February 20, 1967

American Potash and Chemical Corp.
258 Ann Street
West Chicago, Illinois 60185

Attention: Bruce J. Bennett
General Manager

Gentlemen:

This letter relates to the discussion Mr. Hampleman of this office held with you at the conclusion of the recent inspection. In particular, you were informed that certain of your licensed activities appear to be in noncompliance with AEC requirements. This item and reference to the pertinent requirement is listed in Paragraph 5 of the attached Form AEC-592.

It was noted that on a return visit to your facility on February 9, 1967, this apparent deficiency had been corrected.

Should you have any questions concerning this matter, you may communicate directly with this office.

Sincerely yours,

Roy C. Hageman, Director
Region III

Enclosure:
Form AEC-592

bc: Division of State & Licensee Relations, HQ - w/encl
Division of Compliance, HQ - w/encl

OFFICE ▶	CO:III	CO:III	CO:III			
SURNAME ▶	Hampleman/jep	[illegible]	Hageman			
DATE ▶	2-17-67	2-20-67	2-20-67			

Eberline PAC-4G
Victoreen 440

Nuc-Chi Auto sample changer system

Mgmt Disc.

① Cond 10 6-5-69 issued Invem
② 20.405 >1.25 rem to one employee
③ Labeling

① None
② To watch hardware – Rivkin told them (AEC to key people)
③ ? to request exemption again ?

④ Records

Marv Parsons

TO Kapco, (Rt. Corrugan) via UPS.

6-23-69 100 cc ThO_2 Soln.

4-4-69 1/2 gal " in Suspension.

shipped under "Gen'l License 10 CFR 40

on AEC License STA 583

Class D Person Label Attached"

↗ note on invoice.

No gm, lbs, mcs etc terms on invoice.

Throughput has been very sporadic in past year or so

3-12-70 to GE Clev SMB-191

50 lb Th Oxalate

2-24-70 12 lb " oxide

2-23-70 50 lb " Oxalate

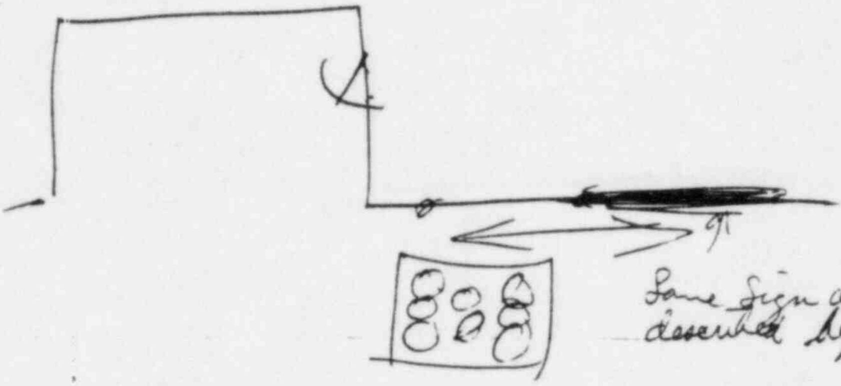
Zircon, Solon

1-28-70 50 Kg SMB-391 ThO_2

110 lb ThO_2

3-24-[illegible]

Th room



Same sign as described before

Fence Survey (See near pile)

~ 1 mr/hr @ fence

~2 mr/hr @ ~ 10-12 ft inside fence

Downtown Lab

Plastic jugs of Th

metal, [illegible] Chloride, Acetate, Hydroxide

oxyfluoride, - all C's Rm + qtys

3-24-70

ThO_2 production has been down since 9/69

Only on hand mazzl (Th residues) are currently used to make Th nitrate.

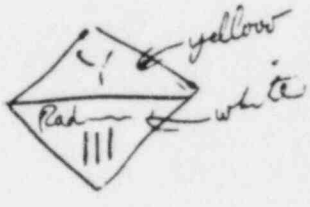
Expect real soon (1–3 months) to be back in full prod of ThO_2 (w/ monazite sand)

all four floors are in use but only on pilot scale (no oxide)–

Fiber drum of spilled sand on dock
lost 100 lbs w/ 7% Th ∴ 7 lbs Th
(No label)

in main corridor outside the room in Bldg 3.
28 small gray steel pails (covered) containing ThO_2 (up to 55 lbs per pail) – all on one pallet
No RM, etc labels
15-20 mr/hr surface
6 mr/hr @ 18 in
only ThO_2 on floor

3 large drums of Monazite Sand
Labeled w/ DOT label
(Radioactive)



Rad Levels

up to 17 mr/hr in ThO_2 Room in Bldg 3

25-30 mr/hr at Process tanks

Incinerator

1-5-68 Sand Bags & Hemp Bags

1-12-68

0.137 x 10" μc/ml 1-5-68 Stack

0.083 x 10" μc/ml 1-12-68 Stack

none since then

Incineration Cond. (#10, dtd 3-27-68)

Scrap Surveys & Area Contam Surveys

Log Book record

6-12-68, 6-30-68, 11-19-68 etc
10-11-68

(10 dates of α contam. surveys)

(*) The items which can't be fully surveyed or >1000 dpm/cm² are taken to 12 areas for storage (guages, etc.)

Sold items are ≤1000 dpm/100 cm²

# of Samples	Water Samples	Sol (10^{-6} μc/ml)	Insol (10^{-6} μc/ml)
28	6/68	ND	0.12
30	7/68	0.1	0.05
6	8/68	<1	<1
24	9/68	<1	<1
38	10/68		
	11/68		
	12/68		

Sol + Insol as per p 9 of applic –

In 1969

Composite Samples analyzed one comp sample per week

1, 2, 3
4, 5, 6, 7, 8, 9

2.2×10^{-6} μc/ml Sol
7/7 – 7/13/69

Nearly all < N.D.

1969 Air Sampler

(A)	~ 1×10^{-11}			
(B)	Max = 1.25×10^{-11}		most $\ll 1 \times 10^{-11}$	
(C)	" = 1.44		" < "	
(D)	5.62		most $< 1 \times 10^{-11}$	
(I)	33.9	(11.3x)	" $< 1 \times 10^{-11}$	1 hr
(E)	27.16	(9.0x)	Maint work	
(F)	50.6	(16.9x)	No people in area	
(G) (H)	(Bldg #3) → 17.4	(5.8x)	5 hours	

5 min sampling
the 45 min samples
much lower

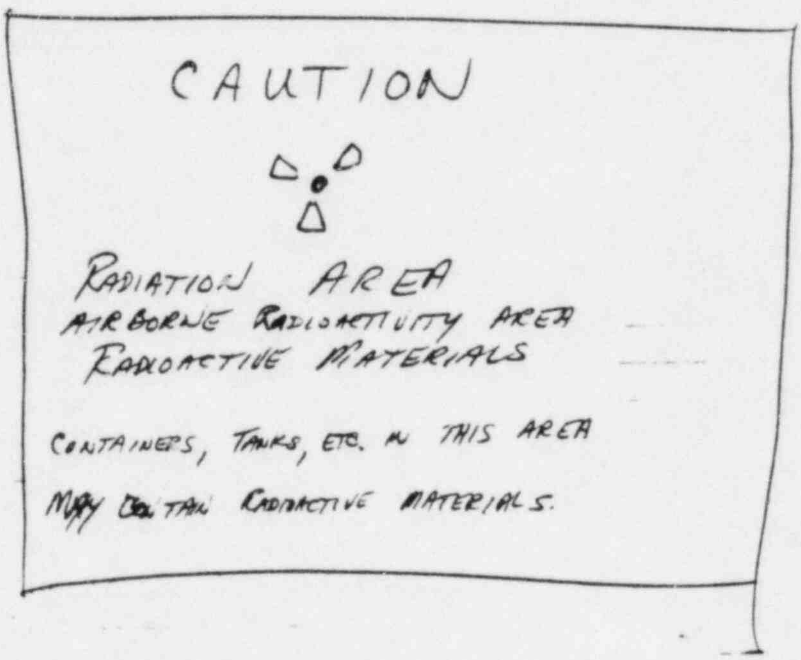
Grid Plant

Max 4.16×10^{-11}

Typical Sign in various Area throughout Plant

~ 24" x 24"

magenta on yellow



Monthly

1968

max. 3050 : # 238

✓ (Reported to Commission as overexposure)

1st Qtr	= 1090	1/15 - 4/15
2nd Qtr	= 1350	4/15 - 7/15
3rd Qtr	130	7/15 - 9/15
4th Qtr	480	9/15 - 12/15
	3050	

1969

all < 1.25 rem for the year

Air Samplers

1968

- 3 daily × (A) Periphery of Fenced area = all $< 1.0 \times 10^{-11}$ μc/ml Th nat
- bus, daily, weekly × (B) Unrestricted Area = " " " "
- wk 6 wks (C) Roof Area " Max: 1.09×10^{-11} μc/ml most $<< 1 \times 10^{-11}$
- 2 wks (D) #9 - 4th Pot Bake Area - max $= 16.4 \times 10^{-11}$ μc/ml (Time Study performed) ave: $\sim 1 \times 10^{-11}$
- " [illegible]
- " (E) #9 - 2nd max $= 26.4 \times 10^{-11}$ μc/ml (8.0×) 1½ hrs
- " (F) #9 - 1st Dock-Sandtoad: 49×10^{-11} (16×) 25 min
  - Blender 55.2×10^{-11} (18×) 45 min - new oper.
  - " 92.9×10^{-11} (30.9×) 1 hr
- " (G) #2 Cascade Rm 6.36×10^{-11} (2.12×)
- " (H) #3 Thorium Furnace Rm - max 7.72×10^{-11} (2.57×) 1 hr
- " (I) #9 - 3rd max $= 24.2 \times 10^{-11}$ (8.0×) 1 hr

Genl Plant

max 8.97×10^{-11} no people - doors & windows open on windy day

#262 ; 1st Qtr 1964

	1	2	3	4	5	6	7	8	9	10	11	12	13
Wk	M	60	270	350	M	200	350	M	M	M	M	40	M
Accum	M	60	330	680	680	880	1230	1230	1230	1230	1230	1270	1270

#172 = 1180 1st Qtr

1226
2450 = 1225

#172 & #262 worn by same man.

"Film Badge Record" card shows weekly entries but no accumulated totals were kept as provided for on card.

Weekly report sent to all foremen, McLean & Bennett

Beginning to use monazite sand again.
Still primarily pilot salt operation.
3rd & 4th floor of Bldg 9 just getting back into operation.

Film Badges

R. S. Landauer

25-35 Weekly - (#994)
100-110 Monthly - (#1837)

Weekly

(1968) — none > 1.25 rem/Qtr

max = 2980 # 131 Whole Body

2460 # 139
2390 # 138

(1969)

max: 3600 # 138
2120 # 131
1610 # 139
} none of these were > 1.25 rem/Qtr

[redacted] # 262 = 1.27 rem in 1st Qtr 1969 thru 3-30-69
but next report for 3-31-69 to 4-6-69 shows "M"
w/ Qtr total now at 1.23 rem

(1970)

Thru 2/8/70
[redacted] = 350 mrem

[redacted] → 232 + 255, 468, 648

American Potash & Chem. Corp
Rare Earths Div
West Chicago, Ill.

3-23-70

STA-583

Bruce Bennett:
Bill [illegible] Foulke - R.S.O.
Ed Marynniw. Rad. Hyg & Tech
Bill Rivkin, H.P. Advis

x As RSO Bill's function in Admin
x Foulke in Ind Safety & Hyg (same as Jerry [illegible])

Rivkin
Qtrly visit. -
review Marynniw records
check new proc. etc
Routine α + βγ surveys - + wipes. no air samples

R.S. Proc

Genl: x- Safety Booklet
x- Inst. Sheet (enclosed in last applic.)
Specific - proc for each job
— No 5 min cleanup time provided.
— Most people shower the change clothes after work
x Marynniw job is same

3-24-70

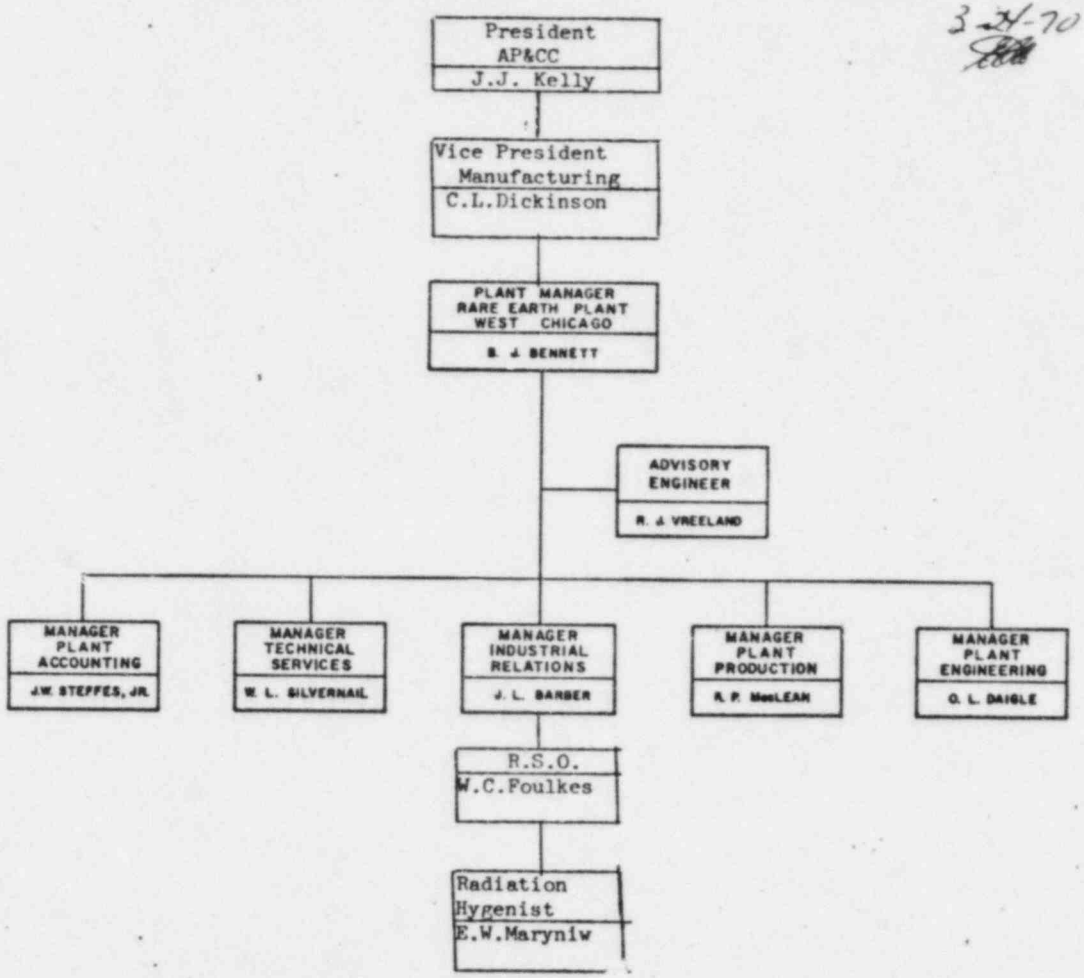


EXHIBIT A

44. The items of noncompliance noted during the inspection were discussed at this time. Concerning the two occasions in which the licensee incinerated the sand bags, the licensee representatives reiterated the fact that they had thought that they had to make trial runs in order to submit sufficient information for the incineration approval. Since the license was amended to approve incineration of the sand bags, the subject was not discussed further. Concerning the items of noncompliance regarding the overexposure of one person, Mr. Rivkin, the licensee's consultant, stated that he admits that he advised the licensee to average the two film badge readings of the films worn by that one person during the calendar quarter in which he received greater than 1.25 rem on the one badge. The licensee representatives advised that the Commission and the employee would be advised in writing of this overexposure in accordance with 10 CFR 20.405. Concerning the item of noncompliance regarding failure to label containers of finished products, please see paragraphs 36, 37, and 38 above. The licensee representatives advised that they will again request exemption from 10 CFR 20.203(f)(2).

45. Although not an item of noncompliance, the health physics records were noted not to be kept in the best order. In some cases, a series of records would be in the form of a pile of disconnected pieces of paper. In some cases, a set of records would be begun in a bound notebook with a piece of supplemental information slipped in between the pages. Over a period of time, there were more pieces of paper slipped in between the pages than there were notations on the bound pages themselves. In many cases, Mr. Maryniw had to be present in order for anyone to interpret the results of the surveys recorded. Mr. Foulkes, the current radiation safety officer, stated that he recognized that this was one of the problems which he was going to have to face and get straightened so that he, himself, can use the data to better judge the health and safety conditions of the licensed program.

46. The licensee was advised that they may receive further communications from the Commission regarding the items of noncompliance noted above.

Attachment:

Exhibit A

40. (continued)

on a routine basis. Also, it should be noted that, since the amendment to approve the incineration was issued, the licensee has not performed any incinerations of the monazite bags, according to the licensee representatives.

INDEPENDENT MEASUREMENTS

41. The AEC representative conducted independent measurements using the licensee's Victoreen Model 440 survey meter with the end window covered. The radiation level along the fence in the southwest section of the Twelve Acres, where the large "mud" pile is located, showed approximately 1 mr/hr while the radiation level ten feet inside the fence showed about 2 mr/hr. The licensee is authorized up to 2.5 mr/hr at the fence in this area. The radiation level at the surface of the 28 small gray steel pails containing up to 95 - 100 pounds of thorium oxide showed between 15 and 20 mr/hr while the radiation level at 18 inches from the pails was 6 mr/hr. A sign on the wall above the 28 small gray containers showed the conventional radiation symbol of the colors of magenta on yellow and included the words, "Caution - Radiation Area."

LICENSE CONDITIONS

42. Each of the license conditions were reviewed with the licensee representatives during the inspection. Condition No. 9 of this license authorizes the licensee a radiation level not to exceed 2.5 mr/hr at the southwest boundary. As noted above in paragraph 41, independent measurements showed that the radiation levels at this point are less than 2.5 mr/hr. Condition No. 10 of the current license authorizes the licensee to incinerate certain source material pursuant to 10 CFR 20.106(b) and 20.302. See paragraph 40 above regarding this license condition.

MANAGEMENT DISCUSSION

43. The results of this inspection were discussed with Mr. Bruce Bennett, the Plant Manager. Also present during this management discussion was Mr. William Foulkes, the RSO, and Mr. William Rivkin, the licensee's consultant.

38. During this inspection, it was noted that 28 small gray steel covered pails which contained thorium oxide in quantities ranging up to 95 pounds per container were located on a pallet in the main corridor outside of the thorium room in building No. 3 of the licensee's facilities. None of the 28 containers were labeled with the convencional radiation symbol in the colors magenta on yellow or the words, "Caution - Radioactive Material," which constituted noncompliance of 10 CFR 20.203(f)(2). The 28 containers were noted to be not attended by any persons and they were accessible to any person walking by and that the source material contained in the containers was a finished product and not in process.

RECORDS

39. The licensee is authorized to receive and possess unlimited amounts of thorium. All shipping records are currently being maintained on the second floor of the downtown West Chicago facility of the licensee. Information obtained from the shipping records during this inspection show that [redacted] persons who are being shipped thorium by the licensee have their source material license identified on the invoice and, when small quantities are shipped, the statement regarding a general license authorization is typed on the invoice also. Mr. Parsons, the person in charge of these records, advised that the New York office of the company maintains all of the particulars regarding export shipments.

40. During a review of the licensee's air sampling records, it was noted that "empty" monazite bags and hemp bags were incinerated on January 5, 1968, and again on January 12, 1968. During these two dates of incineration, the maximum in-stack air sample was shown to be 0.137×10^{-11} uc/ml. The licensee was advised that the incineration of the used monazite bags in January 1968 constituted noncompliance with 10 CFR 20.305. It is noted that in February and March 1968, the licensee submitted information in request for approval to incinerate the used monazite bags. On March 27, 1968, Amendment No. 2 was issued authorizing incineration of the bags. During this inspection, the licensee advised that they thought that they had to run a couple of trial incineration runs in order to gather sufficient information to submit to DML for approval to incinerate

36. (continued)

license Item 10 of this license read, "The licensee is exempt from the requirements of subparagraph 20.203(f)(2), 10 CFR 20, for containers of source material within the plant provided that each area where source material is stored or used is conspicuously posted in accordance with subparagraph 20.203(e)(2) and with the words, 'Any container within this area may contain radioactive material'" The sign described above in this paragraph satisfied the requirements of that license condition.

37. Effective November 4, 1966, this exemption had been deleted from the license. A chronological listing of the correspondence between October 4, 1966, up until the time of the inspection is listed below:

October 4, 1966 - In a letter from the licensee to DML, the licensee stated "Our AEC license exemption to Section 20.203(f)(2) of 10 CFR 20 will no longer be appropriate after November 3, 1966, since revisions to this section (f) will be in effect. The amended sections (f)(3), (IV), (VI), and (VII) provide the exemptions we feel necessary; Therefore, Condition 10 of our current license should be deleted."

November 4, 1966 - Amendment No. 1 was issued to this licensee in a form of a letter from DML to the licensee which states, "In accordance with your application dated October 4, 1966, Item 10 of AEC Source Material License No. STA-583 is hereby deleted."

May 19, 1969 - In a letter from the licensee to DML which was part of a complete renewal application, the licensee included a request which stated, "We desire to have Condition No. 10 of our old license included in our renewed license. This is necessary because of the large number of processing tanks and containers within our plant."

June 5, 1969 - With the issuance of subject license, as renewed, DML advised the licensee "With regard to your request for an exemption from the labeling requirements the Section 20.203(f)(2) of 10 CFR 20 within your plant, you advised us in your letter of October 4, 1966, that this exemption was no longer required as a result of a change in the labeling requirements in 10 CFR 20 in 1966. It appears that the situation described in your letter of October 4, 1966, is still applicable and that an exemption is not required. Please advise us if this is incorrect."

32. (continued)

have shown that the time week study has been done and that no person has been exposed to concentrations in excess of the 40-hour MPC. Most of the in-plant air samples taken were noted to show at or near 3×10^{-11} uc/ml or less. All of the air samples are counted as described in the backup material included in the application dated May 19, 1969.

33. All surplus equipment which is considered as scrap is surveyed prior to being released for sale. The licensee uses the deminimus levels which have been supplied to them by the Commission as a guide to releasing the scrap material for sale. If the material is of such configuration such as pipes which cannot be surveyed internally and have had a known thorium use, then all scrap which exceeds the limits described in the deminimus letter are taken to the Twelve Acres site and are stored. The licensee maintains a logbook record of these surveys. Since the last previous reinspection, the logbook record shows ten dates of scrap contamination surveys. The record does show that all thorium contaminated items which cannot be fully surveyed or greater than 1000 dpm/100 cm^2 are taken to the Twelve Acres site for storage. The licensee's radiation level survey records show that the thorium oxide room in building No. 3 has backgrounds ranging up to 17 mr/hr on occasion and that various process tanks throughout the production building range up to 25 - 30 mr/hr at certain times. The radiation level surveys are conducted while the air samples are being taken.

35. The licensee's housekeeping program includes a wet scrubbing of the floors on a daily basis in areas where thorium containing material is handled. In the case of a spill, the level at which decontamination is necessary is considered that amount which is visible to the eye. The operator is instructed to clean up all spills as soon as possible.

POSTING AND LABELING

36. At the entrance to or in each area which was visited during this inspection was a 24' x 24' magenta on yellow sign showing the conventional radiation symbol and the words, "Caution - Radiation Area - Airborne Radioactivity Area - Radioactive Materials; Containers, Tanks, Etc, in This Area May Contain Radioactive Materials." Up until November 4, 1966,

30. Four specific types of in-plant air samples are taken. The first is the breathing zone of the operator while at the point of operation where dust radioactive material is handled. The second is the specific work area the operator occupies when not at the point of operation. The third is the general plant area which the operator or others may occasionally or frequently occupy. The fourth type of air sample is taken during maintenance of thorium processing equipment containing dust material. Those samples which are collected outside of the in-plant area are located at the periphery of the fence, unrestricted areas outside of the fence, and the production roof areas.

31. The records of the licensee's air sample results were reviewed for the years 1968 and 1969. It is noted that the sample taken at the periphery of the fence is taken on a quarterly basis and samples taken in unrestricted areas outside the licensee's plant facilities are taken on a weekly basis. The samples taken on the roof are taken on an average of every six weeks. All of the in-plant restrictive area air samples are taken every two weeks while a particular production function is taking place. The in-plant air samples specifically are collected on the first, second, third, and fourth floors of building No. 9 and in the cascade room of building No. 2 and the thorium furnace room in building No. 3.

32. All of the quarterly air samples taken at the periphery of the fence area have shown less than 1×10^{-11} uc/ml with most samples being less than 1×10^{-12} uc/ml. The maximum results of air samples taken at the unrestricted area locations outside the fence and on the roof have ranged between 1 and 1.25×10^{-11} uc/ml, while most of them are less than 1×10^{-12} uc/ml. Of all of the in-plant air sample points, the sand loading area of the dock and the blender unit area, both in building No. 9, are the most critical. The highest air sample result taken in this particular area has shown nearly 31 x MPC of 3×10^{-11} uc/ml. For this and other operations, a detailed time study is done on persons who are working in the area to determine whether or not they have been exposed to or present in concentrations which would exceed the restricted area MPC for a 40-hour work week. A review of all of the air sampling records for the in-plant samples for 1968 and 1969

26. (continued)

The R. S. Landauer report identifies 172 as receiving an exposure of 1.18 rem at the same time Mr. [redacted]'s badge No. 262 was showing 1.27 rem. Mr. Rivkin, the consultant, advised that it was he that suggested that the two totals be averaged which came to 1.225 rem for the first calendar quarter. The licensee representatives and Mr. Rivkin were advised that badges like that cannot be averaged. The maximum reading must be accepted as the actual exposure. The film badge reports for 1969 for the monthly cycle badges were all quite low and no person exceeded 1.25 rem for the entire year. For 1970, the weekly badge results have been reported through February 8, 1970, and showed the highest whole body exposure through that time to be 350 millirem. No monthly film badge report has been received for 1970 as yet.

27. The licensee did not perform bioassay sampling, nor do they use dosimeters in their personal monitoring program.

28. All film badges are enclosed within a plastic carrying case to reduce the possibility of contamination.

RADIATION SURVEYS AND/OR EVALUATION

29. As described in the licensee's application dated May 19, 1969, liquid effluent samples are obtained on a daily basis. One quart grab sample is obtained from the overflow hose which drains into the settling pond. The daily samples are put together and is considered a single composite weekly sample. The composite samples are allowed to stand until the solids settle to the bottom of the glass jar. An aliquot of the clear liquid is taken and then evaporated and alpha counted and is considered their soluble sample. After the soluble sample is taken, the composite sample is thoroughly stirred. Another sample is taken which is called total soluble and insoluble. Each of the soluble results are subtracted from the soluble and insoluble combination results to give the final data for the water samples. A review of the licensee's water sample records show that, except for one week in the summer of 1969, all results for both soluble and insoluble had been less than the water concentrations allowed in Appendix B, Table II, 10 CFR 20. During the week of July 7 - 13, 1969, one composite soluble sample showed 2.2×10^{-6} uc/ml.

25. (continued)

instruments include a Victoreen Model 440 and an Eberline Model PAC-4G meter. All instruments are calibrated by the Health Physics Associates consulting firm.

PERSONNEL MONITORING

26. The licensee uses the film badge service of R. S. Landauer Company. All thorium plant production workers are on a weekly schedule and the remainder of personnel may have an occasion to enter in the area where thorium is used or stored is on a monthly schedule. During the recent months, the number of persons assigned to weekly film badges ranged from 25 to 35, while the number of persons at the monthly cycle have ranged from 100 to 110. The film badge reports submitted by Landauer to the licensee for the years 1968, 1969, and the latest ones for 1970, were reviewed during this inspection. For the year 1968, the maximum whole body exposure received by any person during the entire year was 2.98 rem. No person received a whole body exposure in excess of 1.25 rem in any calendar quarter. During 1968, the maximum whole body exposure received by any one person wearing a monthly cycle badge was 3.05 rem. There was one person who received a quarterly exposure during the second calendar quarter of 1.35 rem. This overexposure was reported to the Commission as required. During 1969, the maximum whole body exposure received by any one person on the weekly cycle was 3.60 rem. This person did not receive an exposure in excess of 1.25 in any calendar quarter. During this film badge report review, it was noted that [redacted] wearing badge 262, received a whole body exposure during the first calendar quarter 1969 of 1.27 rem. This overexposure was never reported to the Commission which constitutes noncompliance with 10 CFR 20.405(a). In addition, the licensee advised that the employee was not notified of this overexposure in writing which constitutes noncompliance with 10 CFR 20.405(b). The licensee representatives and Mr. Rivkin, the licensee's consultant, advised that they were concerned with this particular person's whole body exposure as evidenced on the badge, so they had a second badge placed on the person during this period of time. They identified the second badge as badge No. 172.

19. A booklet entitled, "General Safety Rules and Safe Procedures," has been issued and a copy given to each employee. All types of safety problems including industrial, chemical, and radioactivity information is included in the booklet.

20. For each job in the process, a specific written procedure has been written. All persons who work on a specific job must be acquainted with the individual procedures concerning that job. These procedures include safety instructions.

FACILITIES AND EQUIPMENT

21. The licensee's two separate facilities at West Chicago are the research and development section known as W-1 or special products is located in the downtown West Chicago area, while the licensee's production facilities are located at 258 Ann Street.

22. During a visit to the facility in downtown West Chicago, it was noted that this facility had been modernized to some extent and that some of the chemical labs had been moved from this location to the main production facility area. The building now has more office space. It is here where receipt and shipping records are maintained.

23. The main production facility is essentially the same as it was in the last previous inspection except for the obvious removal of some equipment and moving of other equipment to other locations in making the process more efficient and also gearing the process with rare earths in mind instead of thorium as the prime object of the production.

24. Immediately south of the main production facility is the licensee's fenced-in area, known as Twelve Acres, which is actually an area measuring twelve acres. The waste mud pile is still located in the area and the licensee has several retention ponds for the collection of all liquid process waste from the plant. Access to the Twelve Acres area is controlled by a padlocked gate in the chain link fence.

25. The licensee's radiation detection and monitoring equipment was noted to be comparable to that which was on hand at the last previous reinspection. One of the most used pieces of equipment on hand is a Nuclear-Chicago automatic sample changing system which is used for the counting of smears, water samples, and air samples. Portable radiation survey

14. As a result of this cutback in the production of thorium oxide in the recent past, the licensee had on hand approximately 2,300 pounds of finished product thorium oxide. The licensee advised that one of the primary reasons for the cutback in thorium oxide production has been the loss of a GSA contract.

ORGANIZATION AND ADMINISTRATIVE CONTROL

15. An organizational chart which outlines the chain of command insofar as this licensed program is concerned was given to the inspector at this time and is attached to this report as Exhibit A.

16. The American Potash & Chemical Company became a subsidiary of Kerr-McGee Corporation prior to the last inspection. The organizational lineup, as noted in Exhibit A, took place after the acquisition of the licensee by Kerr-McGee. Since the last previous reinspection, Mr. Gerry Sinke, the former radiation safety officer, was transferred to the Kerr-McGee facilities in Oklahoma as a safety engineer. Replacing Mr. Sinke as radiation officer is Mr. William C. Foulkes. Mr. Foulkes advised that his function, so far as being radiation safety officer is concerned, is primarily administrative in that his background has been primarily industrial safety and hygiene. Mr. Foulkes supervises Edward Maryniw, the radiation hygienist, just as did Mr. Sinke in the past. Mr. Maryniw gathers all health physics data for this licensed program.

17. The consultant firm of Health Physics Associates is contracted by the licensee to act as their health physics consultants. A member of the consulting firm visits the licensee on a quarterly basis with the primary object being the review of Mr. Maryniw's health physics records and to check on new procedures and methods from a health physics standpoint.

RADIOLOGICAL SAFETY PROCEDURES

18. Written general instructions for the handling of radioactive materials in the West Chicago plant are issued to all employees who must date and sign this instruction after they have read it. Title of this instruction is "Radioactivity Statement." A copy of this radioactivity statement is included in the application submitted by the licensee on May 19, 1969.

D E T A I L S

GENERAL INFORMATION

9. This was an announced reinspection of this source material license conducted on March 23 and 24, 1970. Mr. Bruce Bennett, Plant Manager, was notified of this forthcoming inspection by telephone on March 17, 1970.

10. The State of Illinois Department of Health was notified of this forthcoming inspection on March 19, 1970. The inspector was unaccompanied.

11. The following persons were interviewed and supplied the information contained in this report:

    Mr. Bruce J. Bennett - Plant Manager
    J. L. Barber - Manager, Industrial Relations
    William C. Foulkes - Radiation Safety Officer
    Edward W. Maryniw - Radiation Hygienist (Health Physics Technician)
    Mr. Marvin Parsons - Marketing Department
    Mr. William Rivkin - Health Physics Associates (Consultant)

    All the information contained in this report is presented in substance unless otherwise indicated.

INSPECTION HISTORY

12. The Reinspection No. 6 of this source material license was conducted on June 13, 1968. No items of noncompliance were noted as a result of that inspection.

PROGRAM

13. The licensee at the West Chicago facility has been using a monazite sands and a bastnasite minerals as the raw material in the production of thorium and rare earth oxides. Since the last inspection, the licensee has been in the process of renovating much of the processing equipment. The licensee representatives advised that the rare earth oxides are currently the No. 1 production item with thorium being a "byproduct" production item. As a result of this new emphasis on the rare earths instead of the thorium and the renovation of the various equipment, the licensee has been running on a pilot program scale with production running two to seven tons per day, whereas capacity has been 25 tons per day of input.

REPORT COMPILED SHEET

Identifying Information

Type Report (circle) 591 (592)

1. Licensee American Potash and Chemical Company
2. Address 258 Ann Street
West Chicago, Illinois 60185
3. License No(s) STA-583 (40-2061)
4. Date of Inspection March 23 and 24, 1970
5. Inspector Edgar L Ashley
6. Status of Compliance noncompliance

Items of Noncompliance

7. Section of Regulation or License Condition	Details Paragraph
A. 10 CFR 20.203 (f)(2)	A. 38
B. 10 CFR 20.305	B. 40
C. 10 CFR 20.405 (a)	C. 26
D. 10 CFR 20.405 (b)	D. 26
E.	E.
F.	F.
G.	G.

Classified Information

8. This report contains classified or business confidential information
Yes (No)

EL Ashley 4-3-70
Inspector Date

JM Allan 4-6-70
Reviewer Date

The day-to-day health physics coverage for the employees handling thorium or thorium bearing materials appears to be adequate. Both breathing zones and work area air samples are taken routinely, and time weighted studies are performed on all of the employees who are present in air sample concentrations showing greater than forty MPC hours of airborne activity.

It appears that no significant health and safety hazards exist from the use of source material under this license.

American Potash & Chemical Corp.
West Chicago, Illinois
License No. STA-583
March 23 and 24, 1970

HEALTH PHYSICS ANALYSIS

Since the last previous reinspection, the licensee has been modifying its equipment and rejuvenating the process in general. As a result, the use of monazite sand in the production of thorium has been at a much reduced scale. The licensee representatives stated that this pilot plant type of operation had been running from between two and seven tons per day, whereas normal capacity had been 25 tons per day.

The American Potash & Chemical Company was bought by Kerr-McGee Corporation sometime prior to the last inspection. Since the last inspection, Mr. Gerald Sinke, the former radiation safety officer in West Chicago, was transferred to the Kerr-McGee Oklahoma facilities. In Mr. Sinke's place, Mr. William Foulkes has been transferred to be radiation safety officer. Mr. Foulkes has spent considerable time in the last five years in the laboratory section of American Potash. Insofar as daily duties are concerned, Mr. Foulkes advised that his function is primarily administrative at this point and that Mr. Edward Maryniw, the radiation hygienist (technician), continues to do all of the actual health physics data gathering. The consultant firm of Health Physics Associates continues to act as the licensee's consultant. A member of the consultant firm was present during this inspection.

Items of noncompliance noted during this inspection appeared not to create a significant health and safety hazard. One of the items concerned the trial run on two different occasions of the licensee's incinerator prior to the request and subsequent approval of incinerating "empty" monazite bags. Other items of noncompliance concerned the failure to report to the Commission the exposure of one employee to whole body exposure of 1.27 rem during a calendar quarter. In addition, the employee was not notified of this exposure either. The last item of noncompliance concerned the failure to have containers, in all cases, labeled in accordance with 10 CFR 20.203(f)(2). Each of these items of noncompliance are discussed in detail in the body of the report.