

GPU Nuclear Corporation

Post Office Box 388
Route 9 South
Forked River, New Jersey 08731-0388
609 971-4000
Writer's Direct Dial Number:

June 6, 1984

Mr. Richard W. Starostecki, Director
Division of Project and Resident
Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Starostecki:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Radwaste Overboard Discharge Piping Maintenance

The attachments to this letter provide our evaluation with supporting documentation of the incident referred to in your letter dated May 10, 1984. As discussed therein, we conclude that there are no programmatic deficiencies existent amongst the departments involved and that appropriate corrective actions were taken expeditiously.

If you should have any questions, please contact me or Mr. Drew Holland at (609)971-4643.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:PFC:dam
Attachments

cc: Dr. Thomas E. Murley, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

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BACKGROUND

The possibility of a leak in the overboard discharge piping was first noted by radwaste operations personnel on Wednesday, March 14, 1984. A cave-in had been found under the sidewalk near the southwest corner of the Old Radwaste Building. At first, it was thought that the cave-in was due to the extremely heavy rains which had occurred on Tuesday, March 13, and the early morning hours of Wednesday, March 14. Further observations confirmed that water was in fact bubbling up from underground. Since the 30 inch diameter service water discharge header and radwaste overboard discharge line to the service water header run underground in the area of the cave-in, it was thought that this piping or connection could be the source of the leakage. As an overboard discharge was then in progress the discharge was promptly stopped. A water sample was then obtained by Chemistry personnel. The analysis of the water sample indicated activity levels less than minimum detectable activity (MDA) of 1×10^{-7} uCi/cc. Excavation in this area revealed no leakage.

On Thursday, March 15, further excavation was performed to uncover more of the radwaste overboard discharge line outside the Old Radwaste Building. No leaks were found in the portion of pipe which was exposed. A sample of the water in the excavation was obtained. Analysis disclosed a small amount of Cesium 137 activity, below the administrative limit of 20 percent of 10 CFR 20. In an attempt to verify the source of the leakage, demineralized water was flushed through the overboard discharge line. As soon as the flush started, water was observed leaking into the excavation. The source of the leakage was determined to be beneath the Old Radwaste Building, in the vicinity of the point where the pipe penetrates the floor of the building. The overboard discharge isolation valves were tagged out to prevent any further discharges until repairs were completed.

Excavation resumed on Friday, March 16. The intent was to expose the pipe all the way back to the pipe penetration in the floor of the building. In order to do this, it was necessary to excavate beneath the foundation of the building. During the course of the digging, seven (7) soil samples were obtained at various locations. The sample analysis showed some activity, but all were below applicable station limits. Also, dirt was directly surveyed during excavation with a HP210 probe and no contamination was detected. By the evening of Friday, March 16, excavation was complete and the pipe uncovered to the leakage source. A hole was found adjacent to a 90 degree elbow. The hole was large enough that a person could reach inside. In an effort to characterize the radiological status of the pipe internals, a Radiological Controls technician wearing gloves took several smearable contamination wipes on the internal surfaces of the pipe. The results indicated smearable contamination to be less than 1000 dpm/100 cm². In addition, a large area gross wipe was taken inside the pipe. The gross wipe indicated 800 cpm above background.

Dose rates taken on the external surface of the pipe were less than 2 mR/hr., with no detectable Beta present. However, the hole in the pipe was not large enough to place a dose rate meter inside the pipe. Up to this point in time, all work had been performed without a Radiation Work Permit (RWP), with the full knowledge of the Radiological Controls Department (Rad Con). None of the criteria which require the use of an approved RWP had yet been met. The work was within the Radiologically Controlled Area of the plant, and all workers were wearing proper dosimetry.

At this point late Friday afternoon, March 16, discussions began concerning the methods to be used to repair the damaged pipe. The damaged section would obviously have to be replaced, but the details of how this was to be accomplished (i.e., location of cuts, method of cutting, type of replacement material, etc.) was turned over to the Plant Engineering Department for resolution. In anticipation of making the cuts upon receiving Engineering direction, the Maintenance and Construction Department (M&C) Area Supervisor submitted a Radiological Engineering Review Request to the Radiological Engineering group, for the purpose of receiving detailed radiological requirements which would be imposed for the work. No RWP was submitted at that time. Rad Con personnel (both Field Operations and Rad Engineering) assumed that an RWP would be submitted before repair work commenced. It was obvious to them that an RWP was required because of the likelihood of fixed contamination inside the pipe. It was further assumed that, since no RWP was submitted Friday night, there were no plans to work the job on the weekend.

During the day on Saturday, March 17, Maintenance and Construction workers erected a temporary structure over the excavation to shelter the work area from rain. Also on Saturday, the M&C Area Supervisor said that he believed that the pipe was clean. This led him to believe that an RWP would not be required. He overlooked the possibility of fixed contamination on the pipe internals.

On Sunday, March 18, the M&C Area Supervisor, having received direction from Plant Engineering, turned the job of cutting the pipe over to a Job Supervisor and work crew telling them that an RWP was not necessary. The work crew spent most of the day gathering equipment for the job and did not notify Rad Con personnel of their intent to begin work because they believed this to be a non-RWP job. Upon arriving at the job site, the work crew did not encounter any special radiological postings around the excavated area, further reinforcing their belief that an RWP was not required. In order to facilitate any further preparatory work needed prior to making the cut, the Rad Con Department had withheld erection of any special postings. Conditions did not yet exist requiring such postings because the job site was already within a posted Radiation Area and Radiologically Controlled Area (RCA). No smearable contamination above limits had been detected, and the pipe itself, being a permanently installed process system, was not labelled.

Late Sunday afternoon, the work crew cut out the damaged section of pipe using a torch and grinding wheels. Since an RWP/RER had not been obtained, no radiological precautions were taken. However, standard hot work and burning precautions were used (i.e., welder's masks and gloves, coveralls) by the

personnel actually performing the work. After cutting out the damaged section of pipe, the work crew removed it from the excavation and carried it to the RCA exit, intending to take it to the machine shop for measurements. Upon frisking themselves and the piece of pipe, it was discovered that the pipe was contaminated. Also, one worker's gloves and one shoe were contaminated, and another worker's gloves were contaminated. The workers immediately notified the on-duty Group Radiological Controls Supervisor (GRCS) of the situation. The GRCS had been unaware that this work had been taking place. Surveys were started on the path of travel from the job site to the frisking area, and of the job site itself. The pipe section was surveyed and bagged. The GRCS notified the Rad Con Field Operations Manager, who directed that a hold be placed on any further work, and that Whole Body Counts (WBC) be arranged for all workers who were involved in the incident. The WBCs were performed Sunday night, March 18. Surveys of the removed pipe section and the exposed pipe ends at the job site showed no smearable contamination on the externals, some low level smearable contamination and higher levels of fixed contamination on the pipe internals. Since an earlier (prior to cutting) survey of the pipe internals had not shown any smearable contamination, it was thought that the flame cutting and grinding operations had loosened some of the fixed contamination. The exposed pipe ends at the job site were bagged and labelled.

On Monday morning, March 19, the M&C Area Supervisor was made aware of what had happened, and he submitted an RWP in order to continue with the repair work. The Rad Engineering Review which he had requested earlier was completed on Monday. On Tuesday, March 20, the RWP/RER for the work was issued, the normal radiological controls for this type of work were established, and work proceeded from that point on without further incident.

On Tuesday, March 27, a formal critique was held with the entire work crew, the M&C Job Supervisor and Area Supervisor, and M&C and Rad Con Management. This critique completed the Company's investigation of the incident, and was performed within the required time limits.

SPECIFICS

1. How, when and by whom this event was identified and to whom it was reported.

This event (cutting pipe without an approved Radiation Work Permit) was first identified by the Maintenance and Construction work crew when they attempted to remove the severed section of pipe from the Radiologically Controlled area of the plant at about 1745 hrs on Sunday, March 18. When they checked the section of pipe with a frisker, the frisker alarmed. Realizing the significance of this, they immediately notified the on-duty Group Radiological Controls Supervisor by telephone. After determining what had occurred, the GRCS in turn notified the Rad Con Field Operations Manager at home by telephone.

2. The date(s) on which the event occurred.

The actual cutting of the pipe occurred late in the afternoon on Sunday, March 18. Upon discovery of what had occurred, a hold was placed on any further work. On March 20, an approved RWP/RER was issued for the repair work. No work was performed between Sunday evening and the issuance of the RWP on Tuesday. After the RWP/RER was issued on Tuesday, March 20, work proceeded without further incident.

3. The potential for worker exposure to, contamination from and/or internal deposition of radioactive material.

The initial smear survey (#3873-84) taken inside the pipe on Friday, March 16, indicated that there was no smearable contamination present above limits, although a gross wipe taken over a large area did indicate a small amount of smearable activity. There was a high probability of fixed contamination on the internals of the pipe. The hole in the pipe was not large enough to allow direct measurements to be taken on the pipe internals. The outside of the pipe was clean, soil and water samples taken in the excavation were all below applicable limits, and dose rates in the work area and on contact with the pipe were less than 2 mRem/hr. Also, it was noted by several individuals who inspected the damaged section of pipe that there was an inward flow of air through the hole in the pipe. This was thought to be due to a vortex aspiration effect from the large volume of gravity flow through the Service Water Discharge Header. The Radwaste Overboard Discharge Line ties into the top of the Service Water Discharge Header. The flow through the Service Water line was creating a vacuum in the Overboard Discharge Line. This theory was borne out by the fact that even after the torch cutting and grinding operations, no smearable contamination was detected on the externals of the pipe, only on the internals. The highest levels of smearable contamination found after cutting on the internals of either the removed section of pipe or the piping which remained in place were 12,000 dpm/100 cm² (Survey Nos. 3955-84 and 3959-84). The results of an air sample taken in the work area containment immediately after the incident was discovered were 8.0 E-11 uCi/cc gross beta-gamma. The workers who actually performed the cutting, while not wearing Anti-Contamination clothing or respiratory protection, were wearing welding masks, gloves and work coveralls. This gear was all frisked and found to be free of contamination. The two workers who received clothing contamination (work gloves) were thought to have done so during the transfer of the pipe section from the job site to the frisking station at the RCA exit point. Whole body counts performed on all of the workers involved showed no activity above MDA.

In retrospect, although no conscious decision was made beforehand to allow the job to begin without engineering controls and protective clothing, it is felt that, because of conditions which existed at the time of the cutting and results of surveys and Whole Body Counts performed after the fact, the potential for worker exposure to contamination and/or internal deposition was minimal.

4. The results of any surveys performed before, during or after the work was performed.

During preliminary excavation work to find the source of leakage and after the hole in the pipe had been uncovered, several water and soil samples were obtained and analyzed by the Chemistry Department. The results of these samples are summarized in the attached memorandum to C. J. Halbfoster, Manager - Plant Chemistry, dated April 12, 1984. The activity in all samples was below applicable station limits. Dirt being removed from the excavation was randomly surveyed by direct frisk with an HP210 probe. No activity greater than 100 cpm above background was detected. After the hole in the pipe was made accessible, several smears were taken on the pipe internals. All these smears showed loose contamination to be less than 1000 dpm/100 cm².

Since the Rad Con Department was not aware that the pipe was being cut on the afternoon of March 18, there was no Rad Con technician in attendance, and, therefore, no surveys were taken during the actual cutting evolution. Follow-up surveys that were taken on the evening of March 18, after cutting, indicated that some relatively low-level smearable contamination (12,000 dpm/100 cm² highest) was generated during the cutting process; however, the smearable contamination was confined to the internals of the pipe, probably by the inward flow of air into the pipe. These same surveys showed that there was no spread of contamination either at the job site or along the path of travel from the job site to the friskers at the RCA exit. The removed pipe section and the two exposed pipe ends were immediately bagged and appropriately labelled to further prevent any spread of contamination.

No work took place between the evening of March 18 and the issuance of the approved RWP/RER on March 20. Once work resumed following the issuance of the RWP/RER, numerous surveys were performed during the course of work. These surveys showed that there was never any spread of contamination, nor was any airborne radioactivity above applicable limits generated, even during hot work and grinding. Copies of the surveys are attached for reference.

5. The radiological safety precautions taken prior to and during the time the work was being performed.

During preliminary excavation work to uncover the source of leakage, water and soil samples were taken and analyzed, and found to be below applicable limits. Random samples of dirt being removed from the excavation were frisked, and no contamination was detected. Since none of the requirements for an RWP had yet been met, no RWP was required. However, a Rad Con technician was in almost constant attendance to monitor for changing conditions which might dictate the use of an RWP. None were encountered. All the work being performed was already within a posted Radiation Area and RCA. It was the intent of the Rad Con Department, in order to facilitate preparatory work to hold off on establishing special posting and RWP requirements until such time as either contamination was encountered or the pipe was ready to be cut, whichever came first. As soon as the hole in the pipe became accessible, smears were taken inside the pipe and no contamination above applicable limits was found. As of the close of the workday on Friday, March 16, an RWP had not been required.

Since the actual event in question (initial cutting of the pipe on the evening of March 18) occurred without an RWP and was not monitored by Rad Con, no special radiological precautions were taken during the cutting. However, it is felt that the conditions which existed at the time (i.e., inward flow of air and welder's gear) did provide some measure of protection.

Prior to the resumption of work, RWP #751-84 and RER #155-84 were issued for use on March 20. RER #163-84 was added onto the RWP on March 22, to address added scope of work. Basically, the RWP and RERs required the use of full protective clothing and respiratory protection (PAPRs), augmented by a portable HEPA-filtered exhaust ventilation system. The temporary enclosure which had been erected over the excavation was utilized as a contamination control barrier. Copies of RWP #751-84 and the two RERs are attached for reference as to specific requirements. All work performed after March 18 was controlled by these documents.

6. The controlling radiological and maintenance work procedures involved with the job.

The two primary procedures which should have been controlling in this situation are Station Procedure 105 titled "Conduct of Maintenance," and Station Procedure 915.12, titled "Radiation Work Permit". The stated purpose of Procedure 105 is "to provide standard administrative, management and radiological control practices for the planning and conduct of maintenance at Oyster Creek." The stated purpose of Procedure 915.12 is to provide an administrative method of controlling personnel access to RWP areas for the purpose of minimizing the total dose equivalent as low as reasonably achievable (ALARA) and working with maximum radiological safety."

7. The adequacy of the controlling procedures.

Station Procedure 105, "Conduct of Maintenance," contains clearly defined responsibilities for all personnel involved in the planning and execution of maintenance work, radiological and otherwise. There are detailed instructions for requesting, obtaining and using a Radiation Work Permit, when required. Station Procedure 915.12, "Radiation Work Permit", clearly defines the conditions which require the use of an RWP and contains detailed instructions for obtaining and using an RWP. It is felt that these procedures, as currently written, are more than adequate. For the period January 1, 1984 through May 20, 1984, the Maintenance and Construction Department completed over 2100 maintenance job orders, some involving radiological work and some not. In support of the effort, the Radiological Controls Department has written and issued 1150 RWPs during the same time period. With the single exception of the incident in question, the proper determination was made in all cases concerning the necessity for RWPs. The incident in question was an isolated occurrence that is not indicative of a programmatic problem caused by inadequate procedures.

8. The corrective actions taken or planned to prevent recurrence including the dates of these actions.

Immediate corrective actions taken at the time the incident was discovered were as follows:

- A. The job was stopped and Radiological Controls management notified. An immediate hold was placed on any further work pending the issuance of a valid RWP/RER;
- B. Surveys were taken to determine whether or not any spread of contamination had occurred. Contaminated items were properly identified and controlled.
- C. Whole Body Counts were arranged for all workers involved.

These immediate actions were performed on the evening of March 18.

On March 20, an approved RWP/RER was issued to allow work to continue with the proper radiological precautions. On March 27, a formal critique of the incident was held by management with all involved personnel, including the individual making the allegation. At the critique, procedural requirements were reviewed and determined to be adequate as written. All attendees were asked if there were any remaining open items, questions or comments and there was no response. The critique would have been held earlier had it not been for the unavailability of key personnel. On March 28, the M&C Area Supervisor was counseled by his management for failure to submit an RWP for the job, and not following up on his initial request for an RER. These actions concluded the Company's investigation into the incident.

9. The radiological health effects on the workers involved in the job.

External whole body and extremity exposure received by the workers as a result of this incident were minimal. Dose rates on contact with the pipe were less than 2 mRem/hr. General area dose rates in the work area were less than 2 mRem/hr. None of the workers involved received any skin contamination as a result of the incident. Results of the Whole Body Counts performed on all five workers indicated that there was no detectable activity above MDA present, and, therefore, no significant ingestion of radioactive material by any of them. Based on the above facts, it can be stated that there were no adverse radiological health effects on any of the workers.

10. Perspective as to the need for an RWP, and the reasons why or why not, including potential interface difficulties between various GPUN Divisions.

It is felt that all the preparatory work which led up to the actual cutting of the pipe was properly performed without an RWP being required. As previously stated, none of the conditions which would have dictated the use of an RWP had yet been met, and the preparatory work was being closely monitored by Rad Con personnel.

There was information available which could mislead a maintenance supervisor to believe an RWP was not required for removing the pipe. Survey results did not indicate contamination above limits, either on the soil, in the water coming out of the pipe, or on the externals and internals of the pipe. Although the Rad Con Department believed unknown radiological conditions existed inside the pipe which required an RWP, this was not clearly communicated to the maintenance supervisor. The maintenance supervisor did not specifically ask the Rad Con Department if an RWP was required and did not clearly communicate when the work was to be performed. The submittal of a Radiological Engineering Request (RER) misled the Radiological Controls Department to the conclusion that the maintenance supervisor realized unknown radiological conditions existed on the pipe internals. No intent by the maintenance supervisor, the workers or Radiological Controls to bypass procedural requirements or Radiological Controls rules was demonstrated. In fact, upon discovery of contamination, the workers reported promptly to Radiological Controls.

Concerning interface difficulties between GPUN divisions, it has already been pointed out that M&C routinely performs a very large volume of work and that Rad Con routinely issues and enforces a large number of RWPs in support of that work. This is done in an orderly fashion, in accordance with prescribed procedures and with the proper determinations made as to whether or not RWPs are required. The incident in question is considered to be an isolated instance of human error, and is not indicative of a programmatic interface problem between the two divisions nor of control of radiological work.

SUMMARY

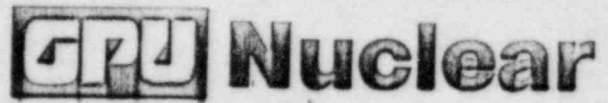
The incident in question (cutting the pipe without an RWP) occurred on March 18, 1984. As soon as the error was discovered, timely and appropriate corrective actions were taken. No further work was allowed until an approved RWP/RER was issued. A formal critique of the incident was convened on March 27, 1984, well within the time period specified in Station Procedure 915.10. The critique concluded the Company's investigation into the incident.

Mr. Rayment stated in his letter that he unsuccessfully sought resolution to his concerns before writing the letter. The fact of the matter is that Mr. Rayment personally attended the critique meeting, and when asked if he had any unanswered concerns or open issues, he responded that he did not. Further, between the critique on March 27, 1984 and the date of his letter, May 1, 1984, he did not express any concerns to Supervision or Management in his own Department, nor did he approach anyone in Supervision or Management in the Radiological Controls Department. Mr. Rayment has an open invitation from the Vice President/Director of Oyster Creek to discuss any concerns that he may have at any time. He did not do this. He did not express his concerns to anyone in Corporate Management, including the GPUN Ombudsman.

Contrary to Mr. Rayment's statement, he did not utilize any of these avenues to express his concern for any issues he believed were not addressed.

Inter-Office Memorandum

Date April 12, 1984



Subject Chemistry Sampling: Overboard
Discharge Pipe Break

To C. J. Halbfoster

Location Oyster Creek

On March 14th, water was discovered coming up from the southwest corner of the ORW Building. The overboard discharge line is in this region and, since an overboard release was in progress, the overboard discharge was promptly stopped.

The first chemistry sample obtained was a water sample from the general area. Chemistry technicians were unable to collect a sample from the immediate vicinity of the water source. This liquid sample was within all requirements for a non-processed water release.

A liquid sample was obtained late March 15th during excavation. Maintenance was digging under the southwest corner of ORW to effect repairs. This sample showed Cesium-137 (Cs^{137}) activity below administrative limits of 20% of 10 CFR 20.

The results of the liquid samples are shown in Table 1. The results of the two (2) previous overboard releases are also included for comparison. The 20% of 10 CFR 20 limits for liquid releases are shown.

Maintenance personnel exposed the discharge piping, but observed no hole. Demineralized water was put through the line and the hole location was determined to be under the ORW Building.

Chemistry collected seven (7) soil samples during excavation of the area around the discharge piping. Four (4) samples were approximately at the same elevation as the discharge piping. The sample locations are mapped on Attachment 1.

Table 2 contains the results of the radiological analyses. Sample Number 4 shows greater activity levels for both Co^{60} and Cs^{137} . The activity levels for these four (4) samples do not exceed 10 CFR 30 limits nor the administrative limit for Cs^{137} of 10 times 10 CFR 20 limits.

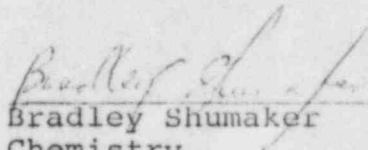
Chemistry collected three (3) additional samples approximately one (1) foot below the discharge piping. These samples (5-7) are mapped on Attachment 2.

Table 3 contains the results of the radiological analyses. The activity levels for these three (3) samples do not exceed 10 CFR 30 limit nor the administrative limit for Cs^{137} of 10 times 10 CFR 20 limits.

The somewhat greater activity levels (greater than 10% of limits) for Sample Numbers 4 and 6 are typical of soil in the Radwaste yard area. Table 4 illustrates activity levels from several soil samples from the north side of ORW.

Based on the above information, it can be concluded that no environmental release exceeding any imposed limits occurred as a result of the overboard discharge pipe break. These actions have been reviewed by the Plant Review Group (PRG), Messrs. Cowgill, Nimitz and Bellamy of the NRC and have been approved.

If you have any questions or comments, please contact me on Extension 4606.


Bradley Shumaker
Chemistry

BCE/CJH/mjw

Attach.

TABLE 1
LIQUID SAMPLES

<u>Date</u>	<u>Sample No.</u>	<u>Description</u>	<u>Activity</u> $\mu\text{Ci/ml}$
3-07	522-84	Overboard 3-14 225	< MDA
3-07	518-84	Overboard 3-14 1335	< MDA
3-14	571-84	Water in Ditch Between ORW Control Room & R.R. Air Lock	< MDA
3-15	577-84	Water in Excavation of Discharge Piping	Cs ¹³⁷ 2.64E-6
-	-	20% of 10 CFR 20	Cs ¹³⁷ 4.0E-6

TABLE 2
SOIL SAMPLES

<u>No.</u>	<u>Date</u>	<u>Sample No.</u>	<u>Activity $\mu\text{Ci/gm}$</u>		
			<u>Co⁶⁰</u>	<u>Cs¹³⁴</u>	<u>Cs¹³⁷</u>
1	3-16	583-84	1.21E-5	-	6.88E-6
2	3-16	584-84	8.44E-6	-	7.40E-6
3	3-16	585-84	2.56E-6	-	1.53E-6
4	3-16	586-84	1.01E-4	4.07E-6	1.65E-4

TABLE 3
SOIL SAMPLES

<u>No.</u>	<u>Date</u>	<u>Sample No.</u>	<u>Activity $\mu\text{Ci/gm}$</u>		
			<u>Co⁶⁰</u>	<u>Cs¹³⁴</u>	<u>Cs¹³⁷</u>
5	3-16	590-84	1.47E-5	-	7.86E-6
6	3-16	591-84	4.45E-5	2.45E-6	8.70E-5
7	3-16	592-84	1.68E-5	-	7.01E-6

TABLE 4

NORTH OF ORW SOIL SAMPLES
FOR COMPARISON

<u>Sample Number</u>	<u>Activity $\mu\text{Ci/gm}$</u>		
	<u>Co⁶⁰</u>	<u>Cs¹³⁴</u>	<u>Cs¹³⁷</u>
2957-83	9.26E-5	3.15E-6	1.39E-4
2958-83	3.94E-6	-	8.91E-6
2959-83	9.01E-5	3.14E-6	1.87E-4
2960A-83	8.71E-6	1.58E-6	6.61E-5
2960B-83	8.30E-6	1.80E-6	6.51E-5
2961-83	5.39E-6	-	1.40E-5
2962-83	3.88E-6	-	1.51E-5
2965-83	4.44E-6	-	1.44E-5
2966-83	6.59E-6	-	1.56E-5
2967-83	3.11E-5	-	9.85E-5
2968-83	8.83E-6	1.85E-6	1.04E-4

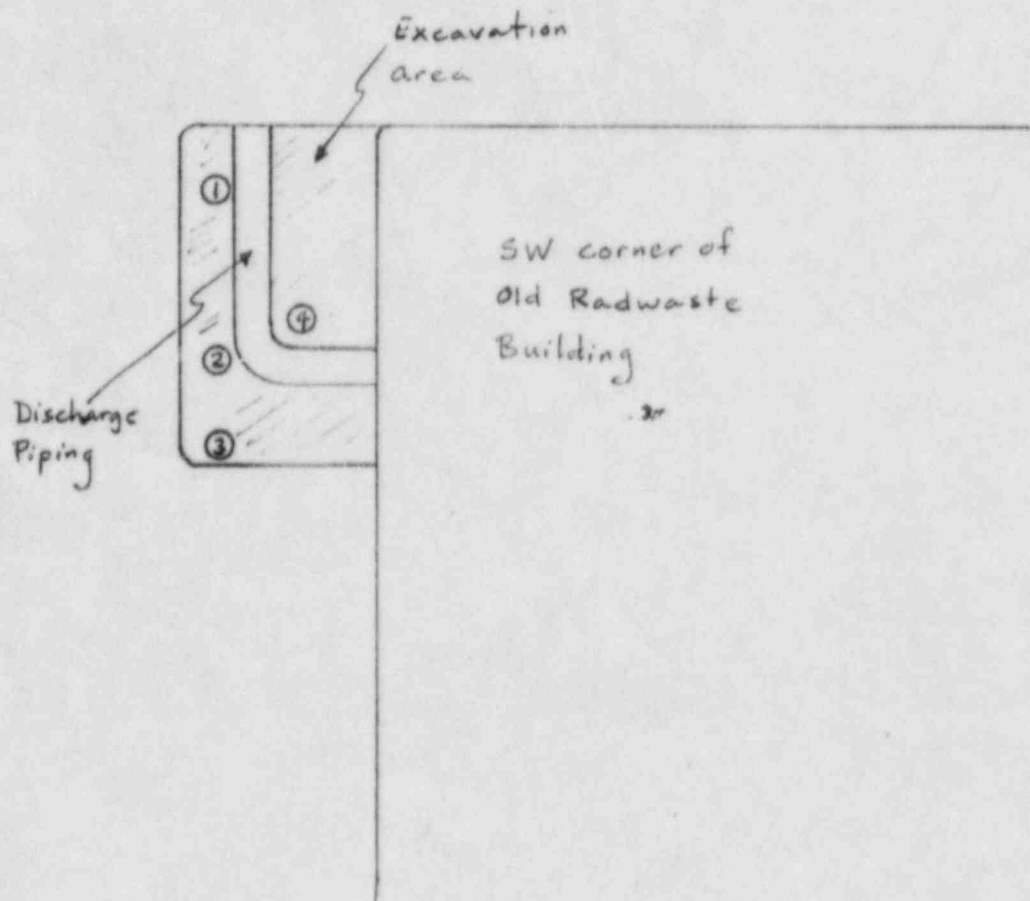
TABLE 5

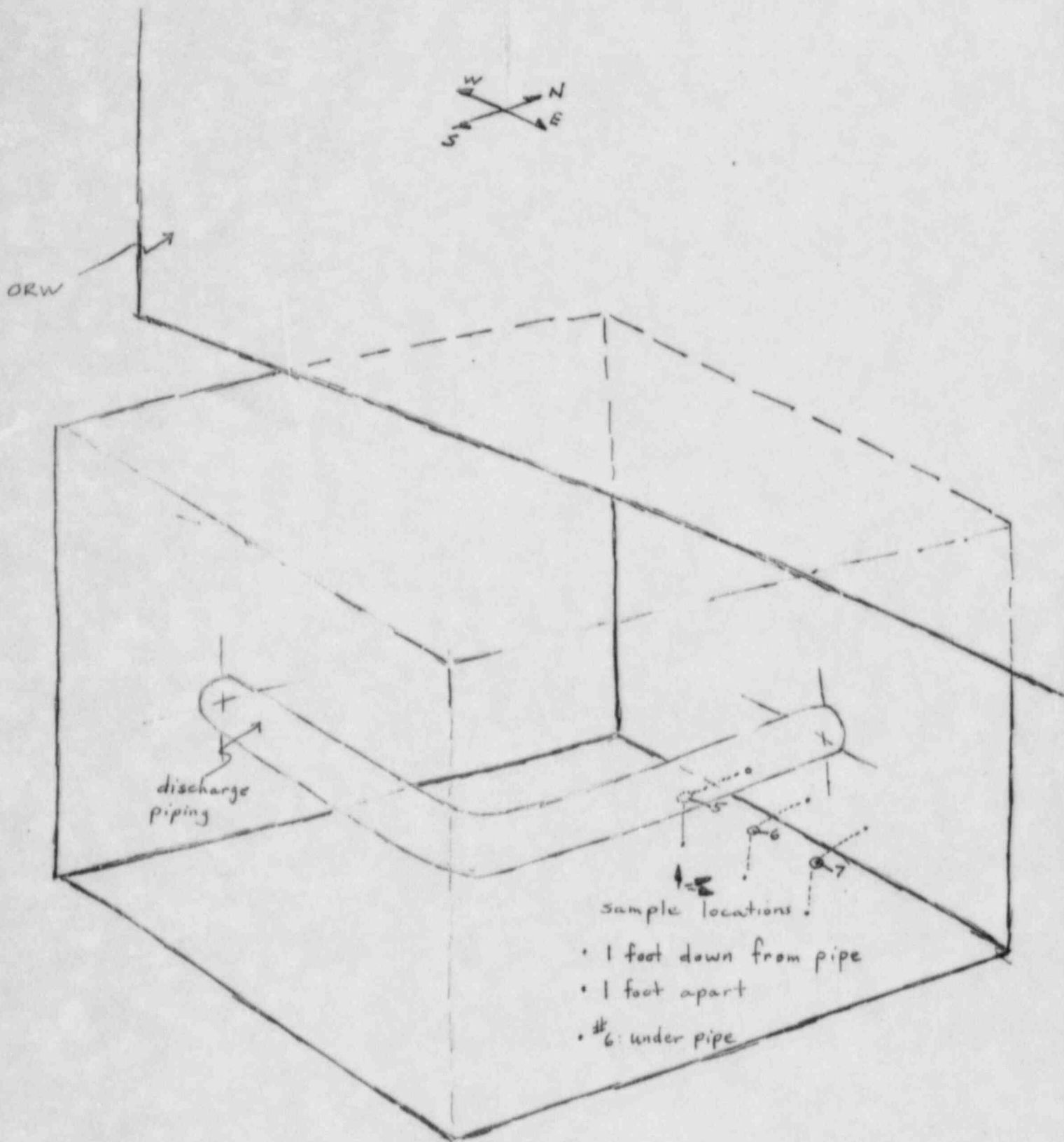
Isotope	Limits	
	20% 10 CFR 20 ($\mu\text{Ci}/\text{ml}$)	10 CFR 30 ($\mu\text{Ci}/\text{gm}$)
Co ⁶⁰	6.0E-6	5.0E-4
Cs ¹³⁴	2.0E-6	9.0E-5
Cs ¹³⁷	4.0E-6	2.0E-4*

* No 10 CFR 30 limit. This number represents 10 times 10 CFR 20 limit.

Attachment 1

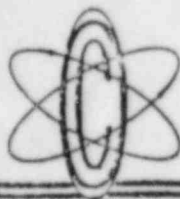
Plant North →





Attachment 2

OYSTER CREEK



NUCLEAR GENERATING STATION

P.O. BOX 388 • FORKED RIVER • NEW JERSEY • 08731
UNUSUAL INCIDENT CRITIQUELOCATION OF OUTBOARD DISC P.P. AREA
INCIDENT BETWEEN ORW AND RX BldgDATE 3/18/84 TIME 1745 approx
UNUSUAL INCIDENT REPORT # 135-84I INVESTIGATION DATA:
ATTENDEES:DATE 3/27/84 TIME 1500

- See Attached ATTENDANCE LIST -

NAME

TITLE

DEPT.

II INCIDENT DATA:SEE ATTACHED COPY OF UNUSUAL INCIDENT REPORT #UIR 135-84III IS THIS INCIDENT REPORTABLE TO THE NUCLEAR REGULATORY COMMISSION
IN ACCORDANCE WITH 10 CFR 19, 10 CFR 20, OR TECHNICAL SPECIFICATIONS?☐

YES

☐

NO

NRC NOTIFIED BY: _____ DATE _____ TIME _____

EXPLAIN: _____

INDIVIDUAL PROCESSING REPORT TO NRC _____

A. FOR LOCATION OF CONTAMINATION SEE ATTACHED PERSONNEL CONTAMINATION FORM.

B. INITIAL READINGS

AFTER FINAL DECONTAMINATION

_____ DPM δ
 _____ DPM β^-
 _____ MR/HR δ @ 1"
 _____ MRAD/HR β^- @ 1"

_____ DPM δ
 _____ DPM β^-
 _____ MR/HR δ @ 1"
 _____ MRAD/HR β^- @ 1"

C. LIST IDENTIFIED ISOTOPES

D. TYPE CONTAMINATION:

REMARKS

- ☐ LIQUID
☐ DUST, SAND, DIRT
☐ RESINS
☐ OTHER _____

V BIO-ASSAY MEASUREMENT

A. TYPE ASSAY & TIME TAKEN

- ☐ WHOLE BODY COUNT _____ /
☐ URINALYSIS /
☐ FECAL /
☐ OTHER (_____) /

B. RESULTS:

ISOTOPE	@ nCi	% MPBB
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

TOTAL.....

C. ADDITIONAL ACTION TO BE TAKEN, GIVING TIME FRAMES

1. ☐ HEAD
2. ☐ EYES
3. ☐ TRUNK
4. ☐ GONADS

5. ☐ ARMS
6. ☐ LEGS
7. ☐ HANDS
8. ☐ FEET

9. ☐ SKIN

☐ 8 $\square \quad \mathcal{B}^-$ ☐ NEUTRON

☐ ALPHA

C. ESTIMATED EXPOSURE & METHOD OF DETERMINATION

D. REMARKS

VII

ADDITIONAL INFORMATION

DETAILED SEQUENCE OF EVENTS

DATE/TIME	EVENT
3/18/84 1745	<p>MBC MECHANICAL CREW WAS TASKED TO REMOVE A \approx 4 FT SECTION OF THE 8" RW OVERBOARD DISCHARGE PIPE THAT HAD DEVELOPED A \approx 3" X 10" HOLE AT THE ELBOW. EXCAVATION OF THE AREA HAD BEGUN ON WED (3/14/84) WITH SOIL TEST AND RAD SURVEYS BEING TAKEN ROUTINELY DURING THE OPERATION (15-30 SURVEYS), ALL SHOWING "CLEAN" LIMITS. ONE SURVEY DID SHOW AN ^{8 K} READING WHICH RADCON WAS AWARE OF ON FRIDAY (3-16-84) EVENING.</p>
	<p>ALSO ON FRIDAY EVENING (3-16-84) AN R.E.R. (BUT NO IRWP) WAS SUBMITTED TO REQUEST THE proper method OF HOW TO CUT OUT & REMOVE THE PIPE SECTION. THIS R.E.R. WAS NOT WRITTEN UNTIL MONDAY (3-19-84) DUE TO NO PRIORITY OR URGENCY BEING PLACED FOR IT.</p>
	<p>ON SUNDAY (3-18-84) THE SECTION OF PIPE WAS CUT OUT USING A TOUCH & GRINDING WHEELS. IT WAS FELT THAT THE PIPE, WATER, & DIRT WERE DEEMED CLEAN (AREA WAS NOT POSTED EVEN AFTER RADCON KNEW OF 8K SURVEY) SO THERE WERE NO RADIOLOGICAL CONCERNS BY THE CREW & SUPERVISOR. THE CREW & SUPERVISOR WERE NOT MADE AWARE OF THE RAD FINDING(S).</p>
	<p>IT WAS NECESSARY TO FABRICATE A NEW SECTION OF PIPE SO THE OLD PIECE WAS TAKEN TO THE HURRICANE SHELTER TO BE FRISKED OUT SO IT COULD GO TO THE MACHINE SHOP FOR MEASUREMENTS. IT WAS THERE THAT THE PIPE WAS FOUND TO BE CONTAMINATED (SEE ATTACHED SURVEY 3959-84)</p>
	<p>MBC MECHANIC ED STRUP HAD HIS SHOE AND GLOVES CONTAMINATED AND MECHANIC T. DENCOM HAD HIS WORK GLOVES ONLY CONTAMINATED</p> <p style="text-align: right;">Ed Strup</p>

When the pipe was found to be contaminated (1743),
the following steps were immediately taken:

1. RAD Con was notified
2. The path of travel from ORW to the Hurricane Shelter was surveyed for possible contamination (See attached survey # 3956-04)
3. Pipe was bagged and moved to the east end of Hurricane Shelter
4. Contaminated work gloves were disposed of and shoe was decontaminated & released.
5. All involved people were given whole body counts (after showering) and were within "limits"

Alvin

X WHAT CORRECTIVE ACTIONS ARE TO BE TAKEN TO PREVENT A RE-OCCURRENCE OF THIS INCIDENT?

The critique produced three (3) major events that led to the development of this contamination situation. They were as follows:

1. An R.E.R. was submitted on Friday (3-16-84) asking for resolution of the problem. It was decided not to wait for the R.E.R. and on Sunday the pipe section was removed.
2. The pipe was suspected of having contamination due to the very nature of its use. Therefore RAD Con could have posted the area to reflect such a situation.
3. The MAC crew was aware of the possibility of contamination and could have taken better preventive measures to reduce the risk of a contamination situation from developing.

If these events were realized and properly pursued, the likelihood of this situation developing would have been greatly reduced.

Who is this? *Alvin*

5. Someone decided to proceed without RWP - who was it? The radcon agree with the decision? JMS

1. WIR # 135-84
2. Survey 3954-84
3. 3955-84
4. 3956-84
5. 3957-84
6. 3954-84 SH 1, 2, 83
7. ATTENDANCE Sheet
8. _____
9. _____

[illegible]

ATTENDANCE

Name	Dept	SS #
E. W. Shop	MAINT.	158-48-0175
J. Colaninno	MITCE	546 60 4799
E. Raymond	Water Rep. (NCR19)	148-24-0225
K.T. Commons	Shop Steward & Maint	136-46-8907 148-34-2921
Richard J. Harnyck	Ops Radwaste	204-42-1240
John Huifeld	Maint	109 405090
James J. Russo	MAINT.	069-54-048
James Deane	M&C Production	176-42-5463
D.A. VanNortwick	Rad Con	579-32-3211
J. Royal Jeanette	Rad Con	389-42-8401
P. Collier	M&C	154-40-317
DAVE FISHER		
J. DERBY	RAD-ENG	136-46-073
A. Byzylubri	M & C	139-28-9957
Brad Shumaker	Plant Chemistry	155-56-1746
DONALD CERASUOLO		018-36-4764

LOCATION: UNDER S.W. CORNER OF DRW

REASON FOR SPECIAL SURVEY: OVERBOARD DISCHARGE

LINE INSIDE 4" X 10" HOLE IN PIPE

☐ ROUTINE☒ SPECIAL

ITEM NO	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		β mrad/hr	γ mR/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	* (INSIDE PIPE THAT HAS BUST UNDER BLDG)	N/D	<2	—	<2	CONTACT	<1000	<100	100cm ²
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

ALARA NO.
W P U D W

INSTRUMENT USED

RO 2A

SERIAL NUMBER

1401

CAL DUE DATE

3/24/84

RM 14

3145

6/27/84

MS-2

305

8/17/84

AIR SAMPLE DATA:

N/R

REMARKS:

* GROSS WIPE INSIDE HOLE IN PIPE READ 800 cpm
ABOVE BKG OF 100 cpm

LOCATION: ORW

REASON FOR SPECIAL SURVEY: CHECK LEVELS ON

OVERBOARD DISCHARGE PIPE

☐ ROUTINE

☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		β mrad/hr	γ R/hr	Neutron nrad/hr	Total mrad/hr		β & γ dpm	α dpm	
1	INSIDE PIPE AROUND WELD	48	1	NA	49	CONTACT	2K	<1000 dpm	100cm ²
2	↓	↓	↓	↓	↓	↓	↓	↓	↓
3	OUTSIDE PIPE WELD	4	0	↓	4	↓	4K	↓	↓
4	↓	4	0	↓	4	↓	4K	↓	↓
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

ALARA NO.

WPUDW

INSTRUMENT USED

RM14

SERIAL NUMBER

4223

CAL DUE DATE

7/30/84

RO2A

638

4/11/84

MS11

305/2507

8/17/84

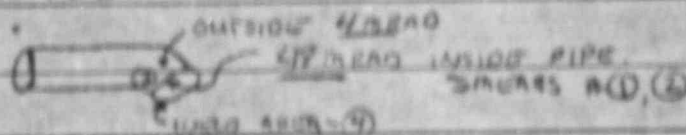
AIR SAMPLE DATA:

N/A

REMARKS:

INSIDE PIPE DIRECT FISH WAS 200K cpm to 7500K cpm

EXTERIOR OF PIPE DIRECT FISH WAS 80K dpm to 100K cpm



Surveyor

Quell E. Brown

Reviewed by

Sam Catalano

Nuclear

Oyster Creek Nuclear Generating Station
Radiological Control Survey Record

NO.

3956-84

DATE

3/18/84

TIME

20:00

LOCATION: Rx building @ Hurricane Shelter

REASON FOR SPEC. SURVEY: CONTAMINATED PIPE
on Floors for Contamination

☐ ROUTINE
☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		β mrad/hr	γ mrad/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	WALKWAY Hurricane Shelter	/					21K	N/A	Gross
2	To Rx 23' Aisle								
3	To Torus Control								
4	Point to D/W								
5	Control Point								
6	All Floor								
7	Areas								
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18							21K	N/A	Gross

INSTRUMENT USED	RM14	SERIAL NUMBER	3476	CAL DUE-DATE	8/28/84
	RM14		3492		7/30/84
AIR SAMPLE DATA: <u>N/A</u>				/ /	

REMARKS:

Surveyor: A. Ellis Reviewed by: Sam Catalano

LOCATION: 23' From D/W Control Point to OB Canon Exit

REASON FOR SPECIAL SURVEY: Contam Pipe Carried

threw Rx Bldg From Yard Area.

☐ ROUTINE

☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		β mrad/hr	γ mR/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	From A/W Control Pt.	n/a	<2	n/a	<2	Gen Area	<1K	<100	100 cm ²
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18	to OB Canon Exit								

INSTRUMENT USED

RO2A

SERIAL NUMBER

1392

CAL DUE DATE

6/14/84

RM-14

3492

7/30/84

MS-3

305

8/17/84

AIR SAMPLE DATA:

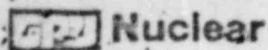
n/a

REMARKS:

Pipe used to carry contaminated Pipe was smeared (gross) and was found to be <100 cpm

Surveyor R. Dupuis

Reviewed by Sam Estabrook



Oyster Creek Nuclear Generating Station
Radiological Control Survey Record

NO

3959-84

DATE

3/18/84

TIME

10:30 PM

LOCATION: ORW outside CONTROL ROOM

REASON FOR SPECIAL SURVEY: CONTAMINATION

OVER BOARD - DISCHARGE - PIPE

☐ ROUTINE☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		β mrad/hr	γ mR/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	#1 PIPE INSIDE	12	2		14	CT	2K	N/D	100 CM ²
2	" "						<1K		100 CM ²
3	" "						2K		100 CM ²
4	#1 OUTSIDE GROSS						100 cpm		GROSS
5	#1 INSIDE GROSS						1200 cpm		GROSS
6									
7	#2 PIPE INSIDE	8	<2		8	CT	3K		100 CM ²
8	" "						8K		100 CM ²
9	" "						12K		100 CM ²
10	#2 OUTSIDE GROSS						<100 cpm	Y	GROSS
11	#2 INSIDE GROSS						200 cpm	N/D	GROSS
12									
13									
14									
15									
16									
17									
18									

INSTRUMENT USED

R02A

SERIAL NUMBER

1470

CAL DUE DATE

4/3/84

RM14

4338

8/28/84

MS3/PROBE

310/2514

5/3/84

AIR SAMPLE DATA:

#6039.84 8.0E-11 uCi/cc

REMARKS:

SEE MAP

Surveyor P. Amadio DEL
Original - Survey File; Canary - Rad. Engr.; Pink - Job Site

Reviewed by

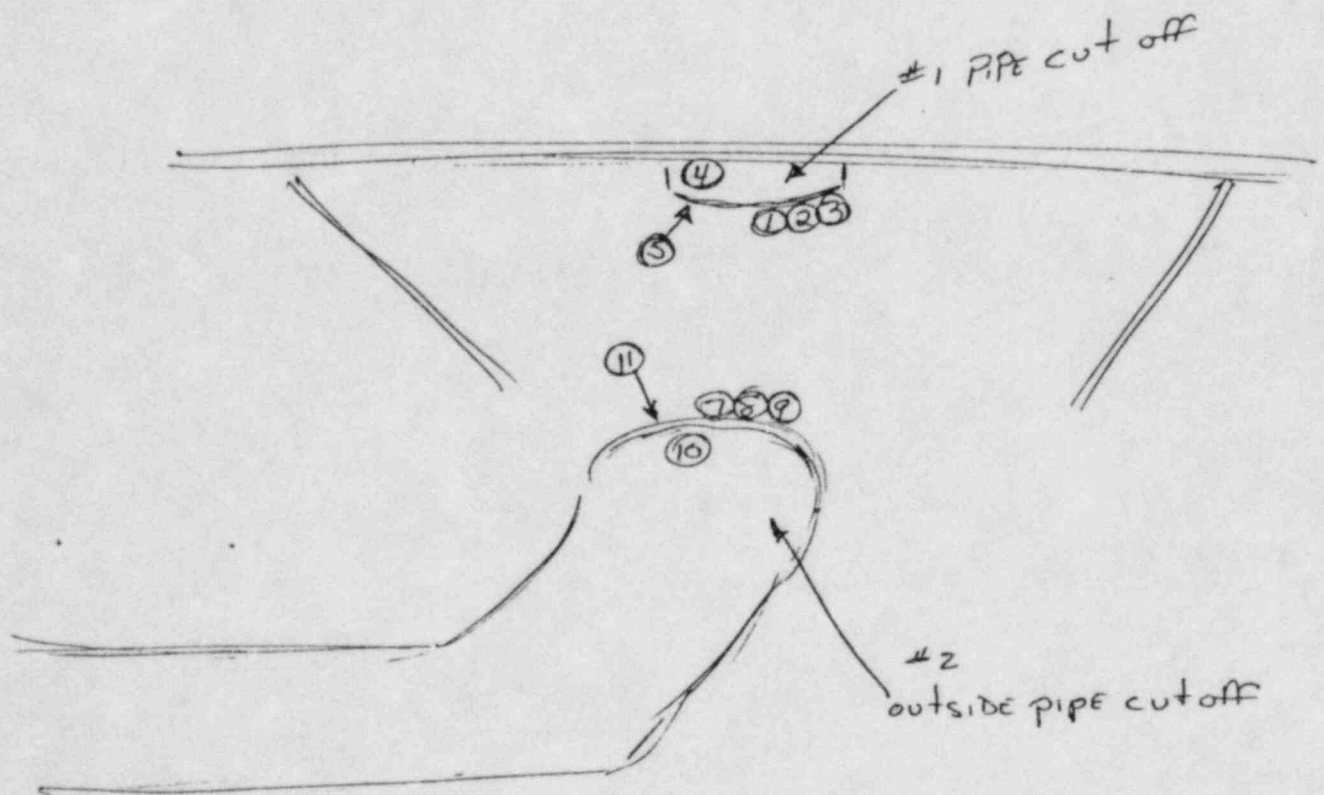
Sam Catulda

A0001747

OUTSIDE ORW CONTROL RM

3959-84 3/18/84 RD+AE

✓ Roza #1470 4/3/84



LOCATION: Outside ORW South Wall

 REASON FOR SPECIAL SURVEY: SOJ Overboard
Discharge Line under ORW
☐ ROUTINE

☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR
		β mrad/hr	γ mR/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	Inside Overhead Line	ND	< 2	N/A	< 2	Cont	5K	< 100	100 cm ²
2	Outside.	↓	< 2	↓	< 2	Cont	< 1K	↓	↓
3	Discharge Line	↓	< 2	↓	< 2	G.A	< 1K	↓	↓
4	Soil sample.	Direct Frisk with RM-14 < 100 cpm.							
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

INSTRUMENT USED

RO2A

SERIAL NUMBER

1384

CAL DUE DATE

5 / 14 / 84

RM-14

1714

5 / 29 / 84

Ludlum 1000

22155 P-2500

5 / 12 / 84

AIR SAMPLE DATA:

N/A

REMARKS:

 Gross maslin smear taken on concrete around
Discharge Line 5K

Nuclear

Oyster Creek Nuclear Generating Station
Radiological Control Survey Record

NO

4176-84

DATE

3-22-84

TIME

1000

LOCATION: Under ORW South WallREASON FOR SPECIAL SURVEY: Overboard MonitorDischarge Line☐ ROUTINE☒ SPECIAL

ITEM NO	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR
		β mrad/hr	γ mR/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	Concrete around line	ND	< 2	N/A	< 2	Cont	3K	< 100	100cm ²
2	↓	↓	↓	↓	↓	↓	1K	↓	↓
3	↓	↓	↓	↓	↓	↓	< 1K	↓	↓
4	Outside Discharge Line	ND	< 2	N/A	< 2	Cont	< 1K	↓	↓
5	Water from Pipe	ND	—	—	—	—	< 1K	< 100	100cm ²
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

INSTRUMENT USED

RM-14

SERIAL NUMBER

1714

CAL DUE-DATE

5/29/84

Ludlum 1000

22155 P-2508

5/12/84

R02A

1384

5/14/84

AIR SAMPLE DATA:

N/A

REMARKS:

Surveyor D.W. MuntReviewed by J. [Signature]

Original - Survey File; Canary - Rad Engr.; Pink - Job Site

A0001747

OSTER CREEK NUCLEAR GENERATING STATION

Radiological Control Survey Record

NO

4712-84

DATE

3/31/84

TIME

1130

LOCATION: CRW Yard Overboard Discharge

REASON FOR SPECIAL SURVEY: SOT Survey for RWP #075184

☐ ROUTINE

☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR
		β mrad/hr	γ mrad/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	Cement Slab	L2	L2	NA	L2	G/A	L1K	NC	100cm ²
2	" "								
3	" "								
4	" "								
5	" "								
6	ID of Discharge pipe	8	2		10	cont	2K	L100	
7	" "	8	2		10	"	5K	L100	
8	OD of Discharge pipe	L2	L2		L2	"	1K	L100	
9	" "					"	L1K	NC	
10	OD of Discharge pipe ^{downstream} 2nd					"			
11	" "					"			
12	1" Ground Cable					"			
13	Herculite					6/A			
14	Ladder								
15	"								
16									
17									
18									

INSTRUMENT USED

RO2A

SERIAL NUMBER

706

CAL DUE DATE

5/9/84

RM-14

1714

5/29/84

MS-3

305 probe #2507

8/12/84

AIR SAMPLE DATA:

REMARKS:

SURVEYOR

Ronald Zentberger

REVIEWED BY
SURVEY FILE

W. W. Lusk

LOCATION: O.R.W. (UNDER S. WEST CORNER ORW Bldg)

REASON FOR SPECIAL SURVEY: OVERBOARD DISCH. LINE REPAIR

LINE SECTION INSERTION RW? #751-84

☐ ROUTINE

☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		β mrad/hr	γ mR/hr	Neutron nrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	HORIZ. SECTION 2' IN AREA	—	22.0	MS	22.0	cnt.	21K	MC	100cm ²
2	G/A HORIZ. SECTION	—	22.0		22.0	G/A	111	111	111
3	WELD (EXT.) HORIZ. PIPE	—	22.0		22.0	cnt.	21K	MC	100cm ²
4	G/A WELD (EXT.) HORIZ. PIPE	—	22.0		22.0	Ext. 5' 11" 4'	111	111	111
5	OPENING HORIZ. SECTION	—	22.0		22.0	Opening	111	111	111
6	INSIDE HORIZ. PIPE WELD	—	22.0		22.0	cnt.	2K	2100	100cm ²
7	EXT. WELD VERT. PIPE	—	22.0		22.0	cnt.	21K	MC	100cm ²
8	OPENING VERT. PIPE	6.0	3.0		9.0	@ Opening	111	111	111
9	G/A OPENING VERT. PIPE	—	22.0		22.0	G/A	111	111	111
10	INNER WELD VERT. PIPE	—	22.0		22.0	cnt.	4K	2100	100cm ²
11	HERE. FLOOR UNDER VERT. PIPE	—	22.0	✓	22.0	cnt.	21K	MC	100cm ²
12	/	/	/	/	/	/	/	/	/
13									
14									
15									
16									
17									
18									

INSTRUMENT USED		SERIAL NUMBER	CAL DUE DATE
ROZA		673	5/2/84
RM-14		4223	7/30/84
MS-3 w/PROBE		305/P2507	8/17/84 / 18/17/84

AIR SAMPLE DATA:

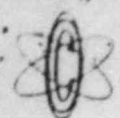
NOT TAKEN

RET = OMR RECD. ALARM # W-P-U-D-W

REMARKS: NOTE: RAD SURVEY TO BE RETAKEN DUE TO METER FALLING 8' BOUNCING OFF O.D. LINE (HORIZ. PART) AND THEN 2' TO HERCULITE COVERED SOIL. THIS WAS DUE TO SHORING BRACE (UPPER @ LADDER) ROTATING WHEN TECH. WAS PREPARING TO DESCEND INTO LOWER AREA.

Surveyor: F. NEBVS

Reviewed by: Thy W. Kusch



OYSTER CREEK NUCLEAR GENERATING STATION

Radiological Control Survey Record

NO

4959-84

DATE

4-4-84

TIME

1120

LOCATION:

ORW

Over board

Discharge

REASON FOR SPECIAL SURVEY:

S.O.T.

RWP#751-84

ALARA#WPUDW

☐ ROUTINE☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR
		β mrad/hr	γ mr/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
* 1	Pipe Flange	N/A	<2	N/A	12	6/A	<1K	N/A	100cm ²
* 2	↓	↓	↓	↓	↓	C/T	↓	↓	↓
* 3	Pipe	↓	↓	↓	↓	6/A	↓	<100	↓
4	↓	↓	↓	↓	↓	↓	↓	N/A	↓
5	Pipe	↓	↓	↓	↓	C/T	↓	↓	↓
6	↓	↓	↓	↓	↓	6/A	↓	↓	↓
7	Wall	↓	↓	↓	↓	↓	↓	↓	↓
8	↓	↓	↓	↓	↓	↓	↓	↓	↓
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

INSTRUMENT USED	SERIAL NUMBER	CAL DUE DATE
RODA	1404	5/29/84
Rm-14	4166	5/1/84
MS-3 / 2.44m Pipe	305/P2507	8/17/84

AIR SAMPLE DATA:

N/A

REMARKS:

* Vertical Pipe (Grinding FLANGE)

SURVEYOR

REVIEWED BY
SURVEY FILE

FORM 1542



Oyster Creek Nuclear Generating Station
Radiological Control Survey Record

NO

5025-84

DATE

4-4-84

TIME

1445

LOCATION: DRW Overboard Discharge

REASON FOR SPECIAL SURVEY:

S.O.S. RWP # 751-84 MPA*
WPUDW

☐ ROUTINE

☒ SPECIAL

ITEM NO	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		β mrad/hr	γ mr/hr	Neutron mrem/hr	Total mrem/hr		β & γ dpm	α dpm	
1	PIPE INSIDE	N/D	22	N/A	22	6/2	2K	<100	2 cm ²
2	PIPE FLANGE	↓	↓	↓	↓	↓	1K	N/A	↓
3	OUTSIDE PIPE	↓	↓	↓	↓	↓	<1K	↓	↓
4	↓	↓	↓	↓	↓	↓	1K	↓	↓
5									
6									
7									
8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									

INSTRUMENT USED

RM-14

SERIAL NUMBER

4223

CAL DUE-DATE

7/30/84

RO 2-A

1404

5/29/84

MS-3 / Ludlum Probe

305 / P2507

8/17/84

AIR SAMPLE DATA:

A/S # 7284-84

5.4E-11 Ci/a

REMARKS:

Smears taken prior to grinding vertical pipe

Surveyor

P. Kott

Reviewed by

Sam Cataldo

Oyster Creek Nuclear Power Station

Report: DYC004

Page: 16

Nam: HARMYK RICHARD J
Investigational RWP: NONE
Com: POSSIBLE INTERNAL CONTAMINATION

ID: 148-34-2423 Job:
Emp: JCPL

File: 1941 Tim: 18-MAR-84 21:41
Cnt: S. WYNN ACCUSCAN

Exp Tim: 3/18/84 1530

Exp typ:

Nuc K-40 CO-60
Act 122.7 6.3
Err 19.0 29.0
%BB 0.0 0.5

TOTAL
129.0

0.5

Nam: HARNED KENNETH E
New Hire
Com: NEW HIRE

ID: 138-38-4419 Job:
Emp: CATALYTIC

17-MAR-84 09:48
AN

Nuc K-40
Act 67.2
Err 34.5
%BB 0.0

TOTAL
67.2

0.0

Nam: HARNED KENNETH E
Termination
Com: TERM COUNT

ID: 138-38-4419 Job:
Emp: CATALYTIC

17-MAR-84 10:38
AN

Nuc K-40 CO-60
Act 103.0 8.3
Err 26.9 37.0
%BB 0.0 0.7

TOTAL
111.3

0.7

Nam: HARTLACE ANTHONY
New Hire
Com: NEW HIRE

ID: 169-32-7961 Job:
Emp: PROTO POWER

2-MAR-84 12:59
CAN

Nuc K-40
Act 90.9
Err 26.2
%BB 0.0

TOTAL
90.9

0.0

Nam: HASA FRANCIS S
New Hire
Com: NEW HIRE

ID: 156-34-0345 Job:
Emp: JCPL

File: 1652 Tim: 05-MAR-84 11:30
Cnt: FLESHMAN FASTSCAN

Nuc K-40
Act 85.9
Err 29.9
%BB 0.0

TOTAL
85.9

0.0

Oyster Creek Nuclear Power Station

Report: OYC004

Page: 30

Nam: STERLING ROBERT W
New Hire
Com: NEW HIRE

ID: 158-32-3555
Emp: JCPL

Job:

File: 1648. Tim: 05-MAR-84 11:09
Cnt: FLESHMAN FASTSCAN

Nuc K-40
Act 74.1
Err 35.0
%BB 0.0

TOTAL
74.1

0.0

R-84 13:12

Nam: STONER LINDA G
New Hire
Com: NEW HIRE COUNT

ID: 309-66-6747
Emp: CATALYTIC

Job:

Nuc K-40
Act 86.5
Err 27.8
%BB 0.0

TOTAL
86.5

0.0

R-84 10:24

Nam: STROLLO STEPHEN
Routine Frq: ANNUAL
Com:

ID: 146-40-5295
Emp: CATALYTIC

Job:

Nuc K-40
Act 106.8
Err 27.0
%BB 0.0

TOTAL
106.8

0.0

Nam: STROUP EDWARD W
Investigational RWP: NONE
Com:

ID: 138-48-0175
Emp: JCPL

Job:

File: 1943. Tim: 18-MAR-84 22:04
Cnt: S. WYNN ACCUSCAN

POSSIBLE INTERNAL CONTAMINATION
Exp Tim: 3/18/84 1530

Exp typ:

Nuc K-40
Act 154.4
Err 13.9
%BB 0.0

TOTAL
154.4

0.0

Nam: STRUBL CHRIS N
Routine Frq: ANNUAL
Com:

ID: 137-46-1266
Emp: JCPL

Job:

File: 1847. Tim: 14-MAR-84 09:41
Cnt: NG WILLI FASTSCAN

Nuc CO-60 K-40
Act 12.0 171.4
Err 15.7 19.4
%BB 1.0 0.0

TOTAL
183.4

1.0

Nam: SWAN THOMAS S
Routine Frq: ANNUAL
Com:

ID: 002-40-8702
Emp: JCPL

Job:

File: 1738. Tim: 07-MAR-84 15:20
Cnt: FLESHMAN FASTSCAN

Nuc K-40
Act 115.4
Err 23.2
%BB 0.0

TOTAL
115.4

0.0

Report: OYC004

Oyster Creek Nuclear Power Station

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Nam: RUSSELL GLENN J
Routine Frq: ANNUAL
Com:ID: 154-48-0244
Emp: JCPL

Job:

Fil: 1848. Tim: 14-MAR-84 09:44
Cnt: NG WILLI FASTSCANNuc K-40
Act 109.6
Err 26.8
%BB 0.0TOTAL
109.6

0.0

Nam: RUSSO BRUCE E
Investigational RWP: NONE
Com: POSSIBLE INTERNAL CONTAMINATIONID: 109-40-5090
Emp: JCPL

Job:

Fil: 1742. Tim: 18-MAR-84 21:52
Cnt: S. WYNN ACCUSCAN

Exp Tim: 3/18/84 1530

Exp typ:

Nuc K-40
Act 125.3
Err 16.8
%BB 0.0TOTAL
125.3

0.0

Nam: RUTLAND EDWIN J
Termination
Com: TERMINATION COUNTID: 178-30-5911
Emp: GENERAL ELEV CO

Job:

Fil: 1405 Tim: 06-MAR-84 13:11
TSCANNuc K-40
Act 104.3
Err 23.4
%BB 0.0TOTAL
104.3

0.0

Nam: RYAN JAMES
Routine Frq: ANNUAL
Com:ID: 138-48-3326
Emp: CATALYTIC

Job:

Fil: 12-MAR-84 13:56
TSCANNuc K-40
Act 122.4
Err 22.1
%BB 0.0TOTAL
122.4

0.0

Nam: SADAUSKAS GERALD
Routine Frq: ANNUAL
Com:ID: 104-34-1093
Emp: GPUN

Job:

Fil: 08-MAR-84 11:33
TSCANNuc K-40
Act 128.9
Err 19.4
%BB 0.0TOTAL
128.9

0.0

Nam: SAFFER HENRY J
Termination
Com: TERMINATION COUNTID: 138-12-7237
Emp: CATALYTIC

Job:

Fil: 1637. Tim: 05-MAR-84 10:13
Cnt: FLESHMAN FASTSCANNuc K-40
Act 93.7
Err 26.9
%BB 0.0TOTAL
93.7

0.0

Oyster Creek Nuclear Power Station

Report: DYC004

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Nam: AACE THOMAS Termination Com: TERM COUNT	ID: 138-32-3130 Emp: CATALYTIC	Job:	Fil: 1858. Cnt: NG WILLI FASTSCAN	Tim: 14-MAR-84 10:43	

Nuc K-40 Act 108.9 Err 24.8 %BB 0.0				TOTAL 108.9 0.0	

Nam: ADAMS JOHN K Investigational RWP: NONE Com: POSSIBLE INTERNAL CONTAMINATION	ID: 546-60-4797 Emp: JCPL	Job:	Fil: 1939. Cnt: S. WYNN	Tim: 18-MAR-84 21:16 ACCUSCAN	
Exp Tim: 3/18/84 1530 Exp typ:					

Nuc K-40 Act 117.6 Err 18.4 %BB 0.0				TOTAL 117.6 0.0	

Nam: AGUADO CLIFFORD Routine Frq: ANNUAL Com:	ID: 151-50-4825 Emp: JCPL	Job:	Fil: 17 Cnt: FLF		

Nuc K-40 Act 148.2 Err 19.7 %BB 0.0					

Nam: ALES I FRANK C Termination Com: TERM BODY COUNT	ID: 137-64-7030 Emp: HYDRO-NUC	Job: 01	Fil: 16 Cnt: P.		

Nuc CO-60 K-40 Act 13.8 110.5 Err 18.0 25.6 %BB 1.1 0.0					

Note: External contamination suspected due to recount showing reduced activity. Results more representative of the true internal burden are available else					

Nam: ALES I FRANK Investigational RWP: NONE Com: GREATER THAN 1% IN FASTSCAN	ID: 137-64-7030 Emp: HYDRO-NUC	Job: 01	Fil: 16 Cnt: P.		
Exp Tim: Exp typ: UNKNOWN					

Nuc K-40 Act 138.0 Err 15.8 %BB 0.0				TOTAL 138.0 0.0	

Oyster Creek Nuclear Power Station

Report: DYCO04

Page: 9

Nam: DABBUNDO MARK
Termination
Com: TERM BODY COUNT

ID: 135-66-6674
Emp: HYDRO-NUC

Job: 01

File: 1902. Tim: 15-MAR-84 13:58
Cnt: P. CANAL FASTSCAN

Nuc	CO-60	K-40
Act	14.9	98.5
Err	15.9	27.4
%BB	1.2	0.0

TOTAL
113.4

1.2

Note: External contamination suspected due to recount showing reduced activity.
Results more representative of the true internal burden are available elsewhere in this report.

Nam: DABBUNDO MARK
Investigational RWP: NONE
Com: RECOUNT GREATER THAN 1%MPPB

ID: 135-66-6674
Emp: HYDRO NUC

Job:

File: 1906. Tim: 15-MAR-84 14:24
Cnt: P. CANAL ACCUSCAN

Exp Tim:

Exp typ: UNKNOWN

Nuc	K-40
Act	134.5
Err	17.1
%BB	0.0

TOTAL

Nam: DAUBERMAN JAMES V
Termination
Com: TERM COUNT

ID: 160 40 7245
Emp: O B CANNON

Job: CN

File: 1951.
Cnt: D FISHBI

Nuc	CO-60	K-40
Act	17.1	116.5
Err	15.9	24.2
%BB	1.4	0.0

Note: External contamination suspected due to recount showing reduced activity.
Results more representative of the true internal burden are available elsewhere

Nam: DAUBERMAN JAMES V
Termination
Com: TO VERIFY FASTSCAN TERM COUNT OVER 1

ID: 160-40-7245
Emp: O B CANNON

Job: CN

File: 1953.
Cnt: D FISHBE

Nuc	K-40
Act	121.6
Err	24.2
%BB	0.0

Nam: DEACON THOMAS
Investigational RWP: NONE
Com: POSSIBLE INTERNAL CONTAMINATION

ID: 069-34-0489
Emp: JCPL

Job:

File: 1940. Tim: 18-MAR-84 21:29
Cnt: S. WYNN ACCUSCAN

Exp Tim: 3/18/84 1530

Exp typ:

Nuc	K-40
Act	139.0
Err	16.3
%BB	0.0

TOTAL
139.0

0.0

AIR SAMPLE LOG

7/28/83

FORM # 915.3-1 Rev. 2

DATE

3-19-84

PAGE

6299 or 7

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLER #	RWP	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPH		
1 Taurus Bay #14	612	6-16-84	6032-84	0626-84	0515	1500	575		60	3.5E7	1 TH
2 BW 23'	123	6-29-	6033	0530-	1045	1516	271		60	1.6E7	2 SC
3 DW 13'	631	4-29	6034	0560	1050	1518	268		60	1.6E7	3 SC
4 PW 51'	3483	4-23	6035	0634	1448	1535	47	3.5		4.7E6	4 SC
5 RIBBIT Rm	2872	9-8	6036	0650	1445	1550	65	2		3.7E6	5 JWR
6 RW 75' CRD Rebuild	05613	6-19	6037	0698	1510	1600	50		60	3.0E6	6 MB
7 ORW BEON MIX. Rm	3162	7-30	6038	714	1335	1540	125	4		1.4E7	7 MB
8 ORW WOFGR. <small>OUTSIDE CONTAIN AROUND TUNNEL</small>	2863	9-14	6039	550	1532	1600	28	3.5		2.8E6	8 DB

LCS (beta)

SAC (Initial Alpha)

SAC (Decayed Alpha)

SAC (Decayed Alpha)						SAC (Decayed Alpha)						SAC (Decayed Alpha)					
SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc
1	172	1700	287	57.4	23.1	2.1E-11	462	1711	5	.5	.4	2.1E-14					NR
2	22154	1700	1879	375.8	344.4	1.3E-10	464	1711	99	9.9	9.66	9.9E-73					NR
3	172	1715	2480	496	461.7	1.6E-10	462	1730	59	5.9	5.8	2.0E-72					NR
4	22154	1715	1084	216.8	185.4	2.3E-10	464	1730	95	9.5	9.26	3.2E-72					NR
5	172	1730	452	90.4	56.1	8.5E-11	462	1740	140	14.0	13.9	6.9E-72					NR
6	22154	1730	1111	222.2	170.8	3.7E-10	464	1740	133	13.3	13.06	7.1E-72					NR
7	172	1740	641404	128280.8	128246.5	5.1E-8	462	1755	2617	261.7	261.6	3.4E-11	464	28.5	258.9	258.66	2.8E-72
8	22154	1740	349	69.8	38.4	8.0E-11	464	1755	164	16.4	16.16	9.4E-72					NR

	BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
LCS# 172	34.3	12.5	5 MIN	7-30-84
LCS# 22154	31.4	13.0	5 MIN	5-11-84
SAC# 462	.1	3.7	10 MIN	9-21-84
SAC# 464	.24	3.3	10 MIN	7-15-84
SAC#				
SAC#				

GELI CAL CHECK SAT?

YES NO
 #1 PART ☐ ☐
 #1 CHAR ☐ ☐
 #2 PART ☐ ☒
 #2 CHAR ☐ ☒

Fraction	Alpha (Decayed)		MPC Fraction (Geli)		TOTAL M.P.C. FRACTION
	PARTICULATE	CHARCOAL	PARTICULATE	CHARCOAL	
1	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION	
2					
3					
4					
5					
6					
7	3.32E-8	3.64			
8					

CONVERSION FACTORS:

2.832E4 cc/cf
 1000 cc/liter

ALPHA
 MPC
 FRACTION

DECAYED ACT.
 3×10^{-11}

* #3 ACTIVITY = $6.6E^{-8}$

Initial Sample
 Count Review

GRCS

TECH

J. N. ALEX
 Sam Cataldo

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP #	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPM		
1 R 75'	292	5-2-84	6453-84	550	0920	0925	155	-	60	8.31E7	1 MEAN
2 51' D/W V-16-1	3157	4-27-84	6454	699	1035	1115	40	3.5	-	3.9E6	2 SF
3 51' D/W	404	7-4-84	6455	560	1525	1035	1270	-	60	7.6E7	3 SF
4 0.1W YARD overboard Disch. PIPE	3155	9-16-84	6456	751	1040	1056	16	3.8	-	1.7E6	4 F
5 23' BY SO WEST CORNER	621	9-22-84	6457	742	0935	1035	80	-	60	4.8E6	5 CAL
6 23' S.E. of D/W	2851	9-15-84	6458	563	0944	1122	88	4	-	9.9E6	6 MEAN
7 D/W 13'	631	4-29-84	6459	560	1425	1220	1315	-	60	7.84E7	7 CB
8 D/W 23'	123	6-29-84	6460	560	1400	1200	1200	-	60	7.20E7	8 CB

LCS (beta)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc
1 172	1331	642	128.4	92.2	6.2E-12
2 22154	1331	7203	1440.6	1410.7	2.1E-9
3 172	1339	4869	973.8	937.6	6.9E-11
4 22154	1379	1429	285.8	255.9	8.8E-10
5 172	1358	217	43.4	7.2	8.4E-12
6 22154	1356	439	87.8	57.9	5.4E-11
7 172	1406	12105	2421	2384.8	1.7E-10
8 22154	1406	7204	1440.8	1410.9	1.14E-10

SAC (Initial Alpha)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc
1 462	1338	88	8.8	8.66	1.9E-13
2 464	1338	41	4.1	3.7	1.5E-12
3 462	1355	28	2.8	2.66	6.4E-14
4 464	1355	65	6.5	6.1	5.8E-12
5 462	1406	29	2.9	2.76	5.8E-12
6 464	1406	81	8.1	7.96	1.3E-12
7 462	1417	141	14.1	13.96	3.2E-13
8 464	1417	98	9.8	9.4	2.1E-13

SAC (Decayed Alpha)

SER #	Gross Counts	Gross CPM	NET CPM	Activity uCi/cc
1				NR
2				
3				
4				
5				
6				
7				
8				

	BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
LCS# 172	36.2	12.5	5 MIN	7-30-84
LCS# 22154	29.9	13.	5 MIN	5-11-84
SAC# 462	.14	3.7	10 MIN	9-21-84
SAC# 464	.4	3.3	10 MIN	7-15-84
SAC#				
SAC#				

GELI CAL CHECK SAT?

YES NO
 #1 PART ☒ ☐
 #1 CHAR ☒ ☐
 #2 PART ☐ ☒
 #2 CHAR ☐ ☒

Fraction	Alpha (Decayed)		MPC Fraction (Geli)		TOTAL M.P.C. FRACTION
	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION	
1					
2	1.07E-9	.01			
3					
4					
5					
6					
7					
8					

CONVERSION FACTORS:
 2.832E4 cc/cf
 1000 cc/liter

ALPHA MPC FRACTION = 3×10^{-11}
 DECAYED ACT.

TECH

Initial Sample
 Count Review

GRCS

Decayed Sample
 Count Review

GRCS

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP #	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPM		
1 NB NORTH LINER TENT	610	6-14-84	6975-84	768-84	1400	1320	1400		60	8.6E7	1 CD
2 NB EAST "B" HOT WELL	077	7-5	6976	768-84	1620	1320	1260		60	7.5E7	2 Bmk
3 NB WEST	018	7-5	6977	550	1620	1335	1275		60	7.7E7	3 DR
4 31' DW	404	7-11	6978	560	1030	1345	195		60	1.17E7	4 DR
5 23' DW	123	6-29	6979	560	1035	1350	195		60	1.17E7	5 DR
6 13' DW	631	4-29	6980	560	1040	1350	190		60	1.17E7	6 DR
7 CPD OVERBOARD DISCHARGE	2859	9-29	6981	751	1338	1430	52	2		2.94E6	7 PL
8 HEATER "A" HP HEATER	2074	9-14-84	6982-84	678-84	1415	1440	25	38		2.68E6	8 PR

LCS (beta)						SAC (Initial Alpha)						SAC (Decayed Alpha)					
SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$	SER #	Gross Counts	Gross CPM	NET CPM	Activity $\mu\text{Ci/cc}$	
1	172	1430	436	87.2	54.2	3.34E-12	462	1505	266	26.6	26.48	5.13E-13					DR
2	22154	1430	909	181.8	149.3	1.16E-11	464	1505	378	37.8	37.44	8.14E-13					DR
3	172	1505	512	102.4	69.4	5.06E-12	462	1515	676	67.6	67.48	1.6E-12					DR
4	22154	1505	588	117.6	85.1	4.25E-11	464	1515	39	3.9	3.91	4.93E-13					DR
5	172	1515	1434	286.8	253.8	1.22E-10	462	1525	190	19.0	19.88	2.95E-12					DR
6	22154	1515	7702	1540.4	1507.9	7.73E-10	464	1525	100	10.0	9.64	1.25E-12					DR
7	172	1525	283	56.6	23.6	4.51E-11	462	1540	86	8.6	8.48	5.3E-12					DR
8	22154	1525	582	116.4	83.9	1.93E-10	464	1540	179	17.9	17.54	1.06E-11	241	241.0	1.3	0.64	4.04E-13

	BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
LCS# 172	33	12.5	5 MIN	7-30-84
LCS# 22154	32.5	13.0	5 MIN	5-11-84
SAC# 462	.12	3.7	10 MIN	9-21-84
SAC# 464	.36	3.3	10 MIN	7-15-84
SAC# 241	.74	4.1	10 MIN	7-7-85
SAC#				

GELI CAL CHECK SAT?

YES NO

#1 PART ☒ ☐#1 CHAR ☐ ☒#2 PART ☐ ☒#2 CHAR ☐ ☒

Fraction	Alpha (Decayed)		MPC Fraction (Gel)		TOTAL M.P.C. FRACTION	
	PARTICULATE	CHARCOAL	PARTICULATE	CHARCOAL	PARTICULATE	CHARCOAL
1	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION		
2						
3						
4						
5						
6						
7						
8						

CONVERSION FACTORS:

2.832E4 cc/cf
1000 cc/liter

ALPHA
MPC
FRACTION

DECAYED ACT.
= 3×10^{-11}

TECH

Initial Sample
Count Review

GRCS

Decayed Sample
Count Review

GRCS

Christy M. Keady
J. Stump
J. Stump

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP #	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPM		
1 DAW YARD DE DISCHARGE	008	8-8-84	6983-84	751-84	1120	1752	392		60	2.35 E7	1 RL
2 FUEL 'C' TENT	2873	9-21-84	6984	794	1700	1718	18	3.7		1.88 E6	2 EG
3 119' RX SE ESP	596	8-3-84	6985	550	1530	1540	1450		60	8.7 E7	3 EG
4 119' RX NE SFP	344	6-4-84	6986	550	1530	1540	1450		60	8.7 E7	4 EG
5 TOP OF TORUS RAY #18	090	7-10-84	6987	804	1045	1500	255		60	1.53 E7	5 BSS
6 119' RX REFUEL BRIDGE	1609	6-14-84	6988	566	1135	1540	255		60	1.53 E7	6 JA
7 COND DEMIN	616	6-29-84	6989	556	1345	1500	75		60	4.5 E6	7 KS
8 TB BASEMENT N. LIBEDIL RAY	122	7-5-84	6990	550	1405	1505	60		60	3.6 E6	8 GB

LCS (beta)

SAC (Initial Alpha)

SAC (Decayed Alpha)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$	SER #	Δ Y	Gross Counts	Gross CPM	NET CPM	Activity $\mu\text{Ci/cc}$	
1	172	1815	1843	376.6	343.6	8.2E-11	462	1845	1450	145	144.88	1.12E-11	241	2442	43	4.3	3.64	3.14E-13
2	22154	1815	741	148.2	115.7	3.6E-10	464	1845	120	12	11.64	1.0E-11	241	2442	9	0.9	0.24	2.59E-13
3	172	1900	878	175.6	142.6	9.2E-12	462	1910	231	23.1	2298	4.8E-13						NR
4	22154	1900	362	72.4	39.9	2.7E-12	464	1910	140	14	13.64	2.5E-13						NR
5	172	1915	340	68	35	1.3E-11	462	1925	87	8.7	8.58	1.0E-13						NR
6	22154	1915	294	58.8	26.3	1.0E-11	464	1925	29	2.9	2.54	2.7E-13						NR
7	172	1925	185	37	4	2.6E-11	462	1935	9	.9	.78	3.2E-13						NR
8	22154	1925	193	38.6	6.1	2.6E-11	464	1935	17	1.7	1.34	6.0E-13						NR

Alpha
(Decayed)MPC Fraction
(Geli)

(Geli)

TOTAL
M.P.C.
FRACTION

GELI CAL CHECK SAT?

YES NO

#1 PART ☒ ☐#1 CHAR ☐ ☒#2 PART ☐ ☒#2 CHAR ☐ ☒

BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
33	12.5	5 MIN	7-30-84
32.5	13.0	5 MIN	5-11-84
.12	3.7	10 MIN	9-31-84
.36	3.3	10 MIN	7-15-84
.74	4.1	10 MIN	2-7-84

CONVERSION FACTORS:
2.832E4 cc/cf
1000 cc/liter

ALPHA
MPC
FRACTION

DECAYED ACT.
= 3×10^{-11}

Fraction	PARTICULATE		CHARCOAL		TOTAL FRACTION
	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION	
1	< MDA				
2					
3					
4					
5					
6					
7					
8					

TECH

Initial Sample
Count Review

GRCS

Decayed Sample
Count Review

GRCS

4-1-84

5 OF 5

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP #	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPM		
1 OVERBOARD Discharge Line (Yard)	120	7-9-84	7029-84	751-84	1344	1527	103		60	6.18E6	1 ER.
2 119' R. BREWEL BRIGGS	609	6-14-	7030-	814-	0910	1505	355		60	2.16E7	2 PR
3 Cargo Transfer House Drain H2O Transfer Drain	2872	9-8-	7031-	770-	1650	1740	50	4	-	5.46E6	3 PR
4 Yard discharge pipe S.W. Corner OPM	008	8-8-	7032-	751-	1705	1820	75	-	60	4.5E6	4 HS
5 Hot Mach. Shop Lathe Tank	027	6-9-	7033-	715-	1445	1905	260		60	1.56E7	5 AJ
6											6
7											7
8											8

LCS (data)

SAC (Initial Alpha)

SAC (Decayed Alpha)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$
1	172	1640	293	58.6	2.32E-11	462	1806	31	3.1	3.02	8.94E-13	241	1813	242	24.2	24.12	7.8E-12
2	22154	1640	448	89.6	1.58E-11	464	1805	56	5.6	5.28	8.99E-13						
3	172	1813	436	87.2	5.38E-11	462	1818	242	24.2	24.12	7.8E-12	241	24	4	4		8.8E-13
4	22154	1917	628	125.6	1.22E-10	464	1923	141	14.1	13.78	5.0E-12						NIR
5	172	2105	362	72.4	1.42E-11	462	2111	52	5.2	5.12	6.0E-13						NIR
6	22154					464											
7	172					462											
8	22154					464											

LCS# 172

LCS# 22154

SAC# 462

SAC# 464

SAC# 241

SAC#

BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
33.1	12.5	5 MIN	7-30-84
31.4	13.0	5 MIN	5-11-84
0.08	3.7	10 MIN	9-21-84
0.22	3.3	10 MIN	7-15-84
0.66	4.1	10 MIN	2-7-85

GELI CAL CHECK SAT?

YES NO

#1 PART ☒ ☐#1 CHAR ☐ ☒#2 PART ☐ ☒#2 CHAR ☐ ☒

Alpha (Decayed)

MPC Fraction (Gel)

(Gel)

TOTAL M.P.C. FRACTION

Fraction	PARTICULATE		CHARCOAL		TOTAL FRACTION
	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION	
1	<MDA	N/A			
2					
3					
4					
5					
6					
7					
8					

CONVERSION FACTORS:

2.832E4 cc/cf

1000 cc/liter

ALPHA

MPC FRACTION

DECAYED ACT.

3 x 10⁻¹¹

TECH

Initial Sample Count Review

GRCS

Decayed Sample Count Review

GRCS

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY	
					ON	OFF		CFM	LPM			
1 13' d/w	63	4-29-84	7021-84	560-84	1350	1355	1455		120	8.67E7	1	LM
2 51' d/w	404	7-7-84	7022-	560-	1345	1335	1430		120	8.58E7	2	LM
3 23' d/w	123	6-29-	7023-	560-	1350	1358	1448		60	8.69E7	3	LM
4 CB EAST (2) A' CONO.	077	7-5-	7024-	768-	1000	1410	250		60	1.5E7	4	DM
5 TURN 10 Bay #5	112	9-29-	7025-	839-	0602	1500	533		60	3.19E7	5	
6 TURN 11	124	6-29-	7026-	846-	0605	1450	525		60	3.15E7	6	
7 TURN 12 Bay #16	406	8-22-	7027-	846-	0605	1450	525		60	3.15E7	7	K
8 COMPRESSOR RECHARGE REPAIR (10 HOURS)	008	8-8-84	7028-84	751-84	1405	1527	82		60	4.92E6	8	FW

LCS (beta)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$
1 172	1524	1035	207	173.9	1.13E-11
2 22154	1530	782	166.4	125	8.52E-12
3 172	1530	1058	211.6	178.5	1.16E-11
4 22154	1545	351	70.2	38.8	1.51E-11
5 172	1638	323	64.6	61.5	1.08E-11
6 22154	1638	410	82	50.6	9.40E-12
7 172	1634	341	68.2	35.1	6.27E-12
8 22154	1634	469	93.8	62.4	7.42E-11

SAC (Initial Alpha)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY $\mu\text{Ci/cc}$
462	1524	192	17.2	19.12	4.03E-13
464	1540	74	7.4	7.08	1.35E-13
462	1540	104	15.4	15.32	3.23E-13
464	1551	139	13.9	13.58	1.48E-12
462	1634	61	6.1	6.02	3.46E-13
464	1634	204	20.4	20.08	1.04E-12
462	1645	127	12.7	12.62	7.33E-13
464	1651	91	9.1	8.78	2.81E-12

SAC (Decayed Alpha)

SER #	Gross Counts	Gross CPM	NET CPM	Activity $\mu\text{Ci/cc}$
1				N/R
2				N/R
3				N/R
4				N/R
5				N/R
6				N/R
7				N/R
8				N/R

	BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
LCS# 172	33.1	12.6	5 MIN	7-30-84
LCS# 22154	31.4	13.0	5 MIN	5-11-84
SAC# 462	0.08	3.7	10 MIN	9-21-84
SAC# 464	0.32	3.3	10 MIN	7-15-84
SAC# 241	0.66	4.1	10 MIN	2-7-84
SAC#				

GELI CAL CHECK SAT?

YES NO
 #1 PART ☒ ☐
 #1 CHAR ☐ ☒
 #2 PART ☐ ☒
 #2 CHAR ☐ ☒

Fraction	PARTICULATE		CHARCOAL		TOTAL M.P.C. FRACTION
	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION	
1					
2					
3					
4					
5					
6					
7					
8					

CONVERSION FACTORS:

2.83254 cc/cf
 1000 cc/liter

ALPHA
 MPC
 FRACTION

DECAYED ACT.

3×10^{-11}

TECH

Initial Sample
 Count Review

GRCS

Decayed Sample

SAMPLE LOCATION	SAMPLER L/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP #	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPM		
1 Yard outside ORW Hepa	082		7218-84	751-84	1850	2145	175	—	60	1.05 E7	1 WRS
2 Overboard discharge pod	008	6-8-84	7219-84	751-84	1935	2135	120	—	60	7.2 E6	2 WRS
3											3
4											4
5											5
6											6
7											7
8											8

LCS (beta)						SAC (Initial Alpha)						SAC (Decayed Alpha)					
SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc	SER #	Gross Counts	Gross CPM	NET CPM	Activity uCi/cc	
1	172	2245	374	74.8	39	2.09E-11	462	2305	114	11.4	11.32	128 E-12				N/R	
2	22154	2245	480	96	62.9	5.11E-11	464	2305	129	12.9	12.66	2.87E-12				N/R	
3																	
4																	
5																	
6																	
7																	
8																	

	BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
LCS# 172	35.8	12.5	5 MIN	7-30-84
LCS# 22154	33.1	13.0	5 MIN	5-11-84
SAC# 462	.08	3.7	10 MIN	9-21-84
SAC# 464	.24	2.3	10 MIN	7-15-84
SAC# 241	.7	4.1	10 MIN	2-7-85
SAC#				

GELI CAL CHECK SAT?

YES NO

#1 PART ☒ ☐

#1 CHAR ☐ ☐ N/A

#2 PART ☐ ☒

#2 CHAR ☐ ☒

Alpha (Decayed)	MPC Fraction (Geli)		TOTAL M.P.C. FRACTION	
	Fraction	PARTICULATE TOTAL ACTIVITY	CHARCOAL TOTAL ACTIVITY	FRACTION
1				
2				
3				
4				
5				
6				
7				
8				

CONVERSION FACTORS:
2.832E4 cc/cf
1000 cc/liter

ALPHA
MPC
FRACTION = 3×10^{-11}

TECH

H. J. Lashford

Initial Sample
Count Review

GRCS

J. L. Stump

Decayed Sample
Count Review

GRCS

J. L. Stump

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP #	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPM		
1 Torus Bay #13	2859	9-28-84	7210-84	858-84	1729	1746	17	6	-	2.89 E6	1 TS.
2 ORW Small Pump Rm	2862	4-27-	7211	868-	1905	1930	25	3	-	2.12 E6	2 GK
3 Overboard Discharge line	2681	9-27-	7212	751-	2020	2035	15	3.6	-	1.53 E6	3 WRS
4 D/W 5"	405	7-4-	7213	820-	1425	1840	255	-	60	1.53 E7	4 MBL
5 SE Corner -19	082	9-23-	7214	825-	1615	1750	95	-	60	2.43 E7	5 WRS
6 Torus Platform 16'	124	6-29-	7215	846-	0400	2045	1005	-	60	6.03 E7	6 DRM
7 Torus Bay #16	406	8-22-	7216	846-	0400	2045	1005	-	60	6.03 E7	7 DRM
8 Inside Torus	112	9-29-V	7217	839-V	1100	2100	600	-	60	3.6 E7	8 DRM

LCS (beta)

SER #		START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY A/GI/CC	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY A/GI/CC	SER #	Gross Counts	Gross CPM	NET CPM	Activity uCi/cc
1	172	2057	251	50.2	14.4	2.8E-11	462	2120	5	.5	.42	2.7E-13	4				N/R
2	2154	2057	1012	2023.4	1989.3	5.4E-9	464	2120	290	29	28.76	2.2E-11					N/R
3	172	2203	269	53.8	18	6.1E-11	462	2214	29	2.9	2.82	3.3E-12					N/R
4	2154	2203	917	183.4	150.3	5.7E-11	464	2214	61	6.1	5.86	6.2E-13					N/R
5	172	2214	308	61.6	25.8	2.5E-11	462	2226	56	5.6	5.52	1.7E-13					N/R
6	2154	2214	170	34	9	2.7E-11	464	2226	2	.2	2.04	4.2E-13					N/R
7	172	2236	319	63.8	28	2.6E-12	462	2245	71	7.1	7.02	2.1E-13					N/R
8	2154	2226	417	83.4	50.3	8.1E-12	464	2245	124	12.4	12.16	5.5E-13					N/R

BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
35.8	125	5 MIN	7-30-84
33.1	130	5 MIN	5-11-84
.08	37	10 MIN	9-21-87
.24	22	10 MIN	7-15-87
.7	41	10 MIN	2-7-85

GELI CAL CHECK SAT?

YES NO
 #1 PART ☒ ☐
 #1 CHAR ☐ ☒ N/A
 #2 PART ☐ ☒
 #2 CHAR ☐ ☒

MPC Fraction

Fraction		PARTICULATE TOTAL ACTIVITY		CHARCOAL TOTAL ACTIVITY		M.P.C. FRACTION
1						
2						
3						
4						
5						
6						
7						
8						

CONVERSION FACTORS:

2.832E4 cc/cf
 1000 cc/liter

ALPHA MPC FRACTION

DECAYED ACT. = 3×10^{-11}

TECH

H. Toland

Initial Sample Count Review

GRCS

Decayed Sample Count Review

GRCS

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY
					ON	OFF		CFM	LPM		
1 ORW Overboard Discharge	2681	9-22-84	7284 84	737 84	1322	1457	95	2		5.37E6	1 PR
2 119 N of SFP	344	6-4-84	7285	825	0330	1500	690		60	4.14E7	2 GEB
3 51' OW	404	7-4-84	7286	820	1115	1415	180		60	1.08E7	3 EG
4 23' OW	123	6-29-84	7287	820	0945	1420	275		60	1.65E7	4 EG
5 13' OW	631	4-29-84	7288	820	0950	1520	340		60	2.04E7	5 EG
6 ORW 7-4 Halse	047	7-5-84	7289	840	1052	1505	253		60	1.5E7	6 OGC
7 119 S of SFP	596	8-2-84	7290	825	0330	1500	690		60	4.14E7	7 GEB
8 Refuel Bridge	609	6-4-84	7291	825	0830	1110	190		60	1.14E7	8 JA

LCS (beta)

SAC (Initial Alpha)

SAC (Decayed Alpha)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc	SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc
1 172	1546	432	86.4	51.8	5.4E-11	462	1557	40	4.0	3.9	1.7E-12	464	1557	40	4.0	3.9	1.7E-12
2 22154	1546	733	146.6	116.7	1.6E-11	464	1557	389	38.9	38.62	4.5E-12						
3 172	1604	2083	416.6	382	1.9E-10	462	1613	68	6.8	6.7	1.2E-12						
4 22154	1604	767	153.4	123.5	4.3E-11	464	1613	149	14.9	14.62	1.4E-12						
5 172	1614	2800	560	525.4	1.4E-10	462	1625	325	32.5	32.4	2.9E-12						
6 22154	1614	13327	2665.4	2635.5	1.0E-9	464	1625	1159	115.9	115.62	1.2E-11	464	1625	1159	115.9	115.62	1.2E-11
7 172	1625	597	119.4	84.8	1.1E-11	462	1677	227	22.7	22.6	9.9E-13						
8 22154	1625	249	49.8	19.9	1.0E-11	464	1637	24	2.4	2.12	3.0E-13						

Alpha

HPC Fraction

(Decayed)

(Gel1)

(Gel1)

TOTAL

M.P.C. FRACTION

BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
LCS# 172	34.6	12.5	5 MIN 7-30-84
LCS# 22154	29.4	13	5 MIN 5-11-84
SAC# 462	1	3.7	10 MIN 9-21-84
SAC# 464	1.28	3.3	10 MIN 7-15-84
SAC# 241	1.66	4.1	10 MIN 2-7-85
SAC#			

GELI CAL CHECK SAT?

YES NO

#1 PART ☒ ☐#1 CHAR ☐ ☒ NA#2 PART ☐ ☒#2 CHAR ☐ ☒

Fraction	PARTICULATE		CHARCOAL		TOTAL M.P.C. FRACTION
	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION	
1	140A				
2					
3					
4					
5					
6					
7					
8					

CONVERSION FACTORS:

2.832E4 cc/cf
1000 cc/literALPHA
MPC
FRACTION

DECAYED ACT.

= 3×10^{-11}

TECH

Initial Sample
Count Review

GRCS

Decayed Sample
Count Review

GRCS

SAMPLE LOCATION	SAMPLER S/N	SAMPLER CAL DUE	AIR SAMPLE #	RWP #	TIME		TOTAL TIME (MIN)	FLOW RATE		FILTER VOLUME (CC)	COLLECTED BY	
					ON	OFF		CFM	LPM			
1 HMS	410	9-20-84	7276-84	825-84	0845	1125	1660		60	9.6E7	1	LL
2 48' NRW CLW-T-Vault	3164	7-20-	7277	841	1145	1310	85	4		9.6E6	2	LM
3 NRW WASTE CONC PURITY PUMP	2856	9-28-	7278	824	1705	1755	50	3.8		5.58E6	3	JTB
4 CB INSIDE B COND	411	6-14-	7279	771	1005	1420	1695		60	1E8	4	JJ
5 CB INSIDE A COND	2074	9-14-	7280	771	1725	1755	30	3.7		3.14E6	5	JS
6 51' SAC	2069	7-27	7281	863	1740	1915	35	2		1.98E6	6	JC
7 ORW OVERBOARD DISCHARGE	008	6-8	7282	751	1715	1955	100		60	6.0E6	7	PR
8 ORW OVERBOARD HEPA LE	035	9-21	7283	751	1322	1515	113		60	6.78E6	8	PR

LCS (beta)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc
1 172	1335	914	182.8	148.2	8.6E-12
2 22154	1405	1199	239.8	209.9	1.2E-10
3 172	1446	379	75.8	46.2	4.3E-11
4 22154	1454	1066	213.2	183.3	1.0E-11
5 172	1459	332	66.4	31.8	5.6E-11
6 22154	1525	495	99	69.1	2.0E-10
7 172	1528	474	94.8	60.2	5.6E-11
8 22154	1538	432	86.4	56.5	4.8E-11

SAC (Initial Alpha)

SER #	START TIME	GROSS COUNTS	GROSS CPM	NET CPM	ACTIVITY uCi/cc
462	1425	526	52.6	52.5	1.0E-12
464	1425	112	11.2	10.92	1.1E-12
462	1451	201	20.1	20	6.8E-12
464	1505	320	32.0	31.72	5.1E-12
462	1505	90	9.0	8.9	4.7E-12
464	1530	148	14.8	14.52	1.1E-11
462	1545	149	14.9	14.8	4.5E-12
464	1545	167	16.9	16.62	4.0E-12

SAC (Decayed Alpha)

SER #	Gross Counts	Gross CPM	NET CPM	Activity uCi/cc
462	29.3	5	.5	.3
462				
462				
462				
462				
462				
462				
462				

BKG CPM	CORR FACTOR	COUNT TIME	CAL DUE DATE
LCS# 172	34.6	12.5	5 MIN 7-30-84
LCS# 22154	29.9	13.0	5 MIN 5-11-84
SAC# 462	.10	3.7	10 MIN 9-21-84
SAC# 464	.28	3.3	10 MIN 7-15-84
SAC# 241	.66	4.1	10 MIN 2-7-85
SAC#			

GELI CAL CHECK SAT?

YES NO

#1 PART ☒ ☐

#1 CHAR ☐ ☒ NA

#2 PART ☐ ☒

#2 CHAR ☐ ☒

Fraction	Alpha (Decayed)		MPC Fraction (Gel)		TOTAL M.P.C. FRACTION
	PARTICULATE	CHARCOAL	PARTICULATE	CHARCOAL	
1	TOTAL ACTIVITY	FRACTION	TOTAL ACTIVITY	FRACTION	
2					
3					
4					
5					
6					
7					
8					

CONVERSION FACTORS:
2.832E4 cc/cf
1000 cc/liter

ALPHA
MPC
FRACTION = 3×10^{-11}

TECH

Initial Sample
Count Review

GRCS

Decayed Sample
Count Review

GRCS

Radioactive Work Permit

3 0 0 A 2 1 2 0 1 0

Job Location

ORW YARD

☐ Extended RWP

RWP # 0 7 5 1 8 4

Start of Job Date

OVERBOARD DISCHARGE PIPE

3 0 1 C 2 1 2 0 1 0

RWP #

0 7 5 1 8 4

Expiration Date

3/27/84

Priority Code

①

Job Order

Number

23

WP4DW

17 Job Title

REPLACEMENT OF OVERBOARD DISCHARGE

PIPE

Type of Work:

0 5

Insert Appropriate Code

- ☐ 011 Reactor Operations & Surveillance
☐ 012 Routine Plant Maintenance
☐ 013 Special Plant Maintenance
☐ 014 Refueling Operations
☐ 015 Waste Processing
☐ 016 Inservice Inspection

PROTECTIVE EQUIPMENT REQUIRED

DOSIMETRY

- ☒ Whole Body TLD
☐ Extremity TLD
☐ Neutron TLD
☒ Self Reader (0-200)
☐ Self Reader (0-500)
☐ Self Reader (0-1000)
☐ Alarming Dosimeter

MONITORING

- ☐ At Start of Job
☐ Survey Meter Required
☐ Intermittent
☒ Continuous - ②

HEAD

- ☐ Hard Hat
☒ Surgeon's Cap
☒ Hood w/Respirator
☒ Other Tape

FACE

- ☐ Beta Glasses
☐ Goggles
☐ Face Shield
☐ Other

FEET

- ☒ Cloth Shoe Covers - 2 pr.
☐ Rubber Shoes
☐ Rubber Boots
☒ Other Tape

BODY

- ☐ Lab Coat
☐ One Pair Coveralls
☒ Two Pair Coveralls
☐ Waterproof
☒ Other Tape

HANDS

- ☒ Cotton Glove Liners
☐ Plastic Gloves
☐ Neoprene Gloves
☒ Rubber Gloves - 2 pr.
☒ Other Tape

RESPIRATORY DEVICES REQUIRED

Air-Purifying

- ☐ Full-face NP
☒ PAPP - ②
 Atmos-supply
☐ Full-face CF
☐ Hood CF

SCBA

- ☐ Full-face PD

CONTAMINATION CONTROL REQUIREMENTS

- ☒ Rad Con to be Present for Equipment Opening or Line Break
☐ Air Particulate Monitor (CAM)
☒ Air Grab Sample Every G.A. + B/2 during major evolutions
☒ Particulate ☐ Charcoal
☐ Establish High Contamination Isolation Area
☐ General Decontamination before Start of Work
 See RWP #
☒ Establish Local Ventilation - ②
☒ Use Liquid Collection Container - for grinding debris
☒ Drop Cloth or Blotter Paper - Herculite ②
☒ Smear Survey Required - of parts to be ground + welded
☐ Lapel Air Sampler

EXPOSURE CONTROL REQUIREMENTS

- ☐ Gamma Alarm
☒ Preplanning Meeting w/GRS/RCT/workers/Job Supv.
☒ Sign In and Out or: Special Supplemental Sheets
☒ Notify Rad Con Prior to Start of Work
☐ Timekeeper Required
☐ Mock-up Training
☐ Temporary Shielding
☐ Stay Time _____ Hours _____ Min
☒ Periodic Field Survey Every during major evolutions
☒ Authorized Exposure for This Job 100 MREM
☒ Avoid Hot Spot Tags per RCT.
☒ Coordinate activities w/RCT on Job

SURVEY MEASUREMENTS

Location	Radiation mrem/hr. or rem/hr.	Surface Contamination DPM/100cm ²	Airborne μCi/CC
R/S + S/S # 3959-84			AK # 6031-84
ORW Overboard Discharge pipe	12 B' 28	12,000	8.0E-11

SPECIAL PRECAUTIONS

- ① All personnel to read + comply with RER # 155-84. RER 163-KY
 ② As per RER # 155-84 or GRS
 As per RER # 163-84 " "

Requested by D CERASUOLO

Date 3 19 1984

Time 1300

Approvals:

Radiological Control R. A. Henriquez Jr. / J. L. [Signature]

Date 3/20 1984

Time 0700

Operations J. L. [Signature]

Date 3-20 1984

Time 10³⁰ AM

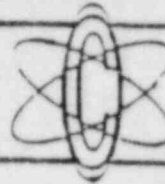
Radiological Control Termination R. A. Henriquez Jr.

Date 4/6 1984

Time 1145 AM

OYSTER CREEK
NUCLEAR GENERATING STATION

P.O. BOX 388 • FORKED RIVER • NEW JERSEY • 08731



P.E.R. = 155-84

DATE MAR 19 1984

RADIOLOGICAL ENGINEERING REQUEST
- RAD CON DEPT.

ALARA NO.

WPUDW

TO: MANAGER, RADIOLOGICAL CONTROLS

Subject: OVER BOARD DISCHARGE PipeContact: DCED ASK 606 Req. Comp. Date 3-17-84

DESCRIPTION OF REQUEST:

The elbow of Radwaste will be replaced with new elbow. The old elbow will be cut out and new elbow will be welded in.

REASONS/DISCUSSION:

opening potentially contaminated system

SIGNED

ASSIGNED TO:

DATE RECEIVED

3/16/84 @ 1600

R.E.D. SUPV.

IN SERVICE MAR 19 1984

(ATTACH EXPLANATION OF REMAINING WORK & ESTIMATED COMPLETION DATE)

PROJECT ANALYST

R.E.D. SUPV.

COMPLETED

RWP #

PROJECT ANALYST

R.E.D. SUPV.

RWP/ALARA WORK SHEET

4

R.E.R.# 155-84
Initiated by:
CERASUOLO

I PLANNING

radiological engineering department ext 6980

Date: 19 1984



Radiological Engineering Review Required
 Special Procedure Required & Approved
 Mock Up & Training
 Pre-Work Meeting with Supervisors & Workers Required
 Post-Work Meeting Required
 Other _____

RWP# _____

INITIATED BY: _____

DATE: _____

II MAN REM ESTIMATION

Number of Workers on Job
 Estimated Man-Rem
 Actual Man-Rem

2 + RCT
 4.025

8h x 2 men x 0.6 CF x 0.002 R/h = 19.2
 1 ACT
 $\frac{24}{25}$

Estimation Calculated By

2/

III AREA SET UP & CLEAN UP

☒ Decon Required in Area. Describe ALL EXPOSED SURFACES TO BE < CONTAM

LIMITS AT END OF WORK, DECON AS NECESSARY.

Verification of Decon By RAD CON SURVEY/GRCs

☒ Remove Radioactive Materials Contributing To Bkgd Levels. Describe AS IDENTIFIED

BY RAD CON SURVEY/GRCs - USED P.C.'s & EQPT TO BE EXPEDITIOUSLY
REMOVED FROM WORK AREA.

Verification of Removal By RAD CON SURVEY/GRCs

☐ General Housekeeping Required. Describe USE SPECIFIC RADIOLOGICAL

ESTIMATION, LET WORKERS, COMPLY WITH APPLICABLE STATUTORY
PROCEDURES.

Verification of Completion By JOB SUPERVISOR.

☐ Additional Lighting Required. Describe COMPLY WITH JOB SUPERVISORS

DETERMINATION.

Verification of Installation By JOB SUPERVISOR/WORKERS.

Special Instructions GRCs TO PROVIDE CONTAM CONTROL GUIDANCE FOR

ADDITIONAL LIGHTING EQPT, IF USED.



IV DOSIMETRY

- ☒ TLD
☒ Neutron
☒ Extremity TLD
☐ Rt. Hand
☐ Lt. Hand
☐ Rt. Foot
☐ Lt. Foot

- ☐ Alarming Dosimeter &
 Set Point _____ mrem
☒ Self Reading Dosimeter
☐ 200 mR
☐ 500 mR
☐ 1000 mR
☐ Neutron

SPECIAL INSTRUCTIONS THE NEED FOR EXTREMITY MONITORING IS NOT ANTICIPATED.

GRCS TO DIRECT PLACEMENT OF LBS DOSIMETRY AND SRD SCALE FOR RWP AND INSTRUCTIONS.

V MONITORING

- ☐ Meter Required
☐ Continuous By Tech
☐ Intermittant By Tech
 @ _____

- ☐ Time Keeper Required
 Stay Time _____
☐ A.R.M. To Be Set Up
 @ _____ Set Point

☒ Intervals or as Follows: COMPLY WITH RWP/GRCS INSTRUCTIONS.

SPECIAL INSTRUCTIONS CONTINUOUS MONITORING SUGGESTED.

VI RADIATION EXPOSURE CONTROL

- ☒ Hot Spots Identified & Tagged Or Roped Off
☒ System Or Equipment To Be Filled With Water
☒ System Or Equipment To Be Drained
☐ Remote Handling Tools Required & List _____

☐ Shielded Drums Or Casks Required For Removal Of Hot Parts Or Waste N/A

☐ Buckets Of Water Required For Carrying Hot Parts Or Equipment N/A

- ☒ Shielding Required ☐ Permanent ☐ Temporary
R.E.D. Engineering Request Form Filled Out & Attached

Verification That Shielding Is Installed & Levels Acceptable For Work In Area By: _____

SPECIAL INSTRUCTIONS NOT REQUIRED.

VII CONTAMINATION CONTROL

- ☒ Establish Hi-Contamination Area
☒ Floor Covering Required & Type SEE BELOW.
☐ Drip Pan Required & Size _____
☐ Drum Or Bottle Required For Liquid Collection & Size _____
☐ Sleeving Required & Size _____
☐ Glove Bag Or Box Required _____
☒ Containment Structure Required AS BUILT
☐ Special Containment Required & R.E.D. Engineering Request Form Filled Out And Attached
☐ Vacuum Assisted PWR Tools Required _____

Containments Checked Out & Verified By _____ Date _____

SPECIAL INSTRUCTIONS LINE HOLE WITH Herculite (EQUIV) TO CATCH GRINDING DEBRIS AND OTHER LOOSE MATERIAL, ROLL UP, IN UPON ITSELF, FOR DISPOSAL

VIII VENTILLATION UNITS

- ☒ 500 cfm/Hepa Filter (MINIMUM)
☐ 1000 cfm/Hepa Filter
☐ Vacuum Cleaner/Absolute Filter

Ventillation Units, Filters & Set Up Of Units Checked Out & Verified By _____
 Date _____

SPECIAL INSTRUCTIONS PULL SUCTION TO SUPPORT WORK, CLOSE FOR GRINDING BACK OFF SLIGHTLY TO SUPPORT WELDING.

IX AIR SAMPLING

- ☐ Before Work
☐ During Work
☐ After Work
☒ At Following Specific Times COMPLY WITH RWP/GAS INSTRUCTIONS

☐ MFC LOG Required

Location & Type of Sampler Required

- ☐ Low Volume
☐ High Volume
☐ Lapel
☐ CAM

- ☐ Work Area
☐ Breathing Zone
☐ Outside Work Area
☒ Other COMPLY WITH RWP/GACS INSTRUCTIONS.

SPECIAL INSTRUCTIONS LOW VOL G/A INSIDE CONTAINMENT AND AT HEPA EXHAUST, HI-VOL
0/3 AT MAJOR EVOLUTIONS, COUNT & G/Li ALL SAMPLES: SUGGESTED.

X MISCELLANEOUS EQUIPMENT REQUIRED

- ☐ Walkie Talkies
☐ Megaphone With Alert
☐ _____
☐ _____

N/A.

XI RESPIRATORS REQUIRED

- ☐ Full Face N.P. ☐ Scott Pak
☐ Full Face C.F. ☐ Plastic Hood
☐ Full Face Air Purifying

SPECIAL INSTRUCTIONS COMPLY WITH RWP/GACS INSTRUCTIONS. PAPP SUGGESTED

FOR GRINDING AND WELDING UNTIL ALL ROOT PASSES COMPLETE; GACS SHOULD
CONSIDER REDUCING RESP RMTS WHEN ROOT PASS COMPLETE.

XII ADDITIONAL INFORMATION

CONSIDER ROUTING EXHAUST TUBING INTO ENCLOSURE FROM EAST END;
VENT UNIT SHOULD BE RUNNIN FOR ALL GRINDING/WELDING EVOLUTIONS
AND FOR $\approx 1/2$ HOUR AFTERWARD. ALL A/S SHOULD BE COUNTED AND G/Li
COUNTED. GACS SHOULD LOG START/STOP TIMES OF VENT UNIT.

R.E.R. # 155-89

DATE: MAR 19 1964

SHEET 5 OF 5

ALARA No.

W P U D W

This task has been assigned ALARA tracking number

This number is to appear in Blocks 23 thru 27 of all RWP's generated for this task.

Cite this ALARA number on all surveys done for this task, forward copies of surveys to the Radiological Engineering Department,

Attention: J. Dancy.

Rad-Con technicians working in support of this task are to charge their exposure to the workers RWP so that the total job man-rem investment can be determined.

**OYSTER CREEK
NUCLEAR GENERATING STATION**

P.O. BOX 388 • FORKED RIVER • NEW JERSEY • 07731



R.E.R. = 163-84

DATE MAR 22 1984

RADIOLOGICAL ENGINEERING REQUEST
- RAD CON DEPT.

ALARA NO.

W P U D W

TO: MANAGER, RADIOLOGICAL CONTROLS

Subject: RADWASTE OVERBOARD Footing RemovalContact: DCERASUOLOReq. Comp. Date 3-22-84

DESCRIPTION OF REQUEST:

THE FOOTING AROUND THE RADWASTE OVERBOARD
NEEDS TO BE CHIPPED AWAY. ~~for~~ THIS IS REQUIRED
TO MAKE THE UPPER PIPE WELD.

REASONS/DISCUSSION:

THE CONCRETE IN THIS AREA IS CONTAMINATED

ASSIGNED TO:

J. Herby

SIGNED

DCERASUOLO

DATE RECEIVED

3/21/84 @ 1520.

IN SERVICE MAR 22 1984

R.E.D. SUPV.

W. Bonte(ATTACH EXPLANATION OF REMAINING WORK & ESTIMATED
COMPLETION DATE)

PROJECT ANALYST

DDZ

R.E.D. SUPV.

R. Steward

COMPLETED

RWP #

PROJECT ANALYST

R.E.D. SUPV.

RADIOLOGICAL ENGINEERING DEPT.
SUPPLEMENTAL WORK SHEET

ALARA NO.

W P U D W

R.E.R. # 163-84

DATE: MAR 22 1984

SHEET 1 OF 2

JOB SUPERVISOR ADVISES THAT INTERFERENCES FROM CONCRETE FOOTINGS LIMIT ACCESS TO WELD POINT ON EXISTING PIPE SEGMENT AND THAT HE HAS RECEIVED APPROVAL FROM PLANT ENGR TO REMOVE SOME OF THIS MATERIAL IN ORDER TO COMPLETE THE WELD. JOB SUPERVISOR ALSO PLANS TO REPAIR/REPLACE THE FOOTING CONCRETE TO PRESENT DIMENSIONS WITH SUITABLE MATERIAL.

GROSS MASLIN SMEAR TAKEN ON CONCRETE AROUND DISCHARGE LINE SHOWED 5K (SURVEY # 4094-84). DETAILED SMEAR SURVEY SHOWED 3K dpm/100cm² (SURVEY # 4176-84).

PER DISCUSSION WITH JOB SUPERVISOR, THE SURFACE OF THE CONCRETE WHICH IS TO BE REMOVED (HAMMER & CHISEL OR POWER CHIPPER) WILL FIRST BE PAINTED, SO AS TO FIX ANY LOOSE CONTAMINATION, AND ALLOWED TO DRY PRIOR TO WORK. THE HOLE WILL BE LINED WITH HURCULITE (OR EQUIVALENT) MATERIAL AND ALL DEBRIS PRODUCED BY THE CHIPPING WILL BE COLLECTED AND DISPOSED AS RADIOACTIVE WASTE. RAD-CON SHOULD RESURVEY EXPOSED SURFACES AFTER FIRST LAYER OF MATERIAL IS REMOVED. IF SIGNIFICANT CONTAMINATION IS OBSERVED, REPEAT APPLICATION OF PAINT PRIOR TO REMOVAL OF NEXT LAYER OF CONCRETE. RESURVEY AND RETEST AS NECESSARY. THE HEPA UNIT SHOULD BE RUNNING DURING CONCRETE CHIPPING OPERATIONS BUT MAY BE STOPPED DURING PAINTING OPERATIONS IF THE DRAFLOW WILL CAUSE INTERFERENCE. P.C. & RESP PER RWP/GACS. MAN-REM ≤ 0.010
EXTREMITY MONITORING: N/A SHIELDING: N/A

REPORT BY:

REVIEWED BY:

[Signature]

[Signature]

R.E.R. # 163-84

DATE: MAR 22 1984

SHEET 2 OF 2

ALARA No.

W P U P W

This task has been assigned ALARA tracking number

This number is to appear in Blocks 23 thru 27 of all RWP's generated for this task.

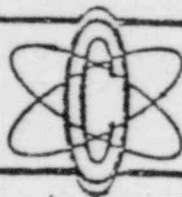
Cite the ALARA number on all surveys done for this task, forward copies of surveys to the Radiological Engineering Department,

Attent J. DERBY.

Rad-C. technicians working in support of this task are to charge their exposure to the workers RWP so that the total job man-rem investment can be determined.

OYSTER CREEK

915.10 Rev 3 6/9/82



NUCLEAR GENERATING STATION

Form H.P.-915.10-1
UNUSUAL INCIDENT REPORT

UIR # 135-84

DATE OF OCCURANCE 3-18-84

TIME 1745

LOCATION a) HURRICANE SHELTER + B)

DATE SUBMITTED 3-21-84

TIME 1700

PERSONNEL INVOLVED

J. ADAMS	546-60-4799	JCP&L / MECH. MAINT
R. HARMYK	148-34-2433	JCP&L / MECH. MAINT
T. DELON	269-34-0489	JCP&L / MECH. MAINT
B. Russo	109-40-5090	JCP&L / MECH. MAINT
E. STROUT	138-48-0175	JCP&L / MECH. MAINT

NAME	S.S. #	EMPLOYER/DEPARTMENT
PREPARED BY: Sam Catallo		TITLE: G. R. C. S.

Brief Description of Incident Received a phone call at approximate 1745 from Stan. Przytylski that the seaward discharge pipe, that had been torch-cut (approx. 4 ft) and transported to the hurricane shelter; set the fire off.

RECEIVED

MAR 26 1984

MAINTENANCE &
CONSTRUCTION
OYSTER CREEK

PREPARED BY: Sam Catallo

TITLE: GECS

Immediate Corrective Action Taken and Results:

sent to the Hurricane Shelter to survey the cut-pipe.
 Pipe surveyed (ref #3955-84). 48 mrad/hr inside pipe; 1 mrad/hr
 inside pipe; 2 K dpm/100 cm² inside pipe. Surveys
 were also performed from the Hurricane Shelter to the
 work area (<1K dpm/100 cm²); Surveyed pipe @ work site.
 External <1K dpm/100 cm²; internal = 12 mrad/hr; 2 mrad/hr
 12 K dpm/100 cm² - both ends covered & tagged.

all five personnel involved were sent to the Whole-Body
 Counter & all results indicated no internal contamination
 PREPARED BY: Sam Catallo TITLE: E.R.C.S.

Possible Causes of Incident and Methods for Correcting:

PREPARED BY:

TITLE:

RESPONSIBLE DEPT. MGR.

CRITIQUE ☐ IS ☐ IS NOT REQUIRED

REVIEWS

MANAGER OF RADIOLOGICAL CONTROLS

RESPONSIBLE DEPARTMENT MANAGER

DATE

4-12-84

DATE

MANAGER OF OPERATIONS

DATE

MANAGER - PROGRAMS AND CONTROLS

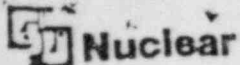
DATE

DIRECTOR OF OYSTER CREEK OPERATIONS

DATE

MANAGER OF RADIOLOGICAL CONTROLS ENGINEERING

DATE



Oyster Creek Nuclear Generating Station
Radiological Control Survey Record

NO.

3959-S

DATE

3/18/84

TIME

10:30 PM

LOCATION:

ORW outside Control Room

REASON FOR SPECIAL SURVEY:

Contamination

OVER BOARD - DISCHARGE PIPE

☐ ROUTINE

☒ SPECIAL

ITEM NO.	ITEMS	DOSE RATES				DISTANCE	SMEARABLE CONTAMINATION		SMEAR AREA
		B mrad/hr	γ mr/hr	Neutron nram/hr	Total mrem/hr		B & γ dpm	α dpm	
1	#1 PIPE INSIDE	12	2		14	CT	2K	N/D	100 CM ²
2	" "						<1K		100 CM ²
3	" "						2K		100 CM ²
4	#1 OUTSIDE GROSS						100 cpm		GROSS
5	#1 INSIDE GROSS						1200 cpm		GROSS
6									
7	#2 PIPE INSIDE	8	<2		8	CT	3K		100 CM ²
8	" "						8K		100 CM ²
9	" "						12K		100 CM ²
10	#2 OUTSIDE GROSS						<100 cpm	Y	GROSS
11	#2 INSIDE GROSS						200 cpm	N/D	GROSS
12									
13									
14									
15									
16									
17									
18									

ALARA NO.
W/P L/D W

INSTRUMENT USED

ROZA

SERIAL NUMBER

1470

CAL DUE DATE

4/3/84

RM14

4338

8/28/84

MS 3/Probe

310 / 2514

5/3/84

AIR SAMPLE DATA:

N/A

REMARKS:

See Map

Surveyor

PA 1/18/86

Reviewed by

Ann Christie

A0001