140 4 100 a 570 15 38 370 1. Replace HX Figling 330 7 140 4 100 a 570 15 36 45 370 CV REPAIR HWANTOK COGLERS 840 20 315 12 460 18 1430 36 25 370 370 84 45 370 37		Replace		320	2			20	2	92	44	13		
1.		Check											570	0.0
1. Replace HM F1ping 330 7 140 4 140 5 376 85 376 376 37 140 4 140 36 376 37 370 370 37 370 37 370 37 370 37 370 37 370 37 37 370 37 37 37 37 37 37 37 37 37 37 37 37 <td>A.,</td> <td>SPENT FUEL FAF HX AREA</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>100</td> <td>4</td> <td>570</td> <td>15</td> <td>38</td> <td></td> <td></td>	A.,	SPENT FUEL FAF HX AREA						100	4	570	15	38		
CV REPAIR HAM MATCH COOLERS 840 1760 35 570 13 1430				330	7	140	3	100	17	3740	168	4.5	3740	0.26
Filter Chances Filters Sed 20 315 12 480 18 1655 50 33 28 21 480 44 45 45 45 45 45 45 4	69	CV REPAIR HVH NOTOR COOLERS	840	1740	35	570	13.3	1430					3590	0.78
1. Waste Holdup Tank Filters 860 20 315 12 400 8 650 23 28 78 28 28 27 28 21 28 28 21 28 21 28 28 21 28 21 28 28 21 28 21 28 28 21 28 21 28 28 21 28 21 28 28 21 28 28 21 28 21 28		FILTER CHANGES						100	8.0	1655	50	33		i
2. Charcoal Filters :60 12 30 3 160 9 21 6 3. Filters Scal Water Injection 70 4 80 2 40 3 196 9 21 4. RCS Filters 312 6 4 80 2 40 3 17 88 21 A. RCS Filters 325 2 6 7 1170 11 1495 17 88 2789 17 589 17 589 17 589 18 2780 18 2780 18 2780 18 2780 18 2780 18 2780 18 2780 18 2780 18 2780 18 18 2780 18 18 2780 18 2780 18 18 2780 18 18 2780 18 18 18 2780 18 18 2780 18 18 18 2780 18 18 18 <td></td> <td></td> <td></td> <td>860</td> <td>20</td> <td>315</td> <td>175</td> <td>505</td> <td></td> <td>650</td> <td>53</td> <td>28</td> <td></td> <td></td>				860	20	315	175	505		650	53	28		
2. Chatterin Later Injection 70 4 80 2 40 3 190 9 21 3. Filters 3. Filters 325 6 1170 11 1495 17 88 21 4. RCS Filters 3. Filters 55 2 2 4 369 17 45 3955 PAINTING 2. Scall Least 5 4 360 4 360 8 212 5 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 4 180 180 4 180 4 180 180 180 180 14 185 2 140 4 1075 180 110 110 <		k		095	12	30	3	100	5					
4. RCS Filters 325 6 1170 11 1495 17 88 4. RCS Filters 55 2 8 170 15 5995 17 5995 PAINTING 55 2 42 95 4 360 15 5995 17 57 5995 ILKT RADIOGRAFHING 8 2125 42 95 4 360 4 54 54 51 57 180 RNS - 19 - KEVAIR & CALIBRATE 315 5 145 2 140 4 1075 34 36 3155 NAMARA LEAK 3000 24 145 2 140 4 1075 34 36 1310 CV - PT 26 3000 14 85 3 425 5 1310 2 60 1310	1	Seal		7.0	7	80	2	40	m	190	ON.	17		
4. RCS Filters 325 6 95 4 5940 15 5995 17 539 5995 PAINTING 55 2 2 95 4 360 18 528 51 51 51 51 51 51 51 51 51 180 4 360 4 360 4 4 360 4 51 4 51 4 51 4 180 8 130 8 130 8 130 8 130 8 130 8 130 8 130	-	1						1170	111	1495	111	888		
TEKT 1875 42 95 4 1643 8 2785 54 5150 1875		4. RCS Filters		325	9				15	5995	17	457	3995	0.42
TEKT RADIOCIA/PHING	D.			55	2			2240					9250	0 40
RADIOGRAPHING RNS - 19 - REPAIR & CALIBRATE RNS - 19 - REPAIR & CALIBRATE REPAIR PRESCRIZER MANARY LEAK MANARY LEAK CV - PT 26 SADIO 800 14 85 3 425 5 1310 22 60 1310	14			2325	42	95	4	360	20	2780	2	31	200	
RHS - 19 - REPAIR & CALIBRATE 315 5 140 4 1075 34 36 3075 REPAIR PRESCRIZER MANARY LEAK CV - PT 26 CV - PT 26 ROO 14 85 3 425 5 1310 22 60 1310	ta ta					180	4				2	5.5	101	
RMS - 19 - REFAIR PARSSURIZER MANWAY LEAK MANWAY LEAK CV - PT 26 19		7 10 10 10 10 10 10 10 10 10 10 10 10 10		0						31.2		63	315	0.97
MANNAY LEAK 3000 800 14 85 3 425 5 1310 22 60 1310 CV - PT 26	6,	RMS - 19 - KEPAIR O KEPAIR PRESSURIZER		200	36	145	64	140	d	1075	25	36	1075	0.07
	i ·		3000	800	14	30.5	3	425	2	1310	22	99	1310	50.0
	1													

RADIATION ELPCSURF BREAKDOWN DURING

8. B. N. "SON UN'T NO. 2 REPUBLING - ISI CUTATE - 1982

MREN				of the second	HCX-	LANI	CONTRA	I MEN	T sand T	The		5 == 2	E1
1.5 3 260 9 25 3.5 5 15 3 260 9 25 4.6 7 59 5.6 1.5 1				MEN		MLd	MREH		1			1	
Auxiliar; Building - Lubs (cation 395 6 15 1 410 7 7		FILLE	110		135	3	15	3	260	9		416	1 0.03
Auxiliary Building - Lubr (cation 393 18 40 2 345 10 1560 5					15	1_1_		-	410	7	59	1560	0.11
I. Felding P.T. I.M Issue & Decon Tools 1. CV 1. CV 2. Hot Machine thep 1. Chirging Pump Roon Ressive & Replacy Valves 9 746 & 6 B 1. Repsive Steplacy Valves 1. Repsive Repairs 1. Repsive Repairs 1. Repsive Pump Repairs Steplacy Valves 1. Repsive Steplacy Va	wilding - Lubr cation					2 _	345	10	1560				B 78
1. CV 180 & Becon Tools 180 2 10 1 8505 16 8072 27 93 1. CV 100 7 10 1 2410 19 520 27 93 1. CV 100 7 10 1 2410 19 520 27 93 1. Charging Pump Room Remains & Remains & Remains & Replace & Replace & Valves 5 746 & 5 8 120 4 205 6 6 60 1 385 11 35 2. Repair Recirc. Line 40 1 40 1 40 1 40 1 40 1 40 1 40 1 40	illuli g			10								11215	
1. CV 2. Hot Machine thep 2. Hot Machine thep 3. Chirging Pump Room Remaye & Replace Valves 9.746 A & B 2. Repack Valves 120 4 205 6 60 1 385 11 35 2. Repack Valves 3. Cepair Recirc. Line 3. Cepair Recirc. Line 3. Sump Repairs 1. #1 Lunp Pump Repairs 6 Replacement 1. #2 Sump Pump Repairs 8 120 33 470 11 760 22 24 66 37 2. Replacement 3. Sump Pump Pepairs 8 2. Replacement 3. Sump Pump Repairs 8 3. Sump Pump Pump Pump Repairs 8 3. Sump Pump Pump Pump Repairs 8 3. Sump Pump Pump Pump Pump Pump Pump Pump P	on Tools			2	10	1	8505	16				1	
2. Hot Machine Thep I.N. Chirging Pump Room Remove & Replacy Valves 9.746 a & B 120 4 205 6 60 1 385 11 35 2. Repack Valves 1. Repair Recirc. Line 1. Fi tunp Pump Repairs & 815 21 90 5 620 16 1525 42 36 1. Replacement #2 5 mp Pump Pepairs & 1200 33 470 11 760 22 2 20 66 37 2. Replacement #2 5 mp Pump Pepairs & 1200 33 470 11 760 22 270 7 39					10	1	2410	19	520	27	93	750	0.55
No. Chirging Pump Room Remark September Sept	achine Thep		100								16		
2. Repack Valves 2. Repack Valves 3. Repair Recirc. Line 4. Repair Recirc.	e & Replaca Valves		50	2	275	5 5							
2. Repair Recirc. Line 3. Repairs 40 1 30 2 270 7 39 2. Replacement 30 2 270 7 39	A & B		7	4	205	6	60	1					
1. #1 funp Pump Repairs 6 815 21 90 5 620 16 1525 42 36 1. Replacement 1200 33 470 11 760 22 2 66 37 2. Replacement 30 2 270 7 39				1				-	40			4225	0.25
1. #1 Curp Pump Repairs 5 1. Replacement	r Recirc. Line			M. A.				-		42	56		
1. Replacement 1200 33 470 11 700 39 2 270 7 39 2 30 2 270 7 39 30 2 270 7 39 30 2 270 7 39 30 2 270 7 39 30 2 270 7 39 30 30 30 30 30 30	s Pump Repairs &		815	21	96	5	620	-	-				
2, Replacement 30 2 20	and importal		1200	33	473			-		-			
3. CV Sump Repairs	gement		240	5			30	1-2	270				
	ump Repairs		1-					-					
		-			1		-		1				
								+	-				
				Trans.			-		-				

RADIATION EXPOSURE BREAKDOWN DURING

H. B. ROBINSON UNIT NO. 2 REFUELING - ISI OUTAGE - 1932

	PREDICTED	MREM	MEN	MR.FM MEN	HEN	MEM	NEW	MREN	MEN	PER JOB	CATEGORY CATESORY
											CA10.
Miscellancous CV	5000										6093 CK09
M. Livatana		103	7			120	9	220	13	17	
				25	2			25	2	£.4	
Z. Step								1000		115	
First Level - Torque				230	2			7 30	7	+	
		50 1	2			30	1	80	9	27	
4. Point Venting Tipe Sup Clean "C" Accommistor								80	3	27	
5. Manway Study		89	-	-		The second secon					
		250	9	150	3	715	1.7	1115	56	6.5	
A. B. "C" Pump Bays &		200	OX	20		75	-7	485	13	37	
7. PER - Snubber Removal		330								0.0	
		525	00			305	0	830	17	**	-
Nove Equipment in &		376	9	07	2	295	1.2	680	50	175	1
9. out of CV		-				0.	-	195	(0)	27.07	
vg. Labrication		185									
F. st level	H	9.00	œ					215	9	23	
11. Penetration Work		(17)						120		120	
to think bay						170	4			Ī	
						10		10	-	1.9	
										- 100	
		28						89	2	7.5	-
		80	2	65	1	340	m	485	9	81	
15. TLD Wires		000						30	-	20	
if. Stud Power Tool		2.0	1								
1											
		The second secon	The second secon	-	- Commission of the last of th						

RADIATION EXPOSURE BREAKDOWN D'BING

H. B. ROBINSON UNIT NO. 2 REPUELING - ISI OUTAGE - 1982

	PREDICTED	PLANT HREM	YEN	HAREM HEN	HEN	HIEM	MEN	HREN	MEN	PER JOB	CATEG. BY CATEGURY
	Fig. Species					07	7	80	8	10	
Install Eq. paent Haten 17. Cover		0.5	-3			970	11	970	=	58	
								20	2	10	
		20	2					10%		54	
		465	90			20		Cor			11.0 0005
20. Fire Protection at								T			
Miscellaneous Auxiliary	2900		-					30	7	15	
Designation Drain Lank Room		30	2					180	15	1.2	
L		100	6	200	2	30	7		-	25	
2, tool alley Selsmic		0.7	,			35	1	0			
3. Measurements		0.00				35	6	65	7	16	
Part of the Mark of Co.		30	-		Ī			7.0	-50	14	
Cask Decod Area - Civad		10		30	3	30				0.6	
5. Cranc Book - Bove - Rove		XSO	13	55	,	535	27	1040	7		
6. Ersippent		000				10	1	09	3	20	
7 Flance		50	7					60	-3	20	
1		99				20				777	
8. Vane 118 Soom - Weld		1 735	10			20	2	305			
9. Acpair PVC 1049		0	16			140	5	355		37.5	
bly Mod.		1			,			20	23	10	
Traper		1		20		No.		75	Φ	13	
				55	4	0.7					
.2. Frame	-										

RA. IATION EXPOSURE SREAKDOWN DURING

H. B. ROBINSON UNIT NO. 2 REFUELING - ISI OUTAGE - 1982

			NAME AND ADDRESS OF THE OWNER, OF THE		
			TLD Exaceur		Total
Comr	a ny	lst Quarter	2nd Quarter	3rd Quarter	10181
CPAL	Plant				
Cras					
8.	Operations	19.708	48.366	10.808	78.882
b.	Merhanics	24.424	69.307	14.188	107.919
c.	16C	7,156	19.206	12.113	38.475
d.	E&RC .	10.382	31.487	4.711	46.580
е.	Engineers	5.728	18.766	2,925	27.419
f.	QA	2.040	8.109	1.350	11.499
8.	Others	0.560	5.681	0.421	6.662
ANT TO	TAL	69.998	200.922	46.516	317.436
CP 67	L Corporate				
	Engineers	2,130	8,576	4.085	14.791
b.	Mechanics	1.090	19,859	12.631	33.580
C.	16C	1.768	2.955	0.014	4.737
64	100	and the second section is	Access to the same of	-	
RPORAT	E TOTAL	4.988	, 31.390	16,730	53.108
IRM					
	H.P. 's	23,147	58.188	8.829	90,164
ь.	Decon	17.248	56,621	24.365	98.234
M TOTA		40.395	114,809	33,194	188.398
Dan	iels	36.823	199,400	32.079	268.302
	tinghouse	33,389	145 170	9,414	187.973
	er Plant Maintenance	21,796	37.583	6.979	56.358
	rgin	15,766	62,009	5.910	83.685
	lev	14.546	13,901	2.059	30.506
Bur		2,261	4,990	0.726	7.977
	bert	1,545	1,542	0.881	3.968
	thern Space	0.408	1.747	0.470	2.625
	eral Electric	0.476	2,307		2.783
Exx			1.060	* * *	1.060
	an Co.		7,915		7,915
. NRC		0.183	0.464	0.053	0.700
. SWE		0,027	8.067		8.094
12	A. Jones	0.012	1.073	W W	1.085
. NNI		0.297	0.023	4.4	0.320
. NUS		0.101	0.111	0.020	0.132
). Mis		1.223	7.493	1.715	10.431
	TAL	244.234	841.976	156,746	1,242,956

$$\frac{166 - 95}{95}$$
 x 100 * +352

ATTACHMENT 5

RESPONSES TO NUMARC QUE TIONNAIRE TO SUPPORT PART 51 RULE CHANGE SUCIOECONOMIC QUESTION # 4

Carolina Power & Light Company

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

BRUSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 & 2

SHEARON HARRIS NUCLEAP POWER PLANT

Response Applies to Entire Site at All Three Plants

QUESTION: To understand the plants fiscal importance to specific jurisdictions, for 1980, 1985, and the latest year for which data are available, estimate the entire plant's taxable assessed value and the amount of taxes paid to the state and to each local taxing jurisdiction.

RESPUNSE		BRUNSWICK			HARRIS			#001NSON	
TAXABLE ASSESSED VALUE	1980	1985	1989	1980	1985 1,353,582,343	1989 1,385,433,199	1980 10,237,259	.1985 18,210,417	1989 27,767,309
TAXES PAID	2,839,511	4,187,643	4,124,561	3,821,180	7,986,136	10,944,927	1,392,267	2,194,422	4 62,575

ATTACHMENT 4

RESPONSES TO NUMARC QUESTIONNAIRE TO SUPPORT PART 51 RULE CHANGE
WASTE MANAGEMENT QUESTIONS

Carolina Power & Light Company

H B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2

BRUNSWICK STEAM ELECTRIC PLANT, UNIT NOS. 1 & 2

SHEARON HARRIS NUCLEAR POWER PLANT

Responses Apply to Entire Site at All Three Plants

RESPONSE TO NUMARC SURVEY IN SUPPORT OF 10CFR51 ANPR

A. SPENT FUEL QUESTIONS

			RNP	BNP	HNP
1.	Α.	Reracking of spent fuel	Completed	Completed	N/A
	В.	Control rod repositioning	No	No	No
	C.	Above ground dry storage	Yes	No	No
	D.	onger fuel burnup	≤60,000 MWD/MTU	≤60,000 MWD/MTU	≤60,000 MWD/MIU
	Ε.	Transshipment	Late 1990	Yes	Receipt Plant
2.	Α.	Continue technique	No	Yes	Yes
	В.	Change or modify	Yes	No	No
3.	Α.	Reracking of spent fuel			
	В.	Control rod repositioning	No	No	No
	C.	Above ground dry storage	Maybe	Maybe	No
	D.	Longer fuel burnup	MMD/WZD ≥80,000	<60,000 MWD/MTU	≤6U,000 MWD/MIU
	Ε.	Transshipment	Yes	Yes	Yes
4.	Techi	niques Adequate			
	1.	Operating license	Yes	Yes	Yes
	2.	20-year extension	No	No	No
	3.	Other plans	No	No	No
5.	Acqui	ire additional land			
	1.	Operating license	No	No	No
	2.	20-year extension	No	No	No

6. Additional construct activity

1.	Operating license	No	No	No
2	20-year extension	Yes	Yes	Yes

7. Amplification on Question 6

Should additional at-reactor spent fuel storage be required beyond the operating license, it will most likely be provided through above ground dry storage facilities or such other means as may be technologically and economically acceptable.

- B. LOW-LEVEL RADIOACTIVE WASTE MANAGEMENT QUESTIONS
- 1. YES ASSUMING THE COMPLETION OF A SOUTHEAST COMPACT SITE FOR LOW LEVEL WASTE BURIAL. (THIS APPLIES TO ALL THREE PLANTS)
- 2. COMPACTION, THEN STORAGE IN AIR ABOVE GROUND STORAGE BUILDING/FACILITY. POSSIBLE INCINERATION, THEN STORAGE IN BUILDING. (THIS APPLIES TO ALL THREE PLANTS)
- 3. SEE ATTACHMENT
- 4. SEE ATTACHMENT
- 5. NO
- 6. NA
- 7. YES
- 8. NO CONSTRUCTION ACTIVITY TO DATE. IN PRE-PLANNING STAGE.
- 9 NO MAJOR PLANT MODIFICATIONS OR REFURBISHMENTS THAT ARE LIKELY TO GENERATE UNUSUSAL VOLUMES OF LOW-LEVEL RADIOACTIVE WASTE PRIOR TO, OR DUKING, THE RELICENSING PERIOD FOR ALL THREE PLANTS.

PROBABLY JUST RECIRCULATION SYSTEM MODIFICATIONS, BUT NONE YET ANTICIPATED.

NUMARC QUESTIONNAIRE

SPECIFIC METHODS OF RW MANAGEMENT & CURRENT LIRW BY VOLUME IS MANAGED BY:

	[Brunswick Nuclear Project]	D.N.P.
		< 10%
A.	COMPACTION:	
		50-60%
В.	WASTE SEGREGATION:	
~	DEADLES ATTOMATON OF THOMPS	0
C	DECONTAMINATION OF WASTES:	
		3-4% current 25-30% prior
D.	WASTE SORTING: (CLEAN VS. CONTAMINATED.)	25-506 prior
	mate bone man (chem von contractante)	61%
E.	OTHER MANAGEMENT PRACTICES:	

SPECIFIC METHODS

A. Compacts higher activity D.A.W / filters and non incinerable low activity radwaste to conserve space & reduce number of packages stored onsite.

B. Radwaste is segregated at the point of generation where practical. Clean or unnecessary packaging, bracing or containers are removed prior to entry into the power block area. Radwaste is also further segregated at the point of packaging for shipment.

C. have onsite decon capability. Do not usually decontaminate waste products. unless it is cost justifiable. Decon priorities are on job/mod related components and tools/equipment.

D. Radwaste is sorted based on dose rates of the waste. If a waste is <= 5 Mr/hr it is sorted to remove the items that cause the waste to be > lmR/hr. Waste that is <= 1 Mr/hr is frisked to remove any clean waste from the contaminated wastes. Radwaste from known high contamination areas are not usually frisked.

E. Strive to keep the contaminated square feet of plant space to a minimum to prevent the generation of radioactive waste/material. Have aggressive radwaste volume reduction program that attempts to eliminate generation of unnecessary radwaste and reduce the amount of radioactive material (tools & equipment) that become contaminated. All low activity dry active waste is sorted/segregated and shipped to S.E.G., Inc. for further volume reduction prior to burial.

ANTICIPATED PLANS FOR LLRW MANAGEMENT & FOR ANTICIPATED LLRW VOLUME MANAGED BY:

		B.N.P.
Α.	COMPACTION:	
В.	WASTE SEGREGATION:	> 70%
		0
C.	DECONTAMINATION OF WASTES:	< 10%
D.	WASTE SORTING: (CLEAN VS. CONTAMINATED.)	
TO	OMUED MANACEMENT DESCRIPTIONS	>61%
Acr n	OTHER MANAGEMENT PRACTICES:	

SPECIFIC PLANS

- A. Do not foresee any change in current methods.
- B. Do not foresee any change to current methods.
- C. Do not foresee any change to current methods. Will keep up with changes in technology and change practices as necessary.
- D. Do not foresee any change to current methods. Will keep up with changes in technology and change practices as necessary. Also have to factor in the cost benefit of waste sorting/frisking. If technology changes so it is cost prohibitive to sort and frisk you may see a reduction in this area. Also, as control methods get better we should see less clean waste in the contaminated waste stream therefore eliminating the need to remove clean material.
- E. Do not foresee any change to current methods. Will strive to keep plant contaminated square footage to a minimum. Also plan to keep an aggressive volume reduction program for further up front elimination of radioactive waste. Plans are to keep sending low activity radwaste to S.E.G. for reprocessing & volume reduction until current technology offers improved processing.

NUMARC QUESTIONNAIRE

SPECIFIC METHODS OF RW MANAGEMENT & CURRENT LLRW BY VOLUME IS MANAGED BY:

	[H.B. Robinson Nuclear Project]	20.40.2.
		0
Α.	COMPACTION:	
-		60-75%
22 .	WASTE SEGREGATION:	M 40 M 40 M
219	DESCRIPTION OF WASHING	1-5%
C. s.	DECONTAMINATION OF WASTES:	
-	TIARRE & BETHE CONTRACTOR OF THE COLUMN AND A	70%
D.	WASTE SURTING: (CLEAN VS. CONTAMINATED.)	
-	OMITTO WALL OF STREET, NO. AND ADDITIONAL	75%
Acc a	OTHER MANAGEMENT PRACTICES:	

SPECIFIC METHODS

- A. No onsite compaction is done to reduce radwaste volume.
- B. Radwaste is segregated at the point of generation where practical. Clean or unnecessary packaging, bracing or containers are removed prior to entry into the power block area. Radwaste is also further segregated at the point of packaging for shipment.
- C. Onsite decon is job specific. Do not usually decontaminate waste products, unless it is cost justifiable. Decon priorities are on job/mod related components and tools/equipment.
- D. Radwaste is sorted based on dose rates of the waste. If a waste is <= 5 Mr/hr it is sorted to remove the items that cause the waste to be > 1mR/hr. Waste that is <= 1 Mr/hr is frisked to remove any clean waste from the contaminated wastes. Radwaste from known high contamination areas are not usually frisked.
- E. Strive to keep the contaminated square feet of plant space to a minimum to prevent the generation of radioactive waste/material. All low activity Dry active waste is sorted/segregated and shipped to S.E.G., Inc. for further volume reduction prior to burial.

ANTICIPATED PLANS FOR LLRW MANAGEMENT & % OF ANTICIPATED LLRW VOLUME MANAGED BY:

		R.N.P. 0
A.	COMPACTION:	
		> 75%
В.	WASTE SEGREGATION:	~~~~
		1-5%
C.	DECONTAMINATION OF WASTES:	
		< 70%
D.	WASTE SORTING: (CLEAN VS. CONTAMINATED.)	
		75%
E.	OTHER MANAGEMENT PRACTICES:	

SPECIFIC PLANS

A. Do not foresee any onsite radwaste compaction for volume reduction.

B. Do not foresee any change to current methods.

C. Do not foresee any change to current methods. Will keep up with changes in technology and change practices as necessary.

D. Do not foresee any change to current methods. Will keep up with changes in technology and change practices as necessary. Also have to factor in the cost benefit of waste sorting/frisking. If technology changes so it is cost prohibitive to sort and frisk you may see a reduction in this area. Also, as control methods get better we should see less clean waste in the contaminated waste stream therefore eliminating the need to remove clean material.

E. Do not foresee any change to current methods. Will strive to keep plant contaminated square footage to a minimum. Plans are to keep sending low activity radwaste to S.E.G. for reprocessing & volume reduction until current technology offers improved processing.

NUMARC QUESTIONNAIRE

SPECIFIC METHODS OF RW MANAGEMENT & CURRENT LLRW BY VOLUME IS MANAGED BY:

	(Harris Nuclear Project)	H.N.P.
Α.	COMPACTION:	
D	WASTE SEGREGATION:	60-70%
D	WASIE SEGREGATION:	1-5%
C.	DECONTAMINATION OF WASTES:	
D.	WASTE SORTING: (CLEAN VS. CONTAMINATED.)	50-75%
	THE STATE (CAMPAN TO CONTINUE IN LINE)	80-85%
E.	OTHER MANAGEMENT PRACTICES:	SAN AND USE NAV AND THE

SPECIFIC METHOUS

- A. No ensite compaction done currently done to reduce radwaste volumes.
- B. Radwaste is segregated at the point of generation as practical. Clean or unnecessary packaging, bracing or other material removed prior to entering the power block area. Radwaste is further segregated at the packaging station prior to shipment.
- C. Onsite decon is job specific. Waste products are not routinely decontaminated. Decon priorities are on job/mod related equipment and tools/equipment.
- D. Radwaste is sorted based on dose rates of the waste. All waste that is < .5 Mr/hr is sorted and frisked to remove clean items. Approximately 50 % or better of this level waste is finally removed as clean material. Wastes up to 2 mR/hr are sorted to remove all items > .5 mR/hr. Then the waste is frisked to recover clean material.
- E. Keep contaminated square feet of plant space to a minimum to prevent generation of radioactive waste/material. All ow activity dry active waste is sorted/segregated and shipped to S.E.G., Inc. for further volume reduction prior to burial.

ANTICIPATED PLANS FOR LLRW MANAGEMENT & FOR ANTICIPATED LLRW VOLUME MANAGED BY:

		H.N.P.
A.	COMPACTION:	
		>70%
В.	WASTE SEGREGATION:	
		1-5%
C.	DECONTAMINATION OF WASTES:	
		<75%
D.	WASTE SORTING: (CLEAN VS. CONTAMINATED.)	
		75%
E.	OTHER MANAGEMENT PRACTICES:	

SPECIFIC PLANS

- A. Do not foresee any onsite radwaste compaction for volume reduction.
- B. Do not foresee any change to current methods.
- C. Do not foresee any change to current methods. Will keep up with changes in technology and change practices as necessary.
- D. Do not foresee any change to current methods. Will keep up with changes in technology and change practices as necessary. Also have to factor in the cost benefit of waste sorting/frisking. If technology changes so it is cost prohibitive to sort and frisk, you may see a reduction in this area. also, as control methods get better we should see less clean waste in the contaminated waste stream, therefore eliminating the need to remove the clean material.
- E Do not foresee any change to current methods. Will strive to keep plant contaminated square footage to a minimum. Plant are to keep sending low activity radwaste to S.E.G. for reprocessing & volume reduction until current technology offers improved processing.