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July 30th, 2020

US Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555-0001

Attn: Linh Tran, Senior Program Manager, NPUF.

SUBJECT: Annual Report University of California – Irvine, Docket Number 50-326, License Number R-116, Submittal in Accordance with Technical Specification 6.7.1

Dear Linh,

By way of this transmission, the University of California, Irvine is submitting the annual operating report for the nuclear reactor as required by Technical Specification 6.7.1 of license number R-116, covering the period of July 1st, 2019 through June 30th, 2020.
If you have any questions regarding this matter, please contact George Miller at (949) 824-6649.

Sincerely,

Dr. George E. Miller
Reactor Supervisor

Enclosure: UC Irvine Annual NRC Report 2019-2020.pdf
CC with Enclosure (by e-mail):

- Rachel Martin, Reactor Director, Chemistry Department, UC Irvine
- James Bullock, Dean of School of Physical Sciences, UC Irvine
- Kevin Roche, Inspector, U. S. Nuclear Regulatory Commission
- John Keffer, Chemistry Department, Reactor Facility Manager, UC Irvine
- Tro Babikian, Chemistry Department, Assistant Reactor Supervisor, UC Irvine
- Reactor Operations Committee Members, UC Irvine
- American Nuclear Insurance, 95 Glastonbury Blvd., Glastonbury CT 06033, Policy NF-176

UNIVERSITY OF CALIFORNIA IRVINE
NUCLEAR REACTOR FACILITY
ANNUAL REPORT
2019-2020

FACILITY LICENSE R-116 – DOCKET NUMBER 50-326

GEORGE MILLER | Interim Reactor Supervisor

John Keffer | Reactor Facility Manager

Tro Babikian | Assistant Supervisor

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Section 1
Operations and Personnel Summary

This academic year has been a difficult and highly unusual year for the facility in both operations and changes in facility personnel.

Personnel

Effective July 1st 2019, and reported July 29th to NRC, there were administrative changes in the School of Physical Sciences as Prof. James Bullock became Dean, and Prof. Doug Tobias became Chair of Chemistry. In addition, Jonathan Wallick was appointed Reactor Supervisor and George Miller moved to Associate Supervisor.

On August 9th, the chemistry department assigned the role of Reactor Director to Professor Rachel Martin, the Department's Associate Chair for Facilities. This was reported to NRC on August 12th 2019.

In September 2019, a former student and licensed SRO was appointed to an Assistant Supervisor position to assist with all aspects of reactor operation and utilization.

In November 2019, the Reactor Supervisor resigned his position. He had recently (July 1st 2019) been promoted to that position from Associate Reactor Supervisor. The former Reactor Supervisor agreed to return immediately as Interim Reactor Supervisor while a replacement was recruited. A chemistry department recruitment process appointed a Reactor Facility Manager, but this individual needs to obtain a senior operator license before he can assume the Reactor Supervisor position. At the close of this reporting year, in June 2020, the Assistant Supervisor resigned his position. Fortunately, another student with a valid SRO license was available and agreed to accept this position.

On July 1st 2019, 5 senior operators and 2 reactor operators were licensed. One of the SROs and three additional ROs were inactive. As a result of graduations and personnel leaving the facility by June 30th 2020, only 3 SROs and one RO were present in Irvine and had licenses. Of these, only two of the SROs were actively qualified, with one having severe restrictions on his license added by NRC as a result of a pacemaker implant. The one RO had not kept active in the requalification program.

Operations

For operations, the Spring of 2020 was highly unusual owing to the COVID-19 pandemic. Operation of the facility was formally shut down on March 18th 2020 as the UCI Campus declared a shut-down of all but essential research, and a work at home requirement for all staff. The reactor had last briefly operated on March 10th, 2020. As of June 30th, 2020, no further operation had been conducted, but routine surveillance was carried out according to Technical Specification 4.0.a. with additional weekly visits made to assure health of the facility instrumentation. The facility applied for and was granted permission to re-open in Phase II of the UCI Campus restart in July, 2020.

Operation of this facility supported UCI research and education programs in the Department of Chemistry (CHEM) and other UCI schools and departments. Research is being conducted in application of radioisotopes as tracers and radiochemical analytical and separation techniques including applications to

nuclear waste separations. A new assistant professor appointed in chemistry plans to use the facility for nuclear fuel related research once her laboratory research program is able to commence.

Reactor utilization, apart from operator training and maintenance, is for analytical sample irradiation, production of isotopic tracers, and neutron instrument testing. Analysis samples come from diverse origins related to forensic science, fossil fuels, geochemistry, art, and archaeological studies, chemical separations in nuclear fuel cycle experiments, chemical synthesis, industrial quality control, enzyme studies, trace element pollution studies, etc. The reactor is also used in class work by undergraduates learning tracer and activation analysis techniques using small quantities of short-lived activated materials. Enrollment in the Fall Quarter 2019 laboratory course in Radioisotope Techniques was 15 students with one graduate teaching assistant.

A new program, started in late 2019, began educating 13 undergraduates and 2 graduate students in all aspects of nuclear reactor operation, with the goal of preparing them to apply for operator licenses for the facility in Fall 2020; 9 of these remain in the program.

Use was also made of the facility by other educational institutions, both for research and for visits/tours. A modest Nuclear Science Outreach program (NSOP) using UCI students to present talks and a laboratory to middle and high school classes was to be continued but is now suspended. This program involved tours, class demonstrations, and analyses of samples submitted by faculty.

Operations have dropped steeply as the primary user on campus and associated group has effectively shut down even prior to the COVID-19 shut down. Criticality was achieved for 129.3 hours, down significantly from the previous year, and the total energy generated was equivalent to 63.29 hours at full steady state power. Only 44 separate experiments were performed and 604 samples were irradiated, showing the decreased use of the facility. Three moderate level isotope off campus shipments were made, one Yellow II and two Yellow III category, totaling just over 2 curies of activity. Thirty-four pulses were performed this year, all without incident, most of them as part of a pulse reproducibility study. A few unusual maintenance/surveillance results/activities were noted/conducted during this period and are described in Section 6.

Routine NRC inspections (Operations and Security) were conducted in November 2019. Two follow-up items were identified relating to out of date issues with the Organization Chart, and the Standard Operating Procedures. In 2019-2020, a Reactor Operations Committee meeting was held remotely by using Zoom on April 2nd 2020 in accordance with Technical Specification requirements.

A full scale Emergency/Security exercise run by the federal government, “Zot Thunder”, was conducted on February 2020. In preparation for this event, a planning meeting and on-site familiarization.

Inspections/audits continue to be conducted quarterly by the Radiation Safety staff of EH&S at UCI. These have identified that frequency schedules have been properly maintained, and results continue to show absence of significant levels of contamination or personnel exposure. One incident involving a high activity level (1 curie) sample handling resulting in unusual exposure to a single individual occurred this year, but was properly documented and corrective actions taken.

Section 2

Data Tabulations for the Period July 1st, 2019 to June 30th, 2020

TABLE I – General Information

Experiment Approvals on file	7
Experiments performed (including repeats)	15
Samples irradiated	692
Energy generated this period (Megawatt hours)	15.82
Total, 69 element core = 127.00	127.00
>74 element core = 1682.25	1698.07
Total energy generated since initial criticality (Megawatt hours)	1825.07
Pulse operation this period	34
Total reactor pulses to 6/30/2020	1092
Hours critical this period	129.30
Total hours critical to date	10802.16
Inadvertent scrams or unplanned shutdowns or events at power	2
Visitors to reactor - as individuals or in tour groups	797
Maximum dosimeter recorded for visitors - all less than (1 mrem)	0.3
Visiting researchers (Temporary Self Indicating Dosimeters)	21
Maximum exposure recorded at one visit (mrem)	0.0
Visiting researchers (Thermoluminescent Dosimeters)	10
Students and assistants in class, or operator training - badged	15+13
Exposures reported for class (range: 6-0 mrem) average	3
Isotope Shipments this Period (2 x 1 curie, 1 x Activation Products = 2.1 Ci total)	3

TABLE II – Reactor Core Status 2020-06-30 (Core Configuration last Changed 2018-01-18)		
Fuel elements in core (including 2 fuel followers)		84
Fuel elements in storage (reactor tank - used)		23
Fuel elements unused (4 instrumented elements + 1 element + 1 FFCR)		6
Graphite reflector elements in core		32
Graphite reflector elements in reactor tank storage		2
Water filled fuel element positions		4
Experimental facilities in core positions		5
Non-fueled control rods		2
Total core positions accounted for		127
Core excess, cold, no xenon (as of 3/10/2020)		$2.85
Control Rod Worths (Calibrated 01/24/2020)	REG	$2.91
	SHIM	$3.58
	ATR	$1.81
	FTR	$0.69
	Total	$8.99
Maximum possible pulse insertion (calculated)		$2.50
Maximum peak power recorded (1/27/2020)		1032 MW
Maximum peak temperature recorded in pulse (B-ring, 1/27/2020)		408.3 °C

Section 3
Inadvertent Scrams, Unplanned Shutdowns, Events at Power

TABLE III – Scrams, Unplanned Shutdowns, Events at Power			
2019-12-16	Not recorded	ca. 1.5 w	Oscillations occurred in the log/period channel during a raise to power startup. This tripped both the NOP and Period scram trips. Immediate calibration and observed shutdown level checks were as normal. The cause was observed to be placement of a cell phone adjacent to the module. Restart was authorized by the RSO present. Operators were cautioned not to permit cell phone placement adjacent to any of console instrumentation. Later investigation of noise levels (1/8/2020) also discovered the main rear HV/signal connector was not fully tightened. This may have contributed to the event. Noise was reduced after this was tightened.
2020-01-21	14:52	200 kw	A Linear scram initiated by the Wide Range Linear Module (WRLM) was triggered as the energy potentiometer was being adjusted to match the calculated power level for the reactor. Restart was authorized by the Reactor Supervisor. Power levels were re-attained at 200 kw and calibration values re-checked.

Section 4
Non-Routine Maintenance and Surveillance and Other Incidents

The following non-routine maintenance/surveillance activities were carried out during this period. As noted earlier, certain routine monthly surveillance requirements were delayed, but most were implemented by performing the start-up checklist each month of all items not requiring reactor operation, even during the enforced closure. Reactor operation-related items have been included above and are not repeated here.

TABLE IV – Maintenance, Surveillance, and Other Incidents

2019-10-22	-	Water was found emerging from floor drains in the two rear laboratories (B54A and B54B). Facilities management (FM) were contacted and sent personnel to assist in clean up. Reactor personnel stemmed the initial flow and began the vacuuming process to prevent this water from threatening to enter the pool. Apparently, the water emanated from a break in piping elsewhere in the building that overflowed the drainage system. No log entry was made at the time of this incident, though the FM personnel were logged in and provided with the appropriate dosimeters. No exposure was recorded. The reactor was not being operated that day. On February 26th, RS Miller, made a brief retroactive log entry following an interview about the incident with reactor assistant Dr. Edward Jenner, who was present during the incident.
2020-01-08	-	Investigation of continuing noise issue in Log (WRM) channel revealed a non-tight connection at the rear HV/signal connector. This was tightened resulting in a lower noise level. As a result the “source” trip was now set too high as it permanently tripped.
2020-01-10	-	WRM unit was removed from console to adjust source trip to lower level. Found energy adjust potentiometer leads connected only weakly, re-soldered to prevent future issues. Unit now tests OK, with trip at good level. Rechecked calibration on energy pot is OK at former level.
2020-06-06	20:18	At a routine visit for checks during shutdown, a small pool of water was found adjacent to the pool purification system. The system pump was shut off, and valves closed. Water was determined to be emerging under pressure from a cracked close nipple fitting and was vacuumed and mopped up. A sample was assayed for radioactivity and found to be at background level. However, the water was subsequently disposed as radioactive waste according to current UCI guidelines. Estimates of water quantity were that less than 10 gallons had spilled. The pool (puddle!) did not reach any vital components, the reactor pool, or fuel storage pits. Radioactivity was low as the reactor had not been operated for 3 months. On 6/12 a replacement 1 inch NPT close nipple was installed and the system restarted. Conductivity and flow rates were all as formerly. The root cause was a slight overtightening of the former connection and insufficient taping of that fitting. Ion exchange tank placement was adjusted by a few mm which relieved strain and additional taping used in reinstalling.

2020-06-12	-	Air supply for transient rods was found to be disabled. The building air supply used for transient rod operations was observed to be at zero pressure as plans were being made to restart the reactor. Building management was notified. Subsequent investigation found a disconnect had been made as a part of a distant laboratory remodeling project. On 7/1/2020 the supply was reconnected and pressures return to normal (former) status.

Section 5
Facility Changes and Special Experiments Approved

No 10 CFR 50.59 changes were initiated or completed during the course of the last year.

Section 6
Radioactive Effluent Release
(a) Gases

The major direct release to the environs is Argon-41 produced during normal operations. Very small amounts of other gases may be released from irradiated materials in experiments.

Releases are computed based on original measurements at point of origin within the facility and taking only dilution into account. Since much of the release is from operation of the pneumatic transfer system for samples, this is a conservative estimate in that assumption is made that all use of the PT is at full steady state power level (250 kW) when, in fact, considerable use is with the reactor at a lower power level. In view of the small numbers involved, and the fact that an integrated dose check is provided by an environmental dosimeter hanging on the side of the exhausts at the point of entry to the fan creating the stack discharge, it is considered unnecessary to provide further checks of these estimates. The dosimeter data confirm that an individual standing directly in the exhaust flow for one year would receive an additional submersion dose from the exhaust less than the reliability limit of the dosimeters, or less than 20 mrem per year. The dosimeter data are presented separately in section 7. Over the years that data have been collected, the accumulated exposure at the exhaust locations have been lower than for "control" points because of lower masses of concrete structures in the vicinity. In fact, the data have been consistent at about 20 mrem per year below control level, and >30 mrem below a distant check level (5th floor library) so confidence of exposure less than 5 mrem over background seems plausible.

Release estimates based on operational parameters are as follows:

TABLE V – Radioactive Effluent Release Estimates	
Operation of pneumatic transfer system - 07/01/2019 - 06/30/2020:	
A. Minutes of Operation (minutes):	88
B. Release Rate Assumed (µCi/mL):	6.0 E-08
C. Flow Rate of Exhaust Air (mL/min):	1.2 E+08
D. Dilution Factor (unitless):	0.01
E. PT System Release Computed (µCi): A*B*C*D = E:	6.34
Release from pool surface – 07/01/2019 – 06/30/2020:	
F. Total Hours of Operation at Full Power (EFPH):	63.29
G. Release Rate Assumed (µCi/mL):	1.0 E-08
H. Flow Rate of Exhaust Air (mL/min):	1.2 E+08
I. Dilution Factor (unitless):	0.01
J. Pool Surface Release Computed (µCi): F*G*H*I*60 = J:	45.57
Total Emissions from PT and Pool (µCi): E + J:	51.91
Total Effluent Released in One Year (mL): 525960 min / year*H*I	6.31 E+11
Average Concentration Released (µCi/mL): Total Emissions / Total Effluent	8.2 E-11

Since 2.0 E-09 µCi/mL provides an annual exposure for constant immersion of 10 mrem, this corresponds to < 0.5 mrem potential additional radiation exposure to an individual standing in and breathing in the effluent stack for the entire year.

Additional note: Exhaust is diluted by a factor of 100 before release and the mixed plume is discharged to approximately 100 feet above the roof level (200 feet above surrounding ground, granting even greater dilution).

(b) Liquids and Solids

Liquid and solid wastes from utilization of by-product materials are disposed through a university contract. Waste is transferred to the custody of UCI Environmental Health and Safety (EH&S). Disposals to this custody are given below. It is important to note that activity values are estimated at the time of transfer to EH&S control. Since few shipments are being made from campus, decay to negligible levels occurs for all medium-lived radionuclides. Teaching course items (used for training in liquid scintillation counting techniques) may be a mixture of reactor generated byproducts and purchased materials (exclusively ^{14}C and ^{3}H). During this period, advantage was taken of a campus program to dispose of many legacy radioisotope materials including decayed sealed sources and measurement samples, mostly not UCI reactor related.

Solid, Dry Waste:

Three dry waste transfers were made this period.

1. One 2 cu. ft. container of mixed activation products and dismantled aluminum parts estimated at 20 microcuries (measured as ^{60}Co equivalent at time of transfer).
2. Transfer of legacy materials in various forms (sealed sources, pieces of irradiated capsules and devices, etc.). Estimated total of 80 microcuries of C-14, 1 microcurie of Co-60, 0,2 microcuries of Sr-90 impregnated filters, plus lesser amounts of other radionuclides.
3. One 2 cu. ft. container of mixed activation products of 0.16 microcuries (measured as ^{60}Co equivalent at time of transfer).

Liquid Waste:

1 gallon container of aqueous waste containing 5.8 millicuries of tritium was transferred during this period. This liquid resulted from students' experiments that formed H-3 as a byproduct of manufacturing F-18 for the experiment.

Section 7
Environmental Surveillance

Environmental dosimeters are in place at 12 locations around the UCI Campus for environmental monitoring purposes. These are provided by Mirion Technologies, Irvine, California (formerly Global Dosimetry Systems). The environmental packs have three chips in each pack which are averaged for exposure recording. Mirion runs multiple control samples in addition to the locations listed below. All dosimeters are housed in small metal locked boxes (except for locations 10 and 12). The table below lists the locations. As work in Engineering Tower 521 had ceased, the dosimeter there was redeployed to the storage closet across the hall from the east side of the reactor facility. Other locations have been renamed to agree with the locations in the revised ventilation system provided for Rowland Hall, and a new laboratory constructed on the former loading dock adjacent to the north side of the facility.

Routine contamination surveys consisting of wipe tests and G-M surveys have shown mostly a "clean" facility with significant, removable contamination only in areas coming into direct contact with samples removed from the reactor, and on sample handling tools. Trash is surveyed before disposal and not disposed of unless found to be free of removable and fixed contamination.

Table VI - Locations for Environmental Dosimeters
1. South Reactor Facility Perimeter
2. West Reactor Facility Perimeter
3. North Reactor Facility Perimeter in adjacent lab of Atmospheric Chemistry group.
4. Rowland Hall Roof Air Exhaust Duct to Fan 1.
5. Rowland Hall, First Floor Hallway Over Reactor Facility.
6. McGaugh Hall Top (5th) Floor
7. Langson Library Top Floor
8. Reines Hall Top (5th) Floor
9. Rowland Hall Roof Air exhaust Duct to Fan 2.
10. On-campus Faculty Housing
11. Rowland Hall Roof Air Exhaust Duct to Fan 3.
12. Reactor Storage Closet Rowland Hall (New location as of May 2020) East side of facility.

Table VII – Environmental Dosimetry Data
Average Total Exposures in mrem (Including Control Background)

Location	***Quarter***				***Annual***	***Prior Year***	***Above Control***
	2019 Q2	**2019 Q3**	**2019 Q4**	**[1]2020 Q1**			
1. S. Facility Perimeter	29	29	24	32	114	105	+8
2. W. Facility Perimeter	27	27	27	34	115	109	+9
3. N. Facility Perimeter	32	28	29	34	123	120	+17
4. Facility Air Exhaust Fan 1.	22	20	20	24	86	81	-20
5. Hallway Over Facility	24	23	23	24	94	92	-12
6. McGaugh Hall Top Floor	25	23	22	25	95	93	-11
7. Langson Library Top Floor	31	26	29	36	122	115	+16
8. Reines Hall Top Floor	25	24	23	29	101	95	-5
9. Facility Air Exhaust Fan 2.	22	21	19	24	86	82	-20
10. On-Campus Housing	23	21	22	26	92	87	-14
11 Facility Air Exhaust Fan 3.	22	20	19	26	87	80	-19
12 E. Facility Closet	23	21	21	[2]	67	86	-
Background Control	26	25	25	30	106	101	0

Notes:

1. Period extended by approx. 1 month due to COVID-19 issues. This is 4 months instead of 3.

2. Dosimeter mislaid during move to new location as work in ET 521 had ceased.

Discussion

Raw data is presented here, along with controls and prior year comparisons. Within this range, the data sets vary relatively little. Locations on walls bordering the facility, such as 1, 2, 3, are usually the highest, remote locations, such as 10, 11, and 12, are the lowest. Data for this year reflects several issues:

- Location 7 is on the top floor of a large building and may experience greater cosmic flux, as well as concrete releases. This has been a result continuing for many years.
- Location 1 near the facility's gamma irradiator, as well as a lead cave which continues to store a high activity load.
- Location 2 is on the other side of a location in the reactor facility temporarily used for source storage.
- Location 3 is located on the other side of a concrete wall from the ion exchange resin tanks which have moderate levels of activity. This location is also in a radiation use laboratory, which may be contributing to the higher dose readings.

Conclusion

Exposure estimated to a single individual in an uncontrolled area at this facility is minimal. With the exception of three locations nearest the facility, all dosimetry associated with exposures from the facility indicates lower than control levels. Locations 1 and 2 are in hallways with extremely minimal occupancy or travel, especially since security policy is to maintain permanently locked doors to the hallways on this floor level (access only with building keys), and location three is in an adjacent radiation use laboratory. The

hallway overhead (location 5) is only casually occupied and not close to a main building entrance. The air released from the facility/building (measured by locations 4, 9, and 11) continues to give no detectable exposure above background. Over many years, the data at each specific location has shown remarkable consistency. The net conclusion is that, within precision of measurement, and compared to distant control areas (numbers 7 and 10), we are operating within statistical error of zero of potential (full 24/7 occupancy) public exposure over normal background levels.

Section 8
Radiation Exposure to Personnel

UCI issued TLD badges to students or researchers regularly utilizing radiation within the facility. Finger dosimetry (TLD) rings were also issued to all those personnel, as there is a strong likelihood of regularly handling radioactive sources. TLDs were read quarterly by Mirion Technologies, and results are presented in Table VIII. Data are for 4 quarters of operations since April 1, 2019. Reporting categories are deep, eye, shallow, and ring shallow. Neutron dosimetry badging was discontinued owing to absence of any recorded exposure greater than zero after many years. Other individuals visiting or casually working in the facility were issued Dosimans or Dosicards for which results are shown in Table IX. 10 persons were issued TLD badges and finger TLDs on a continual basis, another 13 students in the Operator Training Program were TLD badged, but not issued rings. 15 students in a one quarter Radioisotope Techniques class were TLD badged as was the teaching assistant for the course. Reported exposures for the class were low, averaging just under 3 mrem with a maximum of 7 mrem for any individual in the quarter.

Table IX also lists all visiting individuals that were issued with Dosimans or Dosicards that record in units of 0.1 mrem. In the course of a few hours, a worker could accumulate 0.2 mrem background. A tour visitor usually accumulates 0.0 or 0.1 mrem during a 45 minute visit to the facility.

TABLE VIII
Aggregate Personnel Exposure (mrem) 2019-04-01 to 2020-03-30

Group	Individuals	Whole Body			Ring
		Deep	Eye	Shallow	Shallow
A	2	2	2	2	111
B	1	854	854	854	3200
C	20	8	6	9	0
D	16	50	57	56	-
Total	**39**	**914**	**919**	**921**	**3311**

TABLE IX
Non-Zero Data from EPDs for Workers and Visitors

Group	Persons Admitted*	Max Dose (mrem)	Total Dose (mrem)
A	21	0.5	1.1
C	56	0.0	0.0
E	720	0.1	0.1
Total	**797**	**0.6**	**1.2**

* Multiple admissions of the same individual are included.

Group A: Activation Analysis Personnel: individuals doing extensive or casual activation analysis and radiochemical work at the facility. Most of the exposure is a result of Cl-38 or Al-28 radioactivity production.

Group B: Workers: individuals receiving exposure as a result of handling isotopes for shipment, and/or calibration activities in the facility.

Group C: Inactive / Other: individuals who did enter but not carry out radiation related activities during this period, therefore any exposure reported is an indication of range of general background (for EPD) or background and precision where the TLDs are stored when not in use. Includes maintenance workers NOT doing work on radiation related systems who ae always issued EPD..

Group D: Class Students: reported for students and teaching assistants in Radioisotope Techniques class Sep-Dec 2019. Note badges were kept 24/7 in separate laboratory room. All also ran samples by INAA as well as worked with sealed sources within the facility.

Group E: Tourists: issuing one dosimeter each for groups of up to 10, and 10 randomly for larger groups. No readings > 0.2 mrem were recorded.

Excluding the one person exposed during isotope handling for irradiation and shipping, personnel exposures continue to be very low at this facility in keeping with ALARA efforts. The event involving the high exposure was suitably documented and a dose estimate of 3000 mrem to the right hand of the individual was determined and adjusted in his record. Corrective actions and appropriate changes in handling procedures were implemented. A second similar irradiation and shipment was accomplished with less than 1/7th of the total exposures recorded.

Section 9
Closing Remarks

Overall, the facility has seen a significant decline in usage and related income, but measures are being taken to ensure continued function. Waste generation and disposal has remained at its traditionally low values, given the low power of the reactor and the capacity for short term storage of materials. Radiation exposure to personnel also remains low, attributing most dose absorbed to the primary activation analyst of the facility. Handling of significant quantities of isotopes as sources for shipment was an exception.

As noted, this is an exceptional year, so future planning is very unclear. The chemistry department has made a commitment to continue to employ two individuals: a Reactor Facility Manager, who will eventually assume the role of Reactor Supervisor, and a full time Assistant Engineer as Assistant Supervisor, operator trainer, chemical analyst, and reactor operator.

A recently hired Assistant Professor of Chemistry is commencing a radiochemistry and nuclear fuel oriented research program and is assuming teaching roles with the radiochemistry program, assuring its continuation beyond the eventual retirement of the current Interim Supervisor.

Re-establishment of full operations awaits the outcomes of COVOD-19 effects on the UCI Campus. It is anticipated that undergraduates will not be permitted to return to campus until 2021 at the earliest, and graduate students will continue to be restricted to about 30% functionality (except for directly related virus research) for some time.