



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
 NATIONAL MARINE FISHERIES SERVICE
 Southwest Fisheries Science Center
 8604 La Jolla Shores Drive
 La Jolla, CA 92037

February 27, 2007

RECEIVED

FEB 28 2007

DNMS

U.S. NRC Region IV
 Texas Health Resources Tower
 611 Ryan Plaza, Suite 400
 Arlington, TX 76011-4005
 Attn: Jackie Cook

RE: NRC Radioactive Materials License: #04-29022-01

Dear Ms. Cook,

Southwest Fisheries Sciences Center has completed the decommissioning of our facility located at 8604 La Jolla Shores Drive, La Jolla, CA. We have decided to permanently cease operations using radioactive materials and are requesting the unrestricted release of our facility and termination of our Radioactive Materials License #04-29022-01.

Handwritten initials

In support of our termination request, we are submitting the following information for your review:

- Laboratory Decommissioning Report dated February 8, 2007 by Philotechnics, Ltd. as per requirements detailed in NUREG 1757 and NUREG 1575.
- Completed NRC Form 314

We have reviewed and accepted the content of the submitted documentation and appreciate your timely review of our request for unrestricted release and license termination. If you have any questions or concerns regarding our request, please contact our Regional Facilities Manager, Marty Nelson or Jon Dillon with Philotechnics, Ltd. Mr. Nelson can be reached at (858) 546-5650 and Mr. Dillon can be reached at (619) 497-2682.

Sincerely,

Handwritten signature of William W. Fox, Jr.

William W. Fox, Jr., Ph.D.
 Science Director



471280

(6-2004)
10 CFR 30.38(g)(1); 40.42(f)(1);
70.38(g)(1); and 72.54(f)(1)

Estimated burden per response to comply with this mandatory collection request: 30 minutes.
This submission is used by NRC as part of the basis for its determination that the facility is
released for unrestricted use. Send comments regarding burden estimate to the Records and
FOIA/Privacy Services Branch (T-6 F52), U.S. Nuclear Regulatory Commission, Washington, DC
20545-0001, or by Internet e-mail to infocollect@nrc.gov, and to the Desk Officer, Office of
Information and Regulatory Affairs, MEOB-10202, (3150-0028), Office of Management and
Budget, Washington, DC 20503. If a means used to impose an information collection does not
display a currently valid OMB control number, the NRC may not conduct or sponsor, and a
person is not required to respond to, the information collection.

CERTIFICATE OF DISPOSITION OF MATERIALS

LICENSEE NAME AND ADDRESS

NOAA, Southwest Fisheries Science Center
8604 La Jolla Shores Drive
La Jolla, CA 92037

LICENSE NUMBER

04-29022-01

DOCKET NUMBER

LICENSE EXPIRATION DATE

03/31/2016

A. LICENSE STATUS (Check the appropriate box)

- This license has expired.
- This license has not yet expired; please terminate it.

B. DISPOSAL OF RADIOACTIVE MATERIAL

(Check the appropriate boxes and complete as necessary. If additional space is needed, provide attachments)

The licensee, or any individual executing this certificate on behalf of the licensee, certifies that:

- 1. No radioactive materials have ever been procured or possessed by the licensee under this license
- 2. All activities authorized by this license have ceased, and all radioactive materials procured and/or possessed by the licensee under this license number cited above have been disposed of in the following manner:
 - a. Transfer of radioactive materials to the licensee listed below:
 - b. Disposal of radioactive materials
 - 1. Directly by the licensee
 - 2. By licensed disposal site:
 - 3. By waste contractor:
 - Philotechnics, Ltd
 - 201 RENovare Blvd
 - Oak Ridge, TN 37830
 - c. All radioactive materials have been removed such that any remaining residual radioactivity is within the limits of 10 CFR Part 20, Subpart E, and is ALARA.

C. SURVEYS PERFORMED AND REPORTED

- 1. A radiation survey was conducted by the licensee. The survey confirms:
 - a. the absence of licensed radioactive materials
 - b. that any remaining residual radioactivity is within the limits of 10 CFR 20, Subpart E, and is ALARA.
- 2. A copy of the radiation survey results:
 - a. is attached; or
 - b. is not attached (Provide explanation), or
 - c. was forwarded to NRC on _____
- 3. A radiation survey is not required as only sealed sources were ever possessed under this license, and
 - a. The results of the latest leak test are attached; and/or
 - b. No leaking sources have ever been identified

The person to be contacted regarding the information provided on this form:

NAME: Mary Nelson TITLE: Regional Facilities Manager

TELEPHONE (Include Area Code): (858) 546 5640 E-MAIL ADDRESS:

Mail all future correspondence regarding this license to
No change in facility address. Send to address listed above.

C. CERTIFYING OFFICIAL

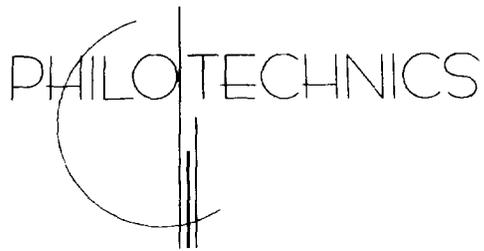
I CERTIFY UNDER PENALTY OF PERJURY THAT THE FOREGOING IS TRUE AND CORRECT

PRINTED NAME AND TITLE
Norm W. Barlow, Ph.D.

SIGNATURE

Norm W. Barlow
DATE: 3/19/07

WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECT. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION



Laboratory Radiological Decommissioning Report



Prepared for:
**U.S. Department of Commerce
NOAA, Southwest Fisheries Science Center
8604 La Jolla Shores Drive
La Jolla, CA 92037
Radioactive Materials License # 04-29022-01**

**Surveyed: January 22-26, 2007
Report Completed: February 8, 2007**

Prepared by:
Philotechnics, Ltd.
7676 Hazard Center Drive, Suite 500
San Diego, CA 92108

**DECOMMISSIONING
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Section 1.0 – Executive Summary

A radiological survey was completed utilizing the requirements and applicable NRC recommendations in order to provide pertinent information for the decommissioning and ultimate unrestricted release of the NOAA, Southwest Fisheries Science Center (NOAA) facility located at 8604 La Jolla Shores Drive, San Diego, California from radioactive material license #04-29022-01. A review of all data collection and analysis supports our professional opinion that the building meets the criterion for unrestricted release and removal from NOAA's Radioactive Materials License based upon the following:

- *All scanning measurements were indistinguishable from background (below the Scanning Survey Minimum Detectable Concentration (MDC)).*
- *All static measurements were indistinguishable from background (below the Static Survey MDC).*
- *All wipe surveys were indistinguishable from background (below the MDC of the Scintillation Counter).*
- *The total effective dose equivalent (TEDE) from any potential radioactive materials in the specified areas is calculated to be 1.3E-02 mRem/year based upon the instrumentation MDCs.*

Section 2.0 – Project Scope, Findings and Summary

Prior to removal from the license, the Nuclear Regulatory Commission (NRC) requires that an appropriate decommissioning survey and report be submitted for their review. This document provides the licensee with appropriate information to request removal of the specified areas through an amendment request with the NRC.

In accordance with our agreement with NOAA, Philotechnics performed a radiological decommissioning of impacted research laboratories. The decommissioning project at NOAA, located at 8604 La Jolla Shores Drive, encompassed surveys and review of all impacted areas in the building. The survey and report provide pertinent information for the radiological decommissioning. The Final Status Survey and analytical data follow the guidance of the Nuclear Regulatory Commission (NRC) documents NUREG-1757 and NUREG-1507. The facility is a commercial/light industrial building used for basic research.

The following summarizes the independent conclusions representing Philotechnics's best professional judgment based on information and data available to us during the course of this assignment. Factual information regarding operations, conditions and test data provided by the client, owner or their representative has been assumed correct and complete based upon careful and diligent review of the safety program and past inspection records. Additionally, the conclusions presented are based on the conditions that existed at the time of the assessment. Note that on-site observation of the above referenced facilities consisted of readily visible, accessible areas only.

Table 1: Assessment Review

Assessment Component	Acceptable	Unacceptable	Section
License Review & Historical Use	X		4.0
<i>Radiation Surveys</i>			
A) Static Measurements – Hand-held instruments	X		5.0
B) Static Measurements – Scintillation Counter	X		5.0
C) Scanning Measurements – Hand-held instruments	X		5.0

Conclusions and Recommendations

Based upon the results of our survey, it is our professional opinion that the building located at 8604 La Jolla Shores Drive, La Jolla, California is free of any radioactive contamination and/or radioactive material sources and may be removed from NOAA's Radioactive Materials License in accordance with Code of Federal Regulations Title 10 Part 30.36, "Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas". During the survey, Philotechnics verified that all labels, signs or other similar markings indicating the

presence of radioactive materials had been removed or obliterated. Additionally, no concerns requiring further investigation exist at this time.

Project Team

The project team consisted of the following individuals:

Researched by: Jon Dillon
Surveyed by: Evan Harpenau, Jon Dillon
Written by: Jon Dillon

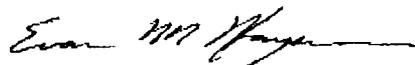
Project Manager and Contact: Jon Dillon

Closing

We appreciate the opportunity to provide this radiological decommissioning and trust that the enclosed information is adequate for decision-making needs. Should you have any questions, please do not hesitate to call the undersigned.



Jon Dillon, M.S.
Regional Manager
Health Physicist



Evan Harpenau
Health Physicist

Section 3.0 – Assessment, Methodology and Report Limitations

The decommissioning process evaluates a property's environmental status for release of affected areas to allow unrestricted use by current or future tenants. The assessment involves the review of operations as they pertain to radioactive materials (RAM) use in order to identify potential radioactive contamination.

Assessment activities related to the laboratory decommissioning for the facility included the following tasks:

- A visual survey of both current and past RAM use areas in order to identify potential contamination and/or presence of radioactive materials
- Interviews with client personnel regarding current and historical use of RAM at the facility
- Review of existing documentation, as provided, regarding prior inspections, investigations, events or conditions at the facility related to RAM use
- Direct surveys of all specified areas with the use of portable hand-held radiation detection equipment to identify the presence of radioactive materials
- Indirect surveys to test for removable contamination with the use of a liquid scintillation counter and wipes taken throughout the specified areas
- Preparation of a report documenting our findings, recommendations and professional opinions regarding observed or suspected radiological concerns

Facility Point of Contact

At the facility Jon Dillon met with Martin Nelson, who is the Radiation Safety Officer for NOAA. Mr. Nelson was able to provide specific information regarding radioactive materials use at the building based upon historical knowledge and implemented practices at NOAA.

Report Limitations

This report has been prepared solely for the use and benefit of NOAA in compliance with RHB requirements and recommendations by the NRC. Our professional services have been performed, our findings obtained and our recommendations prepared in accordance with customary principles and practices in the field of environmental science. This warranty is in lieu of all other warranties either expressed or implied. Philotechnics is not responsible for the independent conclusions, opinions or recommendations made by others based on the field exploration presented in this report.

It must be noted that no investigation, or survey, can absolutely rule out the existence of radioactive materials. However, the survey was provided using acceptable industry practices and utilizing appropriate technology to provide statistical confidence with the data provided. This assessment has been based upon prior history, observable conditions, direct surveys and indirect surveys. There are limitations based upon this approach where contaminants can escape

detection using these methods. Minimum detectable concentrations have been specified for the instrumentation used to qualify the detection limits.

The work performed in conjunction with this assessment and the data developed are intended as a description of available information at the dates and location given. This report does not warrant against future operations or conditions, nor does it warrant against operations or conditions present of a type or at a location not investigated. In addition, this report is not intended as a regulatory agency compliance/safety audit or for the purpose of ensuring that all applicable permits and/or operating procedures are current and/or appropriate.

Section 4.0 License Review and Historical Use

Radioactive Materials (RAM) License

This decommissioning request for unrestricted release pertains to specified areas in the building located at 8604 La Jolla Shores Drive operated under NOAA's radioactive materials license (04-29022-01). A summary of areas where isotopes were used is detailed in the Restricted Area Summary (Table 3).

NOAA radioactive materials license was initially approved on February 10, 1992. The license was renewed in its entirety with each subsequent amendment. The most recent change is shown in Amendment No. 6, which was approved on March 29, 2006. Research involving radioactive materials prior to 1992 was completed under the license for University of California, San Diego (California License #1339-37). NOAA is currently authorized to possess the following isotopes:

Table 2: RAM License Possession Limits

	Nuclide	Form	License Limit
A.	Carbon-14 (C-14)	Any	Not to exceed 50 millicuries (mCi)

Authorized Use

- A. For use in laboratory tracer studies in fish, invertebrates and marine mammal tissue and for phytoplankton primary productivity measurements.

Restricted Area Summary

The areas being requested for release are specified in the table below and are identified on the diagrams in Appendix A.

Table 3: Restricted Area Summary

Restricted Area	Room	Current Action	Typical isotope usage
8604 La Jolla Shores Drive:			
Isotope Lab	D-229	Decommissioned	C-14

Historical Use

NOAA is a research facility that uses small quantities of radioactive materials for purposes of tracers in biological studies. Carbon-14, the primary isotope used at the facility was used for *in-vitro* laboratory tracer studies in seawater samples of phytoplankton. Isotope use on the vessels was completed in a portable laboratory and/or dedicated laboratory space under the authority of the commanding officer and field operations officer on board the ship. Each leg typically lasted

20 – 30 days and the laboratory was cleaned and wipe tests were completed by staff to certify that no contamination was remaining. Results of the contamination surveys were faxed to the captain of the vessel for their recordkeeping.

All radioactive materials brought aboard a NOAA ship, along with any low-level radioactive waste that may have been generated aboard a NOAA ship, was removed from the ship as soon as practicable upon completion of the research project. All radioactive materials and wastes were disposed of in accordance with NOAA's Radioactive Materials License.

The research legs were normally completed during a four to five month period each year and the following table summarized the historical use on the vessels:

Table 4: Historical use on vessels

Year	Period	Vessel	Isotope Used
2006	N/A	None	C-14
2005	June - November	McArthur II	C-14
	July - December	David Starr Jordan	C-14
2004	N/A	None	N/A
2003	July - December	David Starr Jordan	C-14
	July - December	McArthur II	C-14
2002	N/A	None	N/A
2001	July - November	David Starr Jordan	C-14
	November - December	McArthur	C-14
2000	July - December	David Starr Jordan	C-14
	July - December	McArthur	C-14
1999	July - December	David Starr Jordan	C-14
	July - December	McArthur	C-14
1998	July - December	David Starr Jordan	C-14
	July - December	McArthur	C-14
	July - December	R/V Endeavor, URI	C-14
1997	N/A	None	N/A
1996	August - October	McArthur	C-14
	July - November	David Starr Jordan	C-14
1995	August - September	McArthur	C-14
1994	N/A	None	N/A
1993	July - November	David Starr Jordan	C-14
	July - November	McArthur	C-14
1992	July - October	David Starr Jordan	C-14
	July - November	McArthur	C-14
1991	July - November	McArthur	C-14
1990	July - December	David Starr Jordan	C-14
	July - December	McArthur	C-14

* The McArthur was decommissioned in early 2003

Isotope use over the past seven years has involved only C-14, however based upon isotope receipts we do know that P-32 has historical used under this license. Based upon last dates of receipt for the P-32 and any contamination resulting from use would have decayed by the time of our decommissioning survey. The survey model was developed and implemented to detect the isotopes used in each specific area. The table below summarized the historical quantities of materials received under NOAA's radioactive materials license.

Table 5: NOAA Isotope Receipts

2006	-	-	-
2005	25	-	-
2004	10	-	-
2003	5	-	-
2002		-	-
2001	25	-	-
2000	25	-	-
1999	25	2	-
1998	29.0133	10.55	-
1997	-	28.61	-
1996	-	15.01	-
% Usage	72.49%	27.51%	0.0%
Date of last receipt	7/15/2005	2/12/1999	N/A

* Inventory amounts provided by NOAA personnel

Waste Disposal

No radioactive materials or waste remains at the building located at 8604 La Jolla Shores drive. A shipment was completed by Philotechnics on January 22, 2007, to remove all remaining radioactive materials. A copy of the shipment manifest is included as Attachment I.

Radioactive Materials Spills

By completing a review of pertinent records and an interview with Martin Nelson, the Radiation Safety Officer, we were able to ascertain that there have not been any significant radioactive materials spills affecting the areas being requested for release. Significant spills are defined as those spills that were not readily cleaned up by the researcher and/or caused contamination to be found during follow-up or routine contamination surveys in excess of regulatory limits. Monthly contamination surveys were included in the historical review of the license and there were no indications of contamination levels over the criteria for release affecting the laboratories included in this decommissioning survey.

Section 5.0 – Radiation Surveys

Description of Radiation Surveys

On January 22 - 26, 2007, Philotechnics completed a comprehensive wipe and meter survey in all accessible impacted areas, which included benches, floors, cabinets, sinks and laboratory exhaust. Survey maps depicting these areas are included as Appendix C.

The following instrumentation was used to quantify radiation levels:

- Bicron Selectra 1A, with the following
 - ✓ IBP19DD (beta probe)
 - Serial # 486 (Calibrated on 4/18/06)
- Beckman Scintillation Counter (Operational Test 01/25/2007)
NIST certificate for H-3 and C-14 standards included

The instrument calibrations were completed using NIST traceable sources and the Certificates of Calibration are included as Appendix B.

Minimum Detectable Concentration (MDC) Calculations

Philotechnics analytical sheets are included as Appendix D, which show calculations for Static MDC for the Scintillation Counter, Static MDC for Hand-Held Instruments, and Scanning MDC for Hand-Held Instruments. These calculations follow the guidance from the NRC and NUREG-1507. This information is used to verify the effectiveness of the instrumentation used in units of dpm/100 cm².

Area Classifications

Based on the results of the historical site assessment, facility areas were classified as impacted areas or non-impacted areas. Non-impacted areas are areas with no potential residual radioactivity from licensed activities. These include all property outside the building and non-laboratory areas inside the building. Impacted areas are those areas that may have some level of potential residual radioactivity from licensed activities.

Impacted areas are typically divided into Class 1, 2, or 3 areas. Class 1 areas have the greatest potential for contamination and therefore receive the highest degree of survey effort for the final status survey, followed by Class 2 and then by Class 3. The table below lists the recommended maximum survey unit sizes based on floor area. It should be noted that these limits are recommended and are not absolute limits.

Class 1 Areas – Areas with the highest potential for contamination, and meet the following criteria: (1) impacted; (2) potential for delivering a dose above the release criterion; (3) potential for small areas of elevated activity; and (4) insufficient evidence to support classification as Class 2 or Class 3.

Class 2 Areas – Areas that meet the following criterion: (1) impacted; (2) low potential for delivering a dose above the release criterion; and (3) little or no potential for small areas of elevated activity.

Class 3 Areas – Areas that meet the following criterion: (1) impacted; (2) little or no potential for delivering a dose above the release criterion; and (3) little or no potential for small areas of elevated activity.

NOAA Classification Summary:

Non-impacted Areas: Building exterior, outside grounds, indoor areas other than those identified as restricted areas by the RAM license, and surfaces above two meter height in the areas specified below.

Impacted Class 1 Areas: None.

Impacted Class 2 Areas: None.

Impacted Class 3 Areas: Room D-229 including all surfaces less than two meters in height.

Table 6: Recommended Maximum Survey Unit Size Limits

Type of Survey Unit	Class 1	Class 2	Class 3
Structures	Up to 100 m ²	100 m ² to 1,000 m ²	No limit
Land	Up to 2,000 m ²	2,000 m ² to 10,000 m ²	No limit

Table 7: Laboratory Classification

Survey Unit	Classification	Rooms
1	Class 3	D-229

Survey Methodology

The MARSSIM guidance recommends simple random measurement patterns for Class 3 survey units to ensure that the measurements are independent and support the assumptions of the statistical tests. For this survey, measurement locations were selected on a judgmental basis in order to sample in areas where potential contamination may exist.

Surface Scans

The following table compares MARSSIM recommendations and actual area coverage for the scan survey completed at NOAA.

Table 8: Scan Survey Coverage Comparison

Classification	Percentage of Surface Area Requiring Scan Coverage (MARSSIM)	NOAA Surface Area Scan Coverage
1	100%	N/A
2	10 - 100% (Judgmental)	N/A
3	Judgmental	70 - 90%

Class 3 survey areas received a 70 - 90% scan survey of all accessible areas. These scan survey percentages were chosen in order to provide a more comprehensive survey of the impacted areas and a higher confidence that there was no contamination present. In the event of any elevated activity noted from the survey, the location would have been marked and additional measurements would have been taken to quantify the activity. *All scan surveys were indistinguishable from background measurements and therefore additional follow up was not required.*

Fixed or Static Measurements

Static measurements were completed at locations specified in the survey design. No additional areas were identified during the scanning survey that would warrant specific static measurements. The probe was held as close to the surface as practical to determine a count rate in counts per minute. The data calculations from this survey are included as Appendix F. Appendix E provides a summary of background data points, which were collected in an area of similar construction to the area being requested for release. *All static measurements were indistinguishable from background (below the Static Survey MDC).*

Data Analysis

The following table summarizes MARSSIM guidance for conclusions based upon data provided by the Final Status Survey.

Table 9: Guidance for Survey Conclusions

Survey Result	Conclusion
All measurements less than DCGL _w	Survey unit meets release criterion
Average greater than DCGL _w	Survey unit does not meet release criterion
Any measurement greater than DCGL _w and the average less than DCGL _w	Conduct Sign test and elevated measurement comparison

The Derived Concentration Guideline Limit (DCGL) is used as a determining factor to the survey unit meeting the criterion for unrestricted release. As a conservative measure we have chosen to select the DCGL_w's by using a 1 millirem per year release criteria.

Table 10: Established DCGL_w's for Survey

Isotope	DCGL _w 's (DPM/100 cm ²)	Removable DCGL _w 's (DPM/100 cm ²)
C-14	1.5 x 10 ⁵	1,000
P-32	N/A	N/A
S-35	N/A	N/A

Based on a 1 mRem/yr release criteria, the limiting DCGL_w for beta emitters is C-14 at 1.5 x 10⁵ dpm/100 cm². P-32 was not considered due to decay and the last date of receipt.

All of the wipe samples that were taken at the facility were counted on a Beckman Liquid Scintillation Counter for one minute. A data sheet, included as Appendix G, details the CPM results, the DPM conversions and indicates if the result is below the MDC or the maximum DPM calculated. The channels for the Beckman Liquid Scintillation counter were set up so that H-3 would be detected in Channel A, C-14 in Channel B and all other beta emitters in Channel C. As detailed on the calculation sheets, *all wipe surveys were indistinguishable from background (below the MDC of the Scintillation Counter).*

Section 6.0 – Decontamination / Decommissioning Review

Decontamination

Full decontamination is the physical or chemical process of reducing and preventing the spread or potential exposure of contamination. Decontamination options include the use of commercially available materials and/or equipment that will effectively remove radioactive materials from surface areas so that the contamination can be collected and properly disposed.

Radiation decontamination of the specified areas was not required as part of the decommissioning survey. The laboratory survey results did not indicate the presence of any level of radioactive materials that would require decontamination based upon our established action levels. At the time of our review, the action levels were based upon a 1 mRem/year release criteria. *All wipe surveys were indistinguishable from background (below the MDC of the Scintillation Counter).*

Dose Calculations

To support the unrestricted release of the specified laboratories, dose calculations were completed using DandD code Version2. The data sheets are included in Appendix H and doses were calculated using the MDC limits of the instrumentation to give a maximum potential dose resulting from any radioactive material that may not have been detected by the survey. All radionuclides used at 8064 La Jolla Shores Drive were considered as contributors to the dose calculation. Using the MDC values the maximum Total Effective Dose Equivalent (TEDE) is calculated to be 1.3E-02 mRem/year. It is important to recognize that this dose calculation assumes this level of contamination uniformly exists in all areas affected by the decommissioning and that this calculation is very conservative. *The total effective dose equivalent (TEDE) from any potential radioactive materials in the specified areas is calculated to be 1.3E-02 mRem/year.*

Decommissioning Review

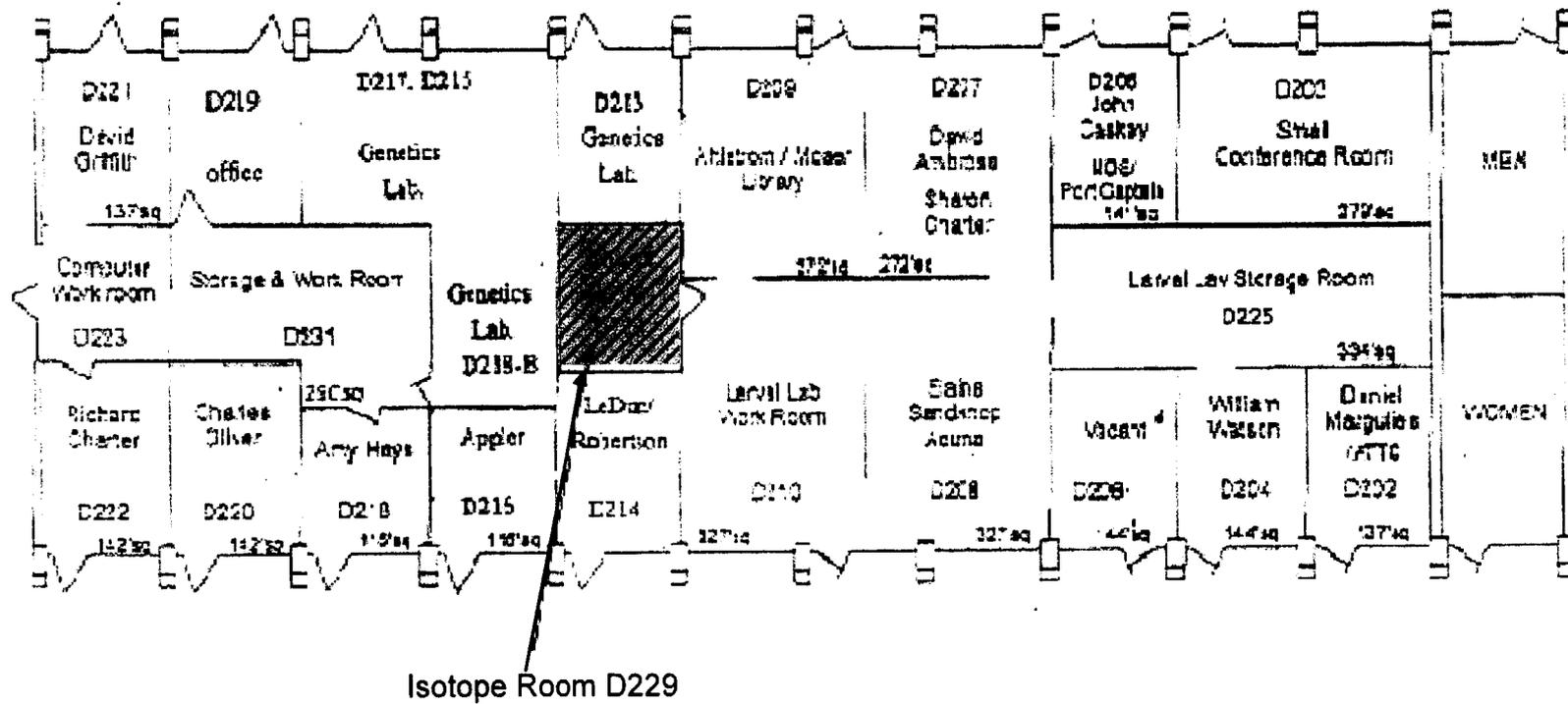
Philotechnics has reviewed all of the applicable data pertaining to the history of radioactive material use as well as the area and wipe surveys completed at the NOAA facility located at 8604 La Jolla Shores Drive. It is our professional opinion that the building is free of any radioactive materials and/or radioactive contamination, would qualify for unrestricted release, and may be removed from NOAA's radioactive materials license in accordance with Code of Federal Regulations Title 10 Part 30.36, "Expiration and termination of licenses and decommissioning of sites and separate buildings or outdoor areas".

APPENDIX A
NOAA, Southwest Fisheries
Site Diagrams Identifying
Decommissioned Areas

NOAA, Southwest Fisheries

D- Second Floor Facility Map

8604 La Jolla Shores Drive



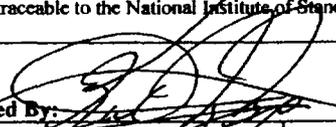
APPENDIX B
*Certificates of Calibration &
Scintillation Check*



**CALIBRATION
CERTIFICATE**

Duratek Instrument Services
628 Gallaher Road
Kingston, TN 37763
Phone: (865) 376-8337
Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

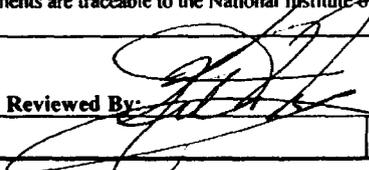
CUSTOMER INFORMATION			INSTRUMENT INFORMATION		
Customer Name: Philotechnics - San Diego, CA			Manufacturer: NE Technology		
Address: 12492 Ruett Alliante San Diego, CA 92130			Model: Selectra 1A	Serial Number: 486	
Contact Name: Bob Trimble			Probe: IBP19DD	Serial Number: K109	
Contract Purchase Order Number: PO-0000366		Work Order Number: 2006-03667	Calibration Method: Electronic and Source		
INSTRUMENT CALIBRATION INFORMATION					
Instrument Range (Auto Ranging)	Calibration Standard Value (cpm)	Instrument Response (cpm)		Comments	
		Before Calibration	After Calibration		
0-1K	200	200	200	Pulser: 101500	Cal Due: 09/28/06
0-1K	500	499	499	DVM: TW12662	Cal Due: 02/23/07
0-1K	800	800	800	D-812: 2816	Cal Due: 04/19/06
1K-10K	2,000	1,995	1,995	Humidity: 958670	Cal Due: 03/29/07
1K-10K	5,000	4,990	4,990	Temp: 19.8 °C	Pressure: 737mmHg
1K-10K	8,000	7,991	7,991	Humidity: 48%	
10K-100K	20,000	20,000	20,000		
10K-100K	50,000	49,900	49,900	Audio: SAT	Backlight: SAT
10K-100K	80,000	80,000	80,000	Batt. Check: SAT	Overrange: SAT
100K-1M	200,000	199,000	199,000		
100K-1M	500,000	500,000	500,000		
100K-1M	800,000	800,000	800,000	Calibrated in accordance with OEM Technical Manual and Industry applicable standards	
All readings within ±10% of Standard Values					
METER CALIBRATION TESTS				COMMENTS	
Test 1 - Software Version	12	Test 5,6,7 Dac Tests	SAT	See detector calibration sheet for detector specific information. Calibration performed with dead time off. Instrument left in "Supervisor Mode" with parameters unlocked per customer request.	
Test 2 - Keypad Test	SAT	Test 8 - Calibrate HV	SAT		
Test 3 - Display Test	SAT	Test 9 - HV Error Check	SAT		
Test 4 - Option Switches	SAT				
STATEMENT OF CERTIFICATION					
We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during shipment or use of this instrument).					
Instrument		Reviewed By: 		Date: 4/18/06	
Calibrated By: M. Paul		Calibration Date: 04/18/06		Calibration Due: 04/18/07	



CALIBRATION CERTIFICATE

Duratek Instrument Services
628 Gallaher Road
Kingston, TN 37763
Phone: (865) 376-8337
Fax: (865) 376-8331

This Certificate will be accompanied by Calibration Charts or Readings where applicable

CUSTOMER INFORMATION				DETECTOR INFORMATION		
Customer Name: Philotechnics - San Diego, CA				Manufacturer: NE Technology		
Address: 12492 Ruett Alliante San Diego, CA 92130				Model: IBP19DD	Serial Number: K109	
Contact Name: Bob Trimble				Calibration Method: Electronic and Source		
Contract Purchase Order Number: PO-0000366		Work Order Number: 2006-03667				
DETECTOR PARAMETER SETUPS						
Parameter	As Found	As Left	Parameter	As Found	As Left	Comments
0	3.6Vdc	4.7Vdc	A	Off	Off	DVM: TW12662 Cal Due: 02/23/07
1	Off	Off	b	Off	Off	D-812: 2816 Cal Due: 04/19/06
3	920V	960V	c	Auto	Auto	Humidity: 958670 Cal Due: 03/22/06
4	3.00uA	3.00uA	E	int	int	
5	3uS	3uS	F	S66	S66	Temp: 19.8 °C Pressure: 737mmHg
6	1.50V	1.50V	G	BP19	BP19	Humidity: 48%
7	60s	60s	H	109	109	** Parameters are loaded into the Selectra instrument automatically when smart detector is connected. **
8	unit CPM	unit CPM	■	Off m	Off m	
INSTRUMENT INFORMATION						
<u>Model</u>			<u>Serial Number</u>		<u>Calibration Due Date</u>	
Selectra 1A			486		04/18/07	
USED FOR EFFICIENCY DETERMINATION AND HV PLATEAUIING						
EFFICIENCY DETERMINATION FOR C ¹⁴ #010002 at 260,460 DPM Certification Date: 12/14/99						
EFFICIENCY DETERMINATION FOR Tc ⁹⁹ #119718 at 20,520 DPM Certification Date: 10/14/97						
Background (CPM)	Gross Source Counts (CPM)		Net Source Counts (CPM)		Efficiency in % (Determined on contact)	
354	18,400		18,046		6.9% for C ¹⁴	
354	3,992		3,638		17.7% for Tc ⁹⁹	
Gross source counts taken from an average of three one minute counts from the Heel, Middle, and Toe of Detector						
STATEMENT OF CERTIFICATION						
We Certify that the instrument listed above was calibrated and inspected prior to shipment and that it met all the Manufacturers published operating specifications. We further certify that our Calibration Measurements are traceable to the National Institute of Standards and Technology. (We are not responsible for damage incurred during shipment or use of this instrument).						
Instrument					Date: 9/18/06	
Calibrated By: M. Paul			Reviewed By:		Calibration Due: 04/18/07	
Calibration Date: 04/18/06						

NOAA, Southwest Fisheries
8604 La Jolla Shores Drive
 1/25/2007

Counting Data:

H-3	46,779
C-14	43,178
Blank	34

Isotope Information:

Analytical Sampling Date: 1/25/2007

Isotope	Initial Counting Date	Sample Date	Counting Date
H-3	105,200	7/2/2001	76,860
C-14	44,600	7/2/2001	44,570

Efficiency Calculations:

Isotope	Initial Count	Count at Date	Efficiency
H-3	46,779	76,860	60.86%
C-14	43,178	44,570	96.88%
Gross Beta	89,957	121,430	74.08%

3. Radioactive material should be stored in a designated area in its original shipping container or labeled inner package.
4. Do not eat, drink, smoke, apply cosmetics, store, or prepare food in any area where radioactive materials are used.
5. Avoid direct contact with all radioactive materials by use of protective articles, such as disposable gloves and lab coats.
6. Use necessary precautions to prevent contamination of the laboratory and equipment, e.g., absorbent material on work surfaces, disposable lab ware.
7. Do not pipette by mouth.
8. Handle all sealed radioactive sources with care so as not to disturb the physical integrity of the capsule or ampoule.
9. This product may be disposed of without regard to its radioactive content provided all radioactive symbols and labels have been removed or de-faced. However, state, federal, or institutional requirements regarding any hazardous component(s) of this product must be addressed.
10. **These precautions are applicable to the handling and disposal of exempt quantity radioactive materials and may not be adequate for other kinds, quantities, or uses of radioactive material.**

BECKMAN
MADE IN U.S.A.

594946
LIQUID SCINTILLATION
STANDARDS SET



PRODUCT DESCRIPTION

The 594946 Liquid Scintillation Standards Set consists of three calibrated, sealed, unquenched samples of: (1) carbon-14, (2) hydrogen-3, and (3) unlabeled (blank) toluene in a scintillation solution. The scintillation solution used contains 4 grams of PPO (2,5-diphenyloxazole) and 0.06 gram of bis-MSB (p-bis[*o*-methylstyryl] benzene) per liter of scintillation-grade toluene. Both the PPO and bis-MSB are scintillation-grade fluors. All standards are furnished in 7-milliliter, low-potassium glass ampoules and sealed under nitrogen, with special precautions taken to exclude oxygen and moisture, which cause quenching. The radioactive standards are prepared by dispensing 4 milliliters of a ¹⁴C or ³H master solution into a 7-milliliter ampoule and flame-sealing it immediately. After leak-testing, a white paint is applied to the top of the ampoule, and a cap is attached. The blank standard is prepared in a similar way.

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ACTIVITY CALIBRATION AND ERROR ANALYSIS

The ^{14}C and ^3H standards have been assayed for activity by comparison with the National Institute of Standards and Technology (NIST) carbon-14 solution standard, Standard Reference Material (SRM) No. 438 tartaric acid in 2M HCl, and tritium solution standard SRM No. 391-B-5, tritiated water in water. The H-Number method of calibration was used with secondary standards prepared from the NIST standards. The estimated activities for the activity standards and the reference dates for all standards are as follows:

H3 DPMs:	105,200	REF DATE:	02JUL01
C14 DPMs:	44,600	REF DATE:	02JUL01
BKG DPMs:	N/A	REF DATE:	02JUL01

THE PRODUCTION SERIAL NUMBERS
FOR THE 3 STANDARDS ARE
AS FOLLOWS :

H3	-	HMM0512
C14	-	CMM2416
BKG	-	BMM4613

The overall uncertainties associated with the activity values are estimated to be less than $\pm 3.5\%$ for the ^3H and $\pm 3.5\%$ for the ^{14}C . These estimates are determined in accordance with error analysis procedures recommended by the International Commission on Radiation Units and Measurements (ICRU Report 12). The limits are calculated by arithmetically summing the uncertainty due to random errors at the 99% confidence level with the assessable systematic errors. Random errors arise from production and assay procedures such as dispensing, weighing and counting. Systematic errors consist of uncertainty in the activity of the NIST-based secondary standards, overall uncertainty of the NIST SRM No. 391-B-5 as a function of time (assuming a half-life of 12.43 years and a half-life uncertainty of 0.5%); uncertainties in the standard weights used for calibrating the balances used in gravimetric determinations, losses of activity by evaporation and uncertainties in corrections applied for the effects of impurities on the scintillation process.

RECOMMENDATIONS FOR USE

Unquenched standards can be used to:

1. Calibrate the instrument. Only one of these standards, ^{14}C or ^3H , can be used for calibration of your instrument. Refer to your Operator's Manual for proper calibration standard. *Use of any other standard from this set or another set requires the construction of new quench curves.*
2. Measure day-to-day ^3H and ^{14}C counting efficiencies for comparison with original factory specifications and for verifying stable system performance.
3. Measure E²/B ratios for low-level activity counting.
4. Measure ^3H and ^{14}C "spillover" in dual-label counting channels.

The instrument Operator's Manual should be consulted for specific instructions on use of these standards.

LIMITATIONS ON USE

Unquenched standards should not be used to construct quench correction curves for calibration of *quenched* samples.

PRECAUTIONS ON STORAGE AND USE

These standards are prepared taking great care to exclude moisture, oxygen, and organic impurities which might affect their long-term stability. The fluors which they contain, however, are susceptible to photochemical degradation, and excessive exposure to sunlight or fluorescent lighting may result in their deterioration.

Samples should be stored in the dark at room temperature and, when in use, exposed only to incandescent lighting. This treatment will improve long-term stability—at least five years—and is highly recommended.

PRECAUTIONS AND THE SAFE USE OF EXEMPT QUANTITY RADIOACTIVE MATERIALS

1. The low quantity radioactive materials in these standards are exempt from U.S. Nuclear Regulatory Commission and state licensing requirements.
2. These radioactive materials are not for human use. Introduction into foods, beverages, cosmetics, drugs, or medicinals, or into products manufactured for commercial distribution is prohibited—exempt quantities should not be combined.

APPENDIX C
Laboratory Survey Maps

NOAA, Southwest Fisheries Final Status Survey

Location: Southwest Fisheries

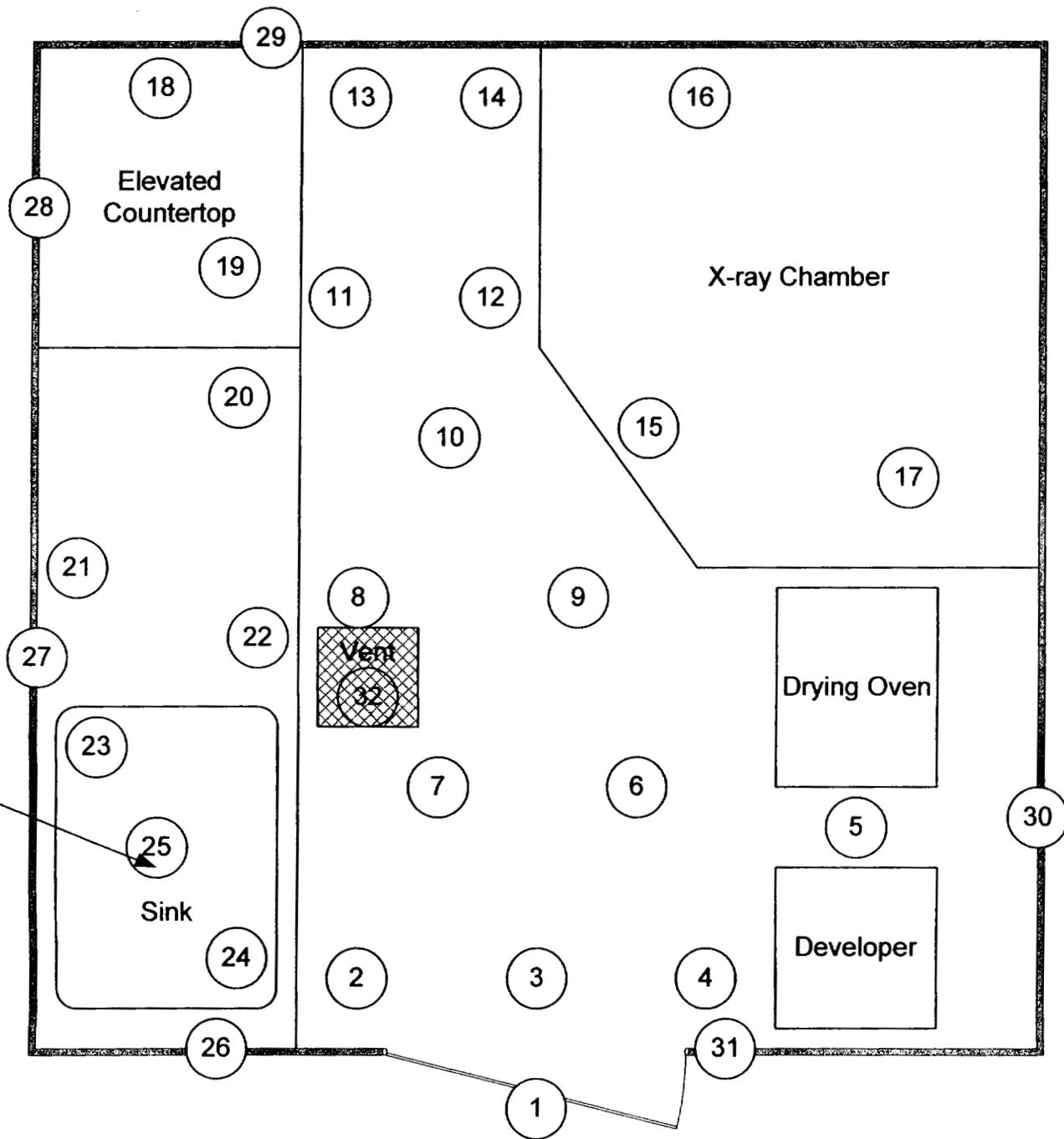
Survey Unit: 229

Class: 3

Date: 1/25/2007

Instruments: Bicron Selectra 1A (Ser. #486), IBP19DD Detector, Calibrated on 4/18/06

Surveyor: EH, JD



Wipe #'s 1 to 32

APPENDIX D
MARSSIM Analytical Calculation
Sheets

Philotechnics Analytical Worksheet

Minimum Detectable Concentration (MDC) Static Count Calculations for Liquid Scintillation Counter

(95% confidence level via MARSSIM method)

$$MDC (dpm/100cm^2) = \frac{3 + 3.29\sqrt{(R_b)(T_{s+b})(1 + T_{s+b}/T_b)}}{(Eff.)(T_{s+b})} \quad (\text{Eq. 1})$$

Where:

- Eff. = LSC total efficiency, Counter cpm/NIST Standard dpm
- R_b = LSC background rate (cpm)
- T_{s+b} = Sample count time (minutes)
- T_b = Background count time (minutes)

Static Count MDC Calculations					
Isotope	Eff.	R _b	T _{s+b}	T _b	MDC (Static)
H-3	60.9%	25.0	1	1	43.2 dpm/100 cm ²
S-35 / C-14*	96.9%	22.0	1	1	25.6 dpm/100 cm ²
Gross Beta	74.1%	66.0	1	1	55.1 dpm/100 cm ²

Minimum Detectable Concentration (MDC) Static Count Calculations for Hand-Held Monitors

(95% confidence level via MARSSIM method)

$$MDC (dpm/100cm^2) = \frac{3 + 3.29\sqrt{(R_b)(T_{s+b})(1 + T_{s+b}/T_b)}}{(Eff.)(T_{s+b})(probeareacm^2/100cm^2)} \quad (\text{Eq. 2})$$

Where:

- Eff. = Probe efficiency (2π geometry)
- R_b = Average background rate (cpm)
- T_{s+b} = Sample count time (minutes)
- T_b = Background count time (minutes)
- P = Probe area (cm²)

Philotechnics Analytical Worksheet

Static Count MDC Calculations						
Isotope	Eff.	R _b	T _{s+b}	T _b	P	MDC (Static)
<i>Probe: IBP19DD</i>						
P-32*	22%	505.5	1	1	100	489.1 dpm/100 cm ²
C-14	6%	505.5	1	1	100	1793.5 dpm/100 cm ²
P-32*	22%	577.8	1	1	100	522.0 dpm/100 cm ²
C-14	6%	577.8	1	1	100	1914.0 dpm/100 cm ²
P-32*	22%	379.1	1	1	100	425.4 dpm/100 cm ²
C-14	6%	379.1	1	1	100	1559.9 dpm/100 cm ²

Solid Bench
Solid Bench
Flooring
Flooring
Walls
Walls

* P-32 efficiency is estimated by Sr-90 efficiency

Scan Minimum Detectable Concentration (MDC)

Calculations for Hand-Held Monitors

(Scan MDA per MARSSIM/NUREG-1575, NUREG-1507 methodology)

$$ScanMDC = \frac{MDCR}{\sqrt{P} (\epsilon_i)(\epsilon_s) \left(\frac{A}{100cm^2} \right)} \quad (Eq. 3)$$

Where:

- p = surveyor efficiency, per MARISSIM (0.5)
- ε_i = instrument efficiency (2π geometry)
- ε_s = surface efficiency, 1 for gammas and high energy betas >1 MeV Emax (e.g. P-32, Cl-36, S/Y-90, etc.), 0.5 for low energy betas (e.g. C-14, P-33, S-35, Tc-99, Ca-45, etc.)
- A = probe active area (cm²)

And,

$$MDCR = S_i (60 \text{ sec/min}) / i \text{ sec} \quad (Eq. 4)$$

Where:

- MDCR = Minimum detectable count rate (cpm)
- S_i = source counts in time interval, i.

And,

$$S_i = d' \sqrt{B_i} \quad (Eq. 5)$$

Where:

- d' = 1.38 for 95% true positive scan detection rate,

Philotechnics Analytical Worksheet

$B_i =$ per, MARRISM, Table 6.5
Background counts in interval, i

And,

$$B_i = (P_b)(i)(1 \text{ min} / 60 \text{ sec}) \quad (\text{Eq. 6})$$

Where:

$P_b =$ probe background count rate (cpm)
 $i =$ observation interval

Scan Minimum Detectable Concentration (MDC)

Calculations for Hand-Held Monitors

(Scan MDA per MARSSIM/NUREG-1575, NUREG-1507 methodology)

Specific Scan MDC calculation results:

IBP19DD			
	Solid Bench	Flooring	Walls
$P_b =$	505.5	577.8	379.1
$i =$	1	1	1
$B_i =$	8.43	9.63	6.32
$d' =$	1.38	1.38	2.38
$S_i =$	4.01	4.28	5.98
MDCR =	240.3	256.9	358.9

Scan MDC Calculations					
Isotope	ϵ_i	ϵ_s	A	MDC (Scan)	
<i>Probe: IBP19DD</i>					
P-32*	22%	1.00	100	1544.9 dpm/100 cm ²	Solid Bench
C-14	6%	0.50	100	11329.5 dpm/100 cm ²	Solid Bench
P-32*	22%	1.00	100	1651.7 dpm/100 cm ²	Flooring
C-14	6%	0.50	100	12112.6 dpm/100 cm ²	Flooring
P-32*	22%	1.00	100	2307.4 dpm/100 cm ²	Walls
C-14	6%	0.50	100	16920.9 dpm/100 cm ²	Walls

* P-32 efficiency is estimated by Sr-90 efficiency

APPENDIX E
Background Documentation

Background Documentation

Fail Levels

Ld, system detection limit is the net count having 95% probability of being detected when a survey sample point contains activity at Ld, which translates to a 5% probability of falsely interpreting sample activity as activity due to background (MARISSM Section 6.7.1)

$$L_d (cpm) = 3 + 4.65\sqrt{B} \tag{Eq. 7}$$

Fail Level CPM = Bkg cpm + Ld cpm

Probe	Surface	Bkg	Ld (cpm)	Fail Level (cpm)
BP19DD	Solid Bench	505.5	107.5	613.0
BP19DD	Flooring	577.8	114.8	692.6
BP19DD	Walls	379.1	93.5	472.6

Background Data

Bicron Elica 1A with BP19DD probe (195)					
Surface	Counts (cpm)				
Solid Bench	517	504	482	481	529
	473	522	515	502	530
Average:		505.5 cpm			
Flooring	573	544	576	544	607
	569	577	653	574	561
Average:		577.8 cpm			
Walls	391	394.0	366	371	380
	349	348.0	384	383	425
Average:		379 cpm			

Sample	Channel 1	Channel 2	Wide Open
1	25	22	66
Average:	25.0	22.0	66.0

APPENDIX F
*Static Measurement Data Sheets and
DPM Calculations*

Philotechnics Analytical Worksheet

NOAA, Southwest Fisheries
8604 La Jolla Shores Drive

Static Measurements

Laboratory Areas

		BP19DD	GP13A	Gross Beta	C-14	I-125	Comment	
Sample	Type	CPM	CPM	DPM / 100 cm ²				
		Bkg Values		MDC Values				
Bench	A	506	N/A	489.1	1793.5	N/A	From Bkg Documentation	
Flooring	B	578	N/A	522.0	1914.0	N/A		
Walls	C	379	N/A	425.4	1559.9	N/A		
Survey Unit 1 - D229								
Sample	Type	Gross CPM		DPM / 100 cm ²				
1	B	665	n/a	396	1453	n/a	<MDC	<DCGL
2	B	584	n/a	28	103	n/a	<MDC	<DCGL
3	B	614	n/a	165	603	n/a	<MDC	<DCGL
4	B	571	n/a	-31	-113	n/a	<MDC	<DCGL
5	B	508	n/a	-317	-1163	n/a	<MDC	<DCGL
6	B	664	n/a	392	1437	n/a	<MDC	<DCGL
7	B	598	n/a	92	337	n/a	<MDC	<DCGL
8	B	547	n/a	-140	-513	n/a	<MDC	<DCGL
9	B	558	n/a	-90	-330	n/a	<MDC	<DCGL
10	B	582	n/a	19	70	n/a	<MDC	<DCGL
11	B	612	n/a	155	570	n/a	<MDC	<DCGL
12	B	592	n/a	65	237	n/a	<MDC	<DCGL
13	B	585	n/a	33	120	n/a	<MDC	<DCGL
14	B	592	n/a	65	237	n/a	<MDC	<DCGL
15	B	550	n/a	-126	-463	n/a	<MDC	<DCGL
16	B	526	n/a	-235	-863	n/a	<MDC	<DCGL
17	B	559	n/a	-85	-313	n/a	<MDC	<DCGL
18	A	489	n/a	-75	-275	n/a	<MDC	<DCGL
19	A	509	n/a	16	58	n/a	<MDC	<DCGL
20	A	525	n/a	89	325	n/a	<MDC	<DCGL
21	A	506	n/a	2	8	n/a	<MDC	<DCGL
22	A	466	n/a	-180	-658	n/a	<MDC	<DCGL
23	A	483	n/a	-102	-375	n/a	<MDC	<DCGL
24	A	528	n/a	102	375	n/a	<MDC	<DCGL
25	A	511	n/a	25	92	n/a	<MDC	<DCGL
26	C	371	n/a	-37	-135	n/a	<MDC	<DCGL
27	C	399	n/a	90	332	n/a	<MDC	<DCGL
28	C	472	n/a	422	1548	n/a	<MDC	<DCGL
29	C	424	n/a	204	748	n/a	<MDC	<DCGL
30	C	406	n/a	122	448	n/a	<MDC	<DCGL
31	C	419	n/a	181	665	n/a	<MDC	<DCGL
32	A	613	n/a	489	1792	n/a	<MDC	<DCGL

Vent

APPENDIX G
*Wipe Survey Data Sheets and DPM
Calculations*

Philotechnics Analytical Worksheet

NOAA, Southwest Fisheries
8604 La Jolla Shores Drive

Scintillation Counter
Laboratory Areas

	CPM			H-3	C-14	Gross Beta	I-125	Comment	
Sample	Chan A	Chan B	Chan C	DPM / 100 cm ²					
MDC	Values			43.15	25.62	55.07	N/A	From MDC Sheet	
Bkg	25.00	22.00	66.00					From Background Sheet	
Survey Unit 1 - Rm. D-229									
1	22.00	17.00	60.00	-5	-5	-8	n/a	<MDC	<DCGL
2	23.00	18.00	68.00	-3	-4	3	n/a	<MDC	<DCGL
3	22.00	13.00	59.00	-5	-9	-9	n/a	<MDC	<DCGL
4	18.00	20.00	68.00	-12	-2	3	n/a	<MDC	<DCGL
5	13.00	16.00	45.00	-20	-6	-28	n/a	<MDC	<DCGL
6	17.00	18.00	73.00	-13	-4	9	n/a	<MDC	<DCGL
7	20.00	21.00	63.00	-8	-1	-4	n/a	<MDC	<DCGL
8	16.00	19.00	61.00	-15	-3	-7	n/a	<MDC	<DCGL
9	26.00	22.00	82.00	2	0	22	n/a	<MDC	<DCGL
10	22.00	15.00	63.00	-5	-7	-4	n/a	<MDC	<DCGL
11	20.00	24.00	70.00	-8	2	5	n/a	<MDC	<DCGL
12	25.00	18.00	63.00	0	-4	-4	n/a	<MDC	<DCGL
13	18.00	14.00	52.00	-12	-8	-19	n/a	<MDC	<DCGL
14	27.00	20.00	73.00	3	-2	9	n/a	<MDC	<DCGL
15	17.00	25.00	68.00	-13	3	3	n/a	<MDC	<DCGL
16	21.00	20.00	72.00	-7	-2	8	n/a	<MDC	<DCGL
17	17.00	17.00	57.00	-13	-5	-12	n/a	<MDC	<DCGL
18	22.00	14.00	58.00	-5	-8	-11	n/a	<MDC	<DCGL
19	22.00	15.00	58.00	-5	-7	-11	n/a	<MDC	<DCGL
20	26.00	16.00	69.00	2	-6	4	n/a	<MDC	<DCGL
21	20.00	8.00	39.00	-8	-14	-36	n/a	<MDC	<DCGL
22	19.00	21.00	51.00	-10	-1	-20	n/a	<MDC	<DCGL
23	20.00	21.00	62.00	-8	-1	-5	n/a	<MDC	<DCGL
24	22.00	25.00	67.00	-5	3	1	n/a	<MDC	<DCGL
25	14.00	12.00	45.00	-18	-10	-28	n/a	<MDC	<DCGL
26	31.00	16.00	74.00	10	-6	11	n/a	<MDC	<DCGL
27	13.00	22.00	61.00	-20	0	-7	n/a	<MDC	<DCGL
28	20.00	20.00	60.00	-8	-2	-8	n/a	<MDC	<DCGL
29	15.00	23.00	59.00	-16	1	-9	n/a	<MDC	<DCGL
30	26.00	18.00	74.00	2	-4	11	n/a	<MDC	<DCGL
31	22.00	16.00	67.00	-5	-6	1	n/a	<MDC	<DCGL
32	19.00	13.00	58.00	-10	-9	-11	n/a	<MDC	<DCGL

APPENDIX H
DandD Code Dose Calculations



DandD Building Occupancy Scenario

DandD Version: 2.1.0

Run Date/Time: 2/6/2007 1:02:56 PM

Site Name: Southwest Fisheries

Description: 8604 La Jolla Shores Drive

FileName: C:\Documents and Settings\Jon Dillon\My Documents\Philo Info\Client Info\Southwest Fisheries\Dose Calc.mcd

Options:

Implicit progeny doses NOT included with explicit parent doses

Nuclide concentrations are distributed among all progeny

Number of simulations: 100

Seed for Random Generation: 8718721

Averages used for behavioral type parameters

External Pathway is ON

Inhalation Pathway is ON

Secondary Ingestion Pathway is ON

Initial Activities:

Nuclide	Area of Contamination (m ²)	Distribution
14C	UNLIMITED	CONSTANT(dpm/100 cm**2)
Justification for concentration: MDC for Instrumentation		Value 1.91E+03

Site Specific Parameters:

General Parameters:

None

Correlation Coefficients:

None

Summary Results:

90.00% of the 100 calculated TEDE values are < 1.30E-02 mrem/year .

The 95 % Confidence Interval for the 0.9 quantile value of TEDE is 1.21E-02 to 1.42E-02 mrem/year

APPENDIX I
Radioactive Waste Manifest

copy

NRC FORM 540 (3-95)		U.S. NUCLEAR REGULATORY COMMISSION UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST SHIPPING PAPER			5. SHIPPER - NAME AND FACILITY Philotechnics, Ltd @ Southwest Fisheries 8604 La Jolla Shores Drive La Jolla, CA 92038		SHIPMENT ID NUMBER 0754-012207PE		7. FORM 540 AND 540A PAGE 1 OF 1 PAGE(S) FORM 541 AND 541A NONE PAGE(S) FORM 542 AND 542A NONE PAGE(S) ADDITIONAL INFORMATION NONE PAGE(S)		8. MANIFEST NUMBER (Use this number on all continuation pages) 0754-012207PE	
1. EMERGENCY TELEPHONE NUMBER (Include Area Code) 800-424-9300		USER PERMIT NUMBER SHIPMENT NUMBER 0754-012207PE		CONTACT Marty Nelson		TELEPHONE NUMBER (Include Area Code) (858) 546-5650		9. CONSIGNEE - Name and Facility Address Pacific EcoSolutions Operated By Pacific EcoSolutions 2025 Battelle Blvd Richland, WA 99352		CONTACT Larry Morin TELEPHONE NUMBER (Include Area Code) (509) 375-5160 x7046		
2. IS THIS AN "EXCLUSIVE USE" SHIPMENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO		3. TOTAL NUMBER OF PACKAGES IDENTIFIED ON THIS MANIFEST ***** 2		6. CARRIER - Name and Address R & R Trucking 302 Thunder Road Duenweg, MO 64841		Truck #: Trailer #:		EPA I.D. NUMBER MOR000501973		SHIPPING DATE 01/22/2007		
4. DOES EPA REGULATED WASTE REQUIRING A MANIFEST ACCOMPANY THIS SHIPMENT? If "Yes", provide Manifest Number ***** <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO		EPA MANIFEST NUMBER N/A		CONTACT Mitch Lunsford		TELEPHONE NUMBER (Include Area Code) 866-252-2784		SIGNATURE - Authorized consignee acknowledging waste receipt		DATE 1-22-07		
10. CERTIFICATION This is to certify that the herein-named materials are properly classified, described, packaged, marked and labeled and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. This also certifies that the materials are classified, packaged, marked, and labeled and in proper condition for transportation and disposal in accordance with the requirements of 10 CFR Parts 20 and 61, or equivalent state regulations.												
11. U.S. DEPARTMENT OF TRANSPORTATION DESCRIPTION (Including proper shipping name, hazard class, UN ID number, and any additional information)												
		12. DOT LABEL "RADIOACTIVE"	13. TRANSPORT INDEX	14. PHYSICAL AND CHEMICAL FORM		15. INDIVIDUAL RADIONUCLIDES		16. TOTAL PACKAGE ACTIVITY MBq mCi		17. LSA/SCO CLASS	18. TOTAL WEIGHT OR VOLUME (Use appropriate units)	19. IDENTIFICATION NUMBER OF PACKAGE
Radioactive material, low specific activity (LSA-I), 7, UN2912		NA	NA	LIQUID/OXIDES C-14				880.970000	(23.810000)	LSA I	4.10 ft ³	07-000129
NON-HAZ LSV											110.00000 lb	(1)
Non-Radioactive per DOT		NA	NA	SOLID/METAL OXIDES C-14				7.400000	(0.200000)	NA	2.00 ft ³	07-000130
DAW/NDV											40.00000 lb	(2)
FOR CONSIGNEE USE ONLY				20. Generator Certification Statement A) Radioactive Materials. Certification is hereby made that this shipment of low-level radioactive waste has been prepared in accordance with a radioactive waste management program which has been approved by the Nuclear Regulatory Commission or an Agreement State regulatory agency and with the current revision of the site Material Acceptance Criteria. B) Hazardous Materials. Generator hereby certifies that this material does not contain a hazardous waste as defined in 40 CFR 261. C) Date. Generator hereby represents and warrants that all data set forth in this (UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST) are true and correct in all respects and in accordance with all applicable governmental laws, rules, regulations and site Radioactive Material Licenses. D) INFECTIOUS SUBSTANCE. Generator hereby certifies that this material does not contain an infectious substance as defined in 49CFR 173.134 MARYN E NELSON <i>Marty Nelson</i> 1/22/2007 Print Name Signature Date								

NRC FORM 541 (3-95) UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST CONTAINER AND WASTE DESCRIPTION Additional Nuclear Regulatory Commission (NRC) Requirements for Control, Transfer and Disposal of Radioactive Waste	1. MANIFEST TOTALS				2. MANIFEST NUMBER 0754-012207PE 3. PAGE 1 OF 1 PAGE(S) 4. SHIPPER NAME Southwest Fisheries SHIPMENT ID NUMBER 0754-012207PE
	NUMBER OF PACKAGES/ DISPOSAL CONTAINERS 2	NET WASTE VOLUME 0.17273 m ³ 6.10000 lb	NET WASTE WEIGHT 50.80208 112.00000	SPECIAL NUCLEAR MATERIAL (grams) U-233 NP U-235 NP Pu NP	TOTAL NP
ALL NUCLIDES MBq 888 370000 mCi 24 010000		ACTIVITY (MBq/mCi) (LLD UNITS IN uCi/cc) TRITIUM NP 888 370000 C-14 NP 24.010000		SOURCE Tc-99 NP kg <0.0000000001 I-129 NP lb <0.0000000001	

DISPOSAL CONTAINER DESCRIPTION						WASTE DESCRIPTION FOR EACH WASTE TYPE IN CONTAINER						18. WASTE CLASSIFICATION AS - Class A Stable AU - Class A Unstable B - Class B C - Class C
5. CONTAINER IDENTIFICATION NUMBER/ TRANSPORT PERMIT NUMBER	6. CONTAINER DESCRIPTION (See Note 1)	7. VOLUME m ³ ft ³	8. WASTE AND CONTAINER WEIGHT kg lb	9. SURFACE RADIATION LEVEL mSv/hr mrem/hr	10. SURFACE CONTAMINATION MBq/100 cm ² dpm/100 cm ²	11. WASTE DESCRIPTOR (See Note 2)	12. APPROXIMATE WASTE VOLUME(S) IN CONTAINER m ³ ft ³	13. SOLIDIFICATION OR STABILIZATION MEDIA (See Note 3)	14. CHEMICAL DESCRIPTION CHEMICAL FORM/ CHELATING AGENT	WEIGHT % CHELATING AGENT IF > 0.1%	15. RADIOLOGICAL DESCRIPTION INDIVIDUAL RADIONUCLIDES AND ACTIVITY AND CONTAINER TOTAL; OR CONTAINER TOTAL ACTIVITY AND RADIONUCLIDE PERCENT	
# - Innerpack Container 07-000129 (1) 4 0.11610 49.89490 < 0.005 < 0.000003674 < 0.00003674 59(NON-HAZ LSV) 0.11610 100 LIQUID OXIDES / NP NP C-14 880 970000 23.810000 AU Origin: CA Southwest Fisheries 8604 La Jolla Shores Drive La Jolla, CA 92038 Package Total 4.10000 110.00000 < 0.5 < 220 < 2200 4.10000 Sub Total 880 970000 23.810000 ===== 880 970000 23.810000												
07-000130 (2) 15 GAL PLASTIC DRUM 0.03663 18.14360 < 0.005 < 0.000003674 < 0.00003674 40 0.03663 100 SOLID METAL OXIDES / NP NP C-14 7.400000 0.200000 AU Origin: CA Southwest Fisheries 8604 La Jolla Shores Drive La Jolla, CA 92038 Package Total 2.00000 40.00000 < 0.5 < 220 < 2200 2.00000 Sub Total 7.400000 0.200000 ===== 7.400000 0.200000												
Shipment Total		0.17273	68.03850								888 370000 24.010000	

NOTE 1: Container Description Codes. For containers/waste requiring disposal in approved structural overpacks, the numerical code must be followed by "-OP."

1. Wooden Box or Crate	9. Demineralizer
2. Metal Box	10. Gas Cylinder
3. Plastic Drum or Pail	11. Bulk, Unpackaged Waste
4. Metal Drum or Pail	12. Unpackaged Components
5. Metal Tank or Liner	13. High Integrity Container
6. Concrete Tank or Liner	14. Other. Describe in Item 6, or additional page
7. Polyethylene Tank or Liner	
8. Fiberglass Tank or Liner	

NOTE 2: Waste Descriptor Codes. (Choose up to three which predominate by volume.)

20. Charcoal	28. Demolition Rubble	36. Evaporator Bottoms/Sludges/ Concentrates
21. Incinerator Ash	29. Cation Ion-exchange Media	37. Compactible Trash
22. Soil	30. Anion Ion-exchange Media	38. Noncompactible Trash
23. Gas	31. Mixed Bed Ion-exchange Media	39. Animal Carcass
24. Oil	32. Contaminated Equipment	40. Biological Material (except animal carcasses)
25. Aqueous Liquid	33. Organic Liquid (except oil)	41. Activated Material
26. Filter Media	34. Glassware or Labware	42. Other. Describe in Item 11.
27. Mechanical Filter	35. Beated Source/Device	
28. EPA or State Hazardous	36. Paint or Plating	

NOTE 3: Sorption, Solidification and Stabilization Media Codes. (Choose up to three which predominate by volume). For media meeting disposal site structural stability requirements, the numerical code must be followed by "-S". For all solidification media, the vendor and brand name must also be identified in Item 13. Code 100=None Required

Sorption			Solidification		
60. Speed Dri	64. Safe T Barb	68. Chemill 30	74. Petroset	80. Cement	84. Vinyl Ester Styrene
61. Calton	65. Safe N Dri	69. Chemill 50	75. Petroset B	81. Concrete	89. Other. Describe in Item 13, or additional page
62. Floor Dry/ Superfine	66. Pierce	70. Chemill 3030	76. Aquaset (encapsulation)	82. Bitumen	100. None Required
63. Hi Dri	67. Florco X	71. Dicapert HP 200	77. Aquaset II	83. Vinyl Chloride	
	68. Safe A Barb	72. Dicapert HP500	78. Other. Describe in Item 13 or additional page		

NRC FORM 542 U.S. NUCLEAR REGULATORY COMMISSION UNIFORM LOW-LEVEL RADIOACTIVE WASTE MANIFEST MANIFEST INDEX AND REGIONAL COMPACT TABULATION			1. WASTE COLLECTOR/PROCESSOR NAME: Southwest Fisheries IDENTIFICATION NUMBER: SHIPPING DATE: 01/22/2007 SHIPPER USE ONLY						2. MANIFEST NUMBER 0754-012207PE 3. PAGE 1 OF 1 PAGE(S)											
List all original "PROCESSED WASTE" generators (if any) before "COLLECTED WASTE" generators			AS PROCESSED/COLLECTED TOTAL																	
4. S.C. TRANSPORT PERMIT NUMBER	5. GENERATOR NAME AND TELEPHONE NUMBER	6. GENERATOR FACILITY ADDRESS	7. WASTE DESCRIPTION (NOMENCLATURE)	8. PREPROCESSED WASTE (OR MATERIAL) VOLUME		9. MANIFEST NUMBER(S) UNDER WHICH WASTE (OR MATERIAL) RECEIVED AND DATE OF RECEIPT	9. WASTE CODE	10. ORIGINATING REGION OR STATE	11. A. SOURCE MATERIAL		B. SNM	C. ACTIVITY		D. VOLUME		E. WEIGHT	F. MAXIMUM PACKAGE RADIATION LEVEL			
	Southwest Fisheries (858) 546-5680	8804 La Jolla Shores Drive La Jolla, CA 92038	Non-Compactible Trash Non-Haz LSV/BPU	m ³	ft ³	Onsite Generation 01/19/2007	C	CA	<0.0000000	<0.0000000	<0.0000000001	888.37	24.01	0.17273	6.10000	112.0000	<0.5			
TOTALS OF ALL PAGES (FORMS 542 AND 542A)												<0.0000000	<0.0000000	<0.0000000001	888.370000	24.010000	0.17273	6.10000	112.0000	N/A

MAR - 8 2007

DATE

This is to acknowledge the receipt of your letter/application dated 2-27-07, and to inform you that the initial processing, which includes an administrative review, has been performed.

There were no administrative omissions. Your application will be assigned to a technical reviewer. Please note that the technical review may identify additional omissions or require additional information.

Please provide to this office within 30 days of your receipt of this card:

The action you requested is normally processed within 90 days.

A copy of your action has been forwarded to our License Fee & Accounts Receivable Branch, who will contact you separately if there is a fee issue involved.

Your action has been assigned **Mail Control Number** 471280.
When calling to inquire about this action, please refer to this mail control number.
You may call me at 817-860-8103.

Sincerely,



Licensing Assistant

BETWEEN:

License Fee Management Branch, ARM
and
Regional Licensing Sections

: (FOR LFMS USE)
: INFORMATION FROM LTS
: -----
:
: Program Code: 03620
: Status Code: 0
: Fee Category: 3M
: Exp. Date: 20160331
: Fee Comments: 3M CORRECT - DEL 3P
: Decom Fin Assur Req'd: N
: ::

LICENSE FEE TRANSMITTAL

A. REGION

1. APPLICATION ATTACHED

Applicant/Licensee: COMMERCE, U. S. DEPARTMENT OF
Received Date: 20070228
Docket No.: 3031988
Control No.: 471280
License No.: 04-29022-01
Action Type: Termination

2. FEE ATTACHED

Amount: _____
Check No.: /

3. COMMENTS

Signed *Colleen Murrachen*
Date 3-8-07

B. LICENSE FEE MANAGEMENT BRANCH (Check when milestone 03 is entered /_/_)

1. Fee Category and Amount: _____

2. Correct Fee Paid. Application may be processed for:

Amendment _____
Renewal _____
License _____

3. OTHER _____

Signed _____
Date _____

FXI

From: Origin ID: SANA (858)546-7000
Marty Nelson
NATIONAL MARINE FISHERIES
8604 LA JOLLA SHORES DRIVE

LA JOLLA, CA 92037



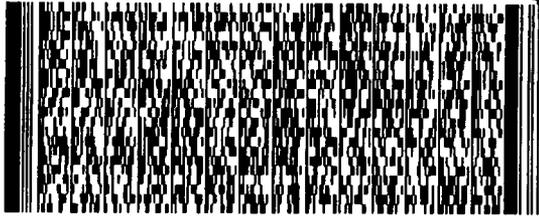
CL88121072123

SHIP TO: (301)415-7345

BILL THIRD PARTY

Jackie Cook
US NRC Region IV
611 Ryan Plaza Suite 400

Arlington, TX 760114005



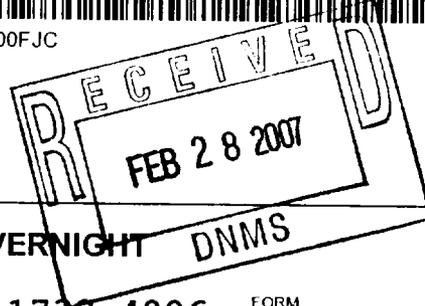
Ship Date: 27FEB07
ActWgt: 2 LB
System#: 1835269/INET2600
Account#: S*****

04-29022-01
030-31988

Delivery Address Bar Code



Ref # 29WGL00FJC
Invoice #
PO #
Dept #



PRIORITY OVERNIGHT DNMS

WED

Deliver By:
28FEB07

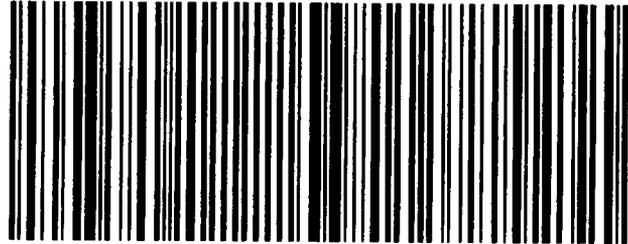
TRK# 7986 1732 4006

FORM
0201

DFW A1

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XH FWHA



For FedEx Express' Shipper