KERR-McGEE

KERR-McGEE CENTER · OKLAHOMA [illegible] 73125

October 21, 1975

Mr. William Crow, Chief
Fuel Fabrication & Reprocessing Branch
Directorate of Licensing
United States Nuclear Regulatory Commission
Washington, D. C. 20545

RE: Docket No. 40-2061
License STA 583

Dear Mr. Crow:

This is in further reference to the request of Kerr-McGee Chemical Corporation to amend its license for its West Chicago Facility.

Development of Disposal Plan

The closing of this facility and the disposition of the property and particularly of the waste disposal area has been under study by Kerr-McGee since 1971. The first study in late 1971 was primarily a radiation survey of the buildings and property to determine the scope of the project. In 1972 the decision was made to terminate manufacturing operations at West Chicago at the end of 1973. During 1973, a concerted effort was made to sell the facility as a going business. Many companies, large and small, showed an interest and made investigations of the property and facilities. Nevertheless, no one purchased the business.

In 1973 the Corporate Physical Science and Measurement Department studied the options available for decommissioning the facility.

Several options were discarded as being impractical or uneconomical. These included the idea of diluting all of the thorium-bearing wastes to under the "source material" level of 0.05% thorium plus uranium. This would have required about 640 acre-feet of soil and raised the elevation of the 27-acre storage site by about 24 feet.

A second option, also discarded, was the proposal to remove the thorium-bearing wastes from the site and transport them to another Kerr-McGee facility such as Cimarron, Oklahoma or Grants, New Mexico. The cost to contain the wastes at Cimarron was estimated at almost $2,900,000 plus the transportation costs. Transportation costs to Grants were estimated at over $3,000,000. The total cost for either of these proposals would be considerably more than these amounts. In November, 1974 this proposal was also discussed with the Illinois Division of Radiological Health at Springfield. They stated that they did not want this waste material transported to the Illinois disposal site.

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ATTACHMENT 6

The final plan, as submitted to you on September 25th, was developed late in 1974 on consultation with Mr. Paul Klevin of Valley Stream, New York. Mr. Klevin, formerly with the AEC and EPA, had been employed by the W. R. Grace Corp. in 1974-75 as a consultant to supervise the decommissioning of their rare earth and thorium facility at Pompton Plains, New Jersey. Mr. Klevin was then employed by Kerr-McGee Chemical Corporation as a consultant to help develop our disposal plan. The W. R. Grace facility was similar to but consideraly smaller than the West Chicago Facility.

A civil engineering survey and plans for the 27-acre disposal site were prepared for us by Rempe-Sharpe Associates, Inc. of Geneva, Illinois. Upon completion of the civil survey Rempe-Sharpe estimated the cost of grading the 27-acre disposal site as shown on the submitted drawings at $254,000.

In early 1975 Kerr-McGee's Corporate Real Estate Department determined that the 7.5 acre manufacturing site and buildings were not readily salable as such and that this property should be cleared for sale as land. In the Spring of this year bid proposals were sent out to clear the buildings from the site. It was understood that any contaminated rubble or equipment would be buried on the 27-acre site.

At the time these bids were being reviewed, several parties expressed an interest in purchasing all or part of the facility in an "as-is" condition. On this basis the property was offered for sale and the successful bidders have signed a contract of sale contingent on the transfer of the NRC license. The purchasers understood the need for and have agreed to the decontamination of buildings and equipment and to continue the Kerr-McGee plan for the waste storage area as a permanent storage site for the thorium-bearing waste materials.

Environmental Effects of Waste Storage

It was indicated in the plan submitted on September 25th that the thorium-bearing waste materials stored at the 27-acre site contained insoluble thorium compounds, the ore residues being thorium phosphate and the precipitated residues being largely thorium fluoride, thorium oxalate or thorium oxide (or hydroxide).

We have resampled all of the solid wastes and have taken several samples of ground water from the area and the existing ponds. These samples are presently at the Kerr-McGee Technical Center at Oklahoma City awaiting tests. The solids will be tested for water leachability at several levels of pH. At the request of your Mr. Wayne Hansen all samples will be run for isotopes of thorium and uranium. Results of these tests are not expected until some time in November.

It is to be expected that all soluble and readily dissolvable materials have long since leached into the ground. The surface soil structure in the storage area is a layer of about 20 to 30 feet of gravelly soil under which is a layer of clay. Mr. Joseph Rempe of Rempe-Sharpe Associates had indicated to us that the flow of

sub-surface drainage is in a generally southeast and then southerly direction. In a study in 1967 Mr. Rempe showed that there was considerable drainage from the percolation ponds into the storm sewer under the west border of the 27-acre site and also southerly into the DuPage River. This data was presented to the Illinois EPA. The drainage into the storm sewer was readily detected and was monitored regularly by Kerr-McGee and by the Illinois EPA.

During the operation of the rare earth plant and the disposal of liquid effluents by percolation, the liquid effluents were maintained in an acid condition at a pH of about 2.0. It is the opinion of those experts familiar with uranium extraction and the chemistry of our processes that the small amount of uranium occurring in monazite ore was extracted by acid and transported to the waste disposal ponds in a soluble form where it percolated into the subsurface. To our knowledge, no attempt was made by the company or the State to monitor uranium in any effluents other than what may have been reported as radioactivity in our standard test reported to the Illinois EPA, examplesof which are attached to the Plan.

I will report the results of the leachability tests of the thorium-bearing solids as soon as they are available from our Technical Center. I understand there is some delay due to tests being made for renewal of our Sequoyah Facility license.

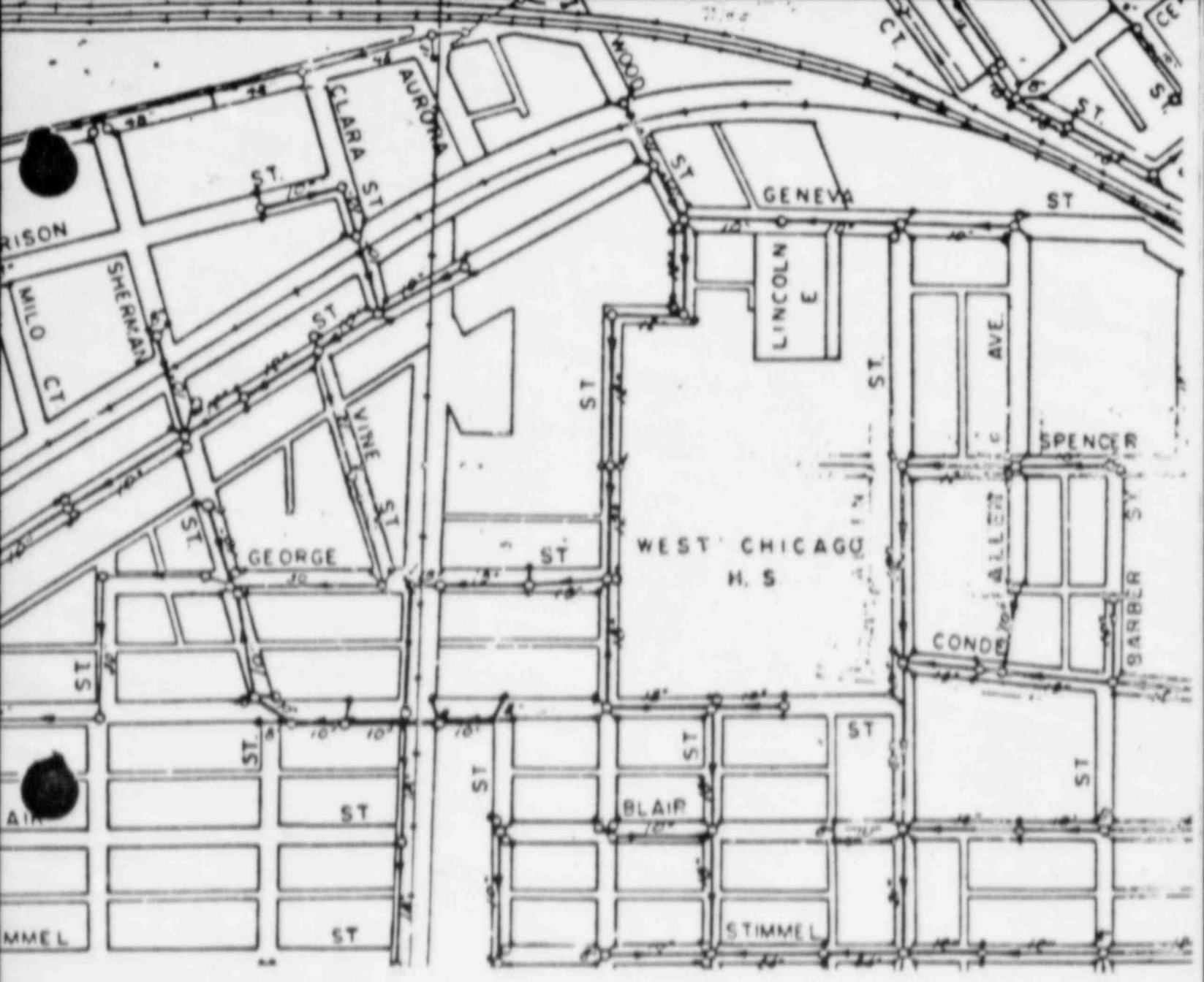
Please let me know if there is any further information you need to facilitate the amendment of our license.

Very truly yours,

R J Vreeland

R. J. Vreeland
Senior Project Engineer

RJV:ph
cc: L. E. Craig
R. P. MacLean (2)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Radiological Survey of Kress Creek - Final Report - 11/81
(ORAU)

TABLE 1

RADIONUCLIDE CONCENTRATIONS IN BANK SOILS ALONG KNESS CREEK

Sample No.	Type and Location*	Radionuclide Concentration (pCi/g)					Exposure Rate at 1 meter above surface (uR/hr)
		Th-232	Th-228	Ra-226	U-235	U-238	
1	Systematic - upstream	1.3 ± 0.5[b]	0.99 ± 0.48	1.2 ± 0.3	0.16 ± 0.11	< MDA[c]	8
2	Systematic - upstream	<0.59	<0.27	1.1 ± 0.3	0.15 ± 0.13	< MDA	8
3	Systematic - upstream	1.0 ± 0.4	<0.27	1.5 ± 0.3	0.16 ± 0.12	< MDA	8
4	Systematic - upstream	1.1 ± 0.4	0.75 ± 0.30	1.1 ± 0.2	<0.08	< MDA	8
5	Systematic - upstream	1.1 ± 0.3	0.84 ± 0.30	0.89 ± 0.29	<0.05	< MDA	8
6	Systematic - upstream	0.42 ± 0.32	0.27 ± 0.30	0.85 ± 0.18	0.09 ± 0.07	< MDA	9
7	Systematic - upstream	0.88 ± 0.33	1.2 ± 0.5	0.93 ± 0.34	<0.07	< MDA	9
8	Systematic - at outfall	91.8 ± 2.4	39.6 ± 1.8	2.8 ± 0.7	1.1 ± 0.4	< MDA	55
9	Biased - downstream	87.9 ± 1.9	26.8 ± 1.5	2.4 ± 0.6	<0.16	20 ± 19	68
10	Systematic - downstream	7.7 ± 1.1	5.1 ± 0.9	0.78 ± 0.43	<0.19	< MDA	68
11	Systematic - downstream	5.3 ± 0.9	3.9 ± 0.6	2.0 ± 0.3	0.15 ± 0.16	< MDA	30
12	Systematic - downstream	9.6 ± 1.2	8.1 ± 0.9	1.9 ± 0.4	<0.03	< MDA	25
13	Systematic - downstream	1.7 ± 0.4	1.3 ± 0.4	1.7 ± 0.3	0.16 ± 0.13	< MDA	14
14	Systematic - downstream	7.2 ± 1.1	5.4 ± 0.9	1.5 ± 0.4	0.41 ± 0.23	< MDA	41
15	Systematic - downstream	6.1 ± 0.8	3.6 ± 0.9	2.1 ± 0.5	<0.11	< MDA	14
16	Systematic - downstream	3.9 ± 0.3	3.6 ± 0.6	1.1 ± 0.3	0.12 ± 0.17	< MDA	25
17	Systematic - downstream	6.9 ± 1.0	5.4 ± 0.9	1.4 ± 0.3	<0.13	< MDA	23
18	Systematic - downstream	12.0 ± 1.3	9.6 ± 0.9	1.4 ± 0.5	0.20 ± 0.24	< MDA	36
19	Systematic - downstream	17.9 ± 1.5	15.3 ± 1.2	0.88 ± 0.49	<0.02	89 ± 27	34
20	Biased - downstream	164 ± 5	105 ± 3	2.9 ± 1.2	1.7 ± 0.7	< MDA	102
21	Systematic - downstream	70.6 ± 2.8	50.1 ± 2.1	1.5 ± 0.8	0.70 ± 0.40	< MDA	80
22	Biased - downstream	91.2 ± 3.3	60.6 ± 2.1	2.1 ± 0.9	0.92 ± 0.52	< MDA	119
23	Systematic - downstream	27.8 ± 1.3	16.5 ± 1.[illegible]	<0.35	<0.01	< MDA	80
24	Biased - downstream	60.7 ± 2.7	40.2 ± 2.1	2.3 ± 0.7	0.87 ± 0.52	< MDA	140
25	Biased - downstream	60.9 ± 2.8	13.5 ± 2.1	<0.54	1.1 ± 0.5	< MDA	68
26	Systematic - downstream	2.0 ± 0.5	1.2 ± 0.3	0.99 ± 0.22	<0.06	< MDA	23
27	Systematic - downstream	11.9 ± 1.2	10.5 ± 0.9	0.36 ± 0.40	0.27 ± 0.20	< MDA	45
28	Biased - downstream	25.3 ± 1.8	15.6 ± 1.2	0.32 ± 0.12	0.30 ± 0.30	< MDA	80
29	Systematic - downstream	12.9 ± 1.1	10.8 ± 0.9	0.78 ± 0.30	0.29 ± 0.19	< MDA	23
30	Systematic - downstream	1.5 ± 0.4	1.5 ± 0.5	0.91 ± 0.22	<0.07	< MDA	11
31	Systematic - downstream	1.2 ± 0.4	1.1 ± 0.3	0.76 ± 0.23	0.12 ± 0.15	< MDA	9
32	Biased - downstream	12.5 ± 1.2	9.3 ± 0.9	1.1 ± 0.4	<0.12	< MDA	62

TABLE 2

RADIONUCLIDE CONCENTRATIONS IN KRESS CREEK SEDIMENTS

Sample No.	Type and Location[a]	Radionuclide Concentration (pCi/g)				
		Th-232	Th-229	Ra-226	U-235	U-238
1	Systematic - upstream	1.1 ± 0.8[b]	1.6 ± 0.4	1.2 ± 0.3	0.08 ± 0.11	<MDA[c]
2	Systematic - upstream	0.32 ± 0.34	0.69 ± 0.24	0.68 ± 0.15	0.09 ± 0.13	<MDA
3	Systematic - upstream	3.8 ± 1.7	5.1 ± 1.5	5.7 ± 1.1	<0.86	<MDA
4	Systematic - upstream	0.61 ± 0.25	0.54 ± 0.27	0.47 ± 0.14	0.15 ± 0.10	<MDA
5	Systematic - upstream	1.7 ± 0.4	1.0 ± 0.4	0.89 ± 0.27	<0.02	<MDA
6	Systematic - upstream	0.39 ± 0.24	0.63 ± 0.21	0.75 ± 0.14	0.17 ± 0.08	<MDA
7	Systematic - upstream	0.82 ± 0.38	1.4 ± 0.3	1.6 ± 0.3	<0.05	<MDA
8	Systematic - at outfall	1.7 ± 0.5	0.84 ± 0.54	1.3 ± 0.2	0.19 ± 0.12	<MDA
9	Biased - downstream	75.8 ± 2.6	77.7 ± 2.1	3.6 ± 0.8	0.40 ± 0.43	<MDA
10	Systematic - downstream	283 ± 4	182 ± 4	6.8 ± 1.1	<0.30	<MDA
11	Systematic - downstream	168 ± 4	132 ± 4	3.8 ± 1.1	0.56 ± 0.61	<MDA
12	Systematic - downstream	9.3 ± 1.0	11.1 ± 0.9	1.8 ± 0.3	0.31 ± 0.11	<MDA
13	Systematic - downstream	3.0 ± 0.6	2.0 ± 0.5	1.0 ± 0.2	0.13 ± 0.13	<MDA
14	Systematic - downstream	6.6 ± 0.9	6.0 ± 0.6	1.8 ± 0.3	0.15 ± 0.18	<MDA
15	Systematic - downstream	4.8 ± 0.9	5.3 ± 0.6	1.4 ± 0.3	0.28 ± 0.23	<MDA
16	Systematic - downstream	6.3 ± 1.0	5.7 ± 0.9	1.5 ± 0.4	<0.03	<MDA
17	Systematic - downstream	2.5 ± 0.7	2.7 ± 0.5	0.32 ± 0.35	0.31 ± 0.16	<MDA
18	Systematic - downstream	7.6 ± 1.0	7.2 ± 0.9	0.80 ± 0.32	<0.10	<MDA
19	Systematic - downstream	18.7 ± 1.4	15.9 ± 1.2	1.9 ± 0.5	0.27 ± 0.33	<MDA
20	Biased - downstream	29.8 ± 1.6	27.3 ± 1.2	1.5 ± 0.5	0.29 ± 0.28	<MDA
21	Systematic - downstream	13.4 ± 1.1	12.3 ± 0.9	1.2 ± 0.4	0.14 ± 0.18	<MDA
22	Biased - downstream	5.5 ± 0.3	5.1 ± 0.3	0.58 ± 0.10	<0.04	<MDA
23	Systematic - downstream	13.1 ± 1.0	12.0 ± 0.9	0.71 ± 0.27	<0.01	<MDA
24	Biased - downstream	24.6 ± 1.6	24.6 ± 1.5	0.77 ± 0.49	0.20 ± 0.29	<MDA
25	Biased - downstream	8.5 ± 0.9	9.8 ± 0.9	1.1 ± 0.4	<0.09	<MDA
26	Systematic - downstream	<0.59	1.2 ± 0.3	1.1 ± 0.2	0.13 ± 0.13	<MDA
27	Systematic - downstream	34.6 ± 1.6	28.2 ± 1.2	0.83 ± 0.51	<0.02	<MDA
28	----------	----------	no sample taken	----------	----------	----------
29	Systematic - downstream	5.1 ± 0.7	4.8 ± 0.6	0.85 ± 0.24	0.14 ± 0.13	<MDA
30	Systematic - downstream	3.4 ± 0.6	4.5 ± 0.6	0.67 ± 0.22	<0.01	<MDA
31	Systematic - downstream	1.1 ± 0.3	0.75 ± 0.27	0.51 ± 0.15	0.20 ± 0.11	<MDA
32	Biased - downstream	195 ± 5	141 ± 3	2.3 ± 1.1	0.84 ± 0.59	<MDA

Table C and D of memo David Kee, Director Air and Hazardous Material Division, EPA to A. B Davis, R III dated 01/29/81

(EPA)

TABLE C Kress Creek Sediment Samples - August 6, 1980
(Radiochemical Analyses by Eastern Environmental Radiation Facility)

LOCATION	Soil	Sediment	Ra-226	U-234	U-235	U-238	Th-227	Th-228	Th-230	Th-232
			(pCi/gm)							
Kress Creek Upstream of Outfall		X	1.5	.681	.105	.780	.148	.804	1.04	.87
Kress Creek Outfall		X	1.7	1.527	1.571	1.620	1.689	11.64	2.724	17.17
Kress Creek Slightly Downstream of Outfall		X	2.1	1.751	.222	1.678	3.641	14.29	2.355	13.48
Kress Creek Joliet St		X	2.1	1.258	.187	1.339	5.502	20.62	2.815	19.24
Kress Creek Houle Residence		X	1.7	1.543	.190	1.541	3.225	17.28	3.000	17.17
DuPage River Upstream, Miner Home		X	1.7	.338	.039	.369	.052	.617	.436	.600
DuPage River Slightly Upstream		X	2.4	.959	.233	1.021	.601	3.610	1.593	4.370
Dupage River "Slightly" Downstream		X	1.3	.971	.118	1.026	1.636	11.15	1.500	8.033
DuPage River "Far" Downstream		X	2.8	.652	.069	.727	.184	7.430	1.145	2.978

TABLE D Kress Creek Soil Samples - August 6, 1980
(Radiochemical Analyses by Eastern Environmental Radiation Facility)

LOCATION	Soil	Sediment	Ra-226	U-234	U-235	U-238	Th-227	Th-228	Th-230	Th-232
			(pCi/gm)							
Kress Creek Upstream of Outfall	X		2.3	.716	.089	.823	.196	.903	1.089	.926
Kress Creek Slightly Downstream of Outfall	X		2.5	2.188	.305	2.317	13.20	23.87	3.342	21.24
Kress Creek Joliet Street East Island	X		2.4	2.264	.220	2.215	9.494	33.49	5.399	35.37
Kress Creek Joliet Street Farm Field	X		2.8	.880	.069	.922	.222	1.596	1.207	1.576
Houle Residence Willow Tree	X		2.0	4.242	.298	3.878	2.147	21.47	3.864	22.37
Houle Residence Garden	X		1.9	3.189	.397	3.232	2.566	21.67	3.734	22.69
DuPage River Upstream Miner Home	X		2.0	1.010	.081	1.055	.209	1.800	1.427	1.983
DuPage River "Slightly" Downstream	X		2.8	2.554	.243	2.297	3.018	16.84	3.131	18.38
DuPage River "Far" Downstream	X		2.9	1.611	.139	1.639	1.712	11.78	3.047	12.99

RIII Inspection Report # 04002061/81-03

carried by transmittal letter dated 04/01/81

(Kerr-McGee)

(2) Storm Sewer Outflow

Drain lines from the factory collect in the Building 14 sump which feeds into the West Chicago storm sewer. The outflow is discharged into Kress Creek. Releases to the storm sewer are currently monitored weekly and after each significant rainfall, primarily at the sump and the Kress Creek outflow. Samples collected from these and ten other stations for surface runoff and sewer outflow concentrations are analyzed for gross alpha and beta concentrations at the Kerr-McGee Technical Center. Radioisotopic analyses are performed on samples with gross alpha concentrations greater than 1.5 E-8 uCi/ml.

Building 14 sump samples average approximately 2.5 E-8 uCi/ml gross alpha and 2.5 E-8 uCi/ml gross beta. Kress Creek outflow values averaged approximately 1.8 E-8 uCi/ml gross beta. These values are less than 3.0 E-8 uCi/ml specified by 10 CFR 20.106(a) for unidentified isotopes in a homogeneous sample, i.e., gross analysis.

No items of noncompliance were identified.

6. Health Physics Program

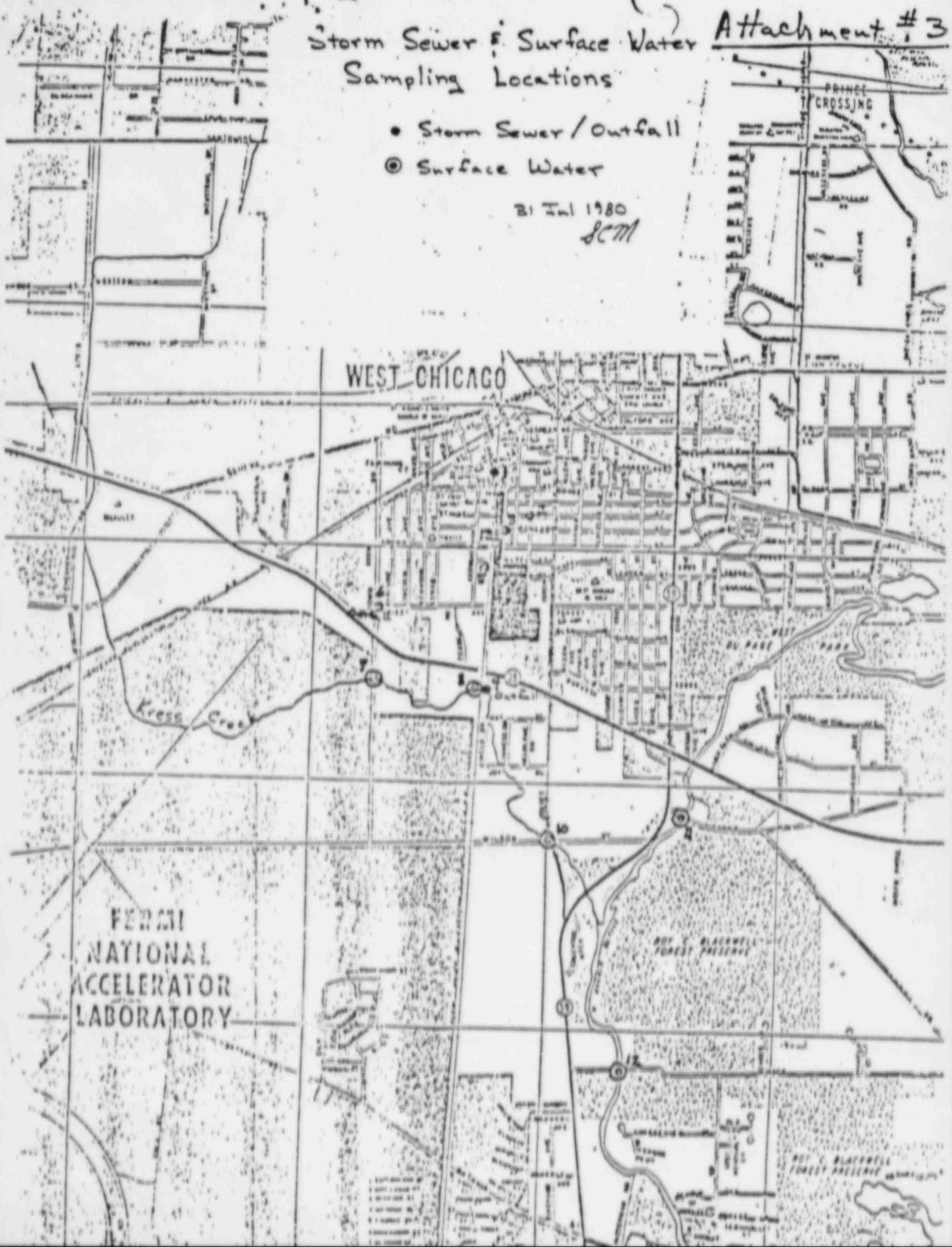
Half-face, MSA approved respirators fitted with Type H cartridges are worn by work crew members in the factory whenever work activities may produce dust. These cartridges are approved for use in environment with radionuclides, asbestos, dusts, fumes and mists up to concentrations of 0.05 mg/m^3. Cartridges are changed once a week or more often if workers find breathing difficult because of a clogged cartridge. Respirators are cleaned and sterilized weekly. Currently, each worker is fitted with two respirators by positive and negative fit tests.

The licensee is designing a more comprehensive fit test program for future use. Laborers wear designated coveralls, gloves, hard hats, eye protection, and work shoes into the area. Upon leaving the area, they shower and change into street clothes and shoes in the change room; work clothes are stored for the following day's use. All other personnel entering the work area wear shoe covers, gloves, lab coats, and hard hats.

Surveys for smearable contamination in Building 12 are taken and analyzed daily on the Gamma Products G 4000 alpha beta gas proportional flow counter. Areas smeared include the lunchroom, laundry change room, entry from the factory, frisking stations, showers, and equipment storage area. Records reviewed indicated higher readings (greater than 20 dpm) were primarily confined to the change room entry indicating adequate contamination control. Smears taken by the inspector in the lunchroom and at the change room frisking station during the inspection showed less then 20 dpm/100cm^2 gross alpha and beta. At the close of the inspection the inspector emphasized the necessity for continued strict surveys of the lunchroom area which is adjacent to the change room.

Attachment #3 of memo G. Chaimoff and J. Berghoff
to S. Chilk dated 12/04/81

(Keer-McGee)


Storm Sewer & Surface Water
Sampling Locations
• Storm Sewer / Outfall
◉ Surface Water
31 Jul 1980
SCM
Attachment #3
PRINCE CROSSING
WEST CHICAGO
Kress Creek
FERMI
NATIONAL
ACCELERATOR
LABORATORY

WEST CHICAGO
SURFACE WATER DISCHARGE SAMPLE POINTS
GROSS α AND β

Kress Creek Outfall (→ [9])

Bldg 14 Collection Sump (→ [13])

	DATE		1	2	3	[4]	[5]	6	7	8	[9]	10	11	12	[13]						
1	4/1/80	Gross α Gross β	—	—	—	—	—	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	—						
2	[illegible]/80		—	—	—	—	—	<10 <18	<10 <18	<10 <18	11 <18	<10 <18	18 <18	10 <18	—						
3	[illegible]/80		<10 <18	<10 <18	13 <18	<10 <18	<10 <18	<10 <18	—	—	—	—	—	—	—						
4	6/[illegible]/80		—	—	—	—	—	<10 <18	<10 <18	<10 <18	12 <18	14 <18	<10 <18	11 <18	—						
5	[illegible]/80		—	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	<10 <18	19 <18						
6	9/9/80		<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	—						
7	11/10/80		—	—	—	—	—	<10 <20	<10 <20	<10 <20	11 <20	<10 <20	<10 <20	<10 <20	—						
8	12/8/80		<10 <20	<10 <20	<10 <20	<10 <20	22 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	24 <20						
9	2/11/81		—	—	—	<10 <20	<10 <20	<10 <20	25 <20	14 <20	<10 <20	12 <20	<10 <20	13 20	—						
10	3/[illegible]/81		—	—	—	24 <20	—	<10 <20	—	11 <20	19 <20	<10 <20	—	<10 <20	—						
11	3/10/81		—	—	—	—	—	—	—	—	—	—	—	—	38 <20						
12	4/9/81		<10 <20	<10 <20	<10 <20	37 <20	—	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	—						
13	4/14/81		<10 -	<10 -	<10 -	17 -	<10 -	<10 -	—	—	<10 -	—	—	—	—						
14	4/[illegible]/81		—	—	—	—	—	—	—	—	—	—	—	—	<10 <20						
15	4/20/81		<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	—	—	<10 <20	—	—	—	<10 <20 *	Insufficient sample amount received at Tech. Center to get an accurate reading. It was noted under these circumstances the result would be high.					
16	4/[illegible]/81		—	—	—	—	—	—	—	—	—	—	—	—	112 32						
17	5/[illegible]/81		<10 <20	<10 <20	14 <20	15 <20	<10 <10	<10 <20	<10 <20	12 <20	27 <20	<10 <20	<10 <20	<10 <20	50 <10						
18	5/[illegible]/81		—	—	—	—	—	—	—	—	—	—	—	—	24 45						
19	5/[illegible]/81		<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	—	—	<10 <20	<10 <20	—	—	25 <20						
20	6/4/81		—	—	—	—	—	—	—	—	—	—	—	—	12 <20						
21	6/9/81		—	—	—	—	—	—	—	—	—	—	—	—	20 <20						
22	6/[illegible]/81		<10 <20	<10 <20	<10 <20	48 <20	78 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20						
23	6/[illegible]/81		—	—	—	—	—	—	—	—	—	—	—	—	<10 <20						
24	6/[illegible]/81		<10 <20	12 <20	<10 <20	25 <20	<10 <20	<10 <20	—	—	—	—	—	—	26 <20						
25	6/[illegible]/81		<10 <20	<10 <20	<10 <20	13 <20	63 <20	<10 <20	—	—	—	—	—	—	—						
26	7/[illegible]/81		<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	133 [illegible] 61	7/15/81	Site 13	22 <20			
27	7/[illegible]/81		<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	<10 <20	—	—	<10 <20	—	—	—	18 <20						

SURFACE WATER DISCHARGE POINTS

GROSS α AND β

	DATE		1	2	3	[SITE 4]	5	6	SEWER 7	MANHOLE 8	OUTFALL [9]	MANHOLE 10	SURFACE 11	SURFACE 12	[SITE 13] *
28	8/5/81	GRAB α	<10	<10	<10	<10	23				<10				23
29	8/13/81	GRAB β	<10	<10	<10	<10	<10	—	—	—	<10	—	—	—	<10
30	8/14/81		—	—	—	—	—	—	—	—	—	—	—	—	28
31	8/27/81		<10	<10	<10	17	31	<10	—	<10	10	<10	<10	<10	<10
32	8/31/81		<10	<10	<10	<10	<10	<10			<10				19 37
33	9/8/81		47	<10	<10	14	81	<10	—	—	<10	—	—	—	<10 <10
34	9/15/81		22	<10	<10	<10	<10	<20	—	—	—	—	—	—	37
35	9/21/81		—	—	—	—	—	—	—	—	—	—	—	—	<20
36	9/28/81		—	—	—	—	—	11	13	<10	86	<10	<10	14	47
37	9/29/81		<10	<10	N	<10	20	<10	<10	<10	<10	<10	<10	<10	<10
38	9/29/81		<10	<10	<10	<10	<10	—	—	—	—	—	—	—	42
39	10/5/81		—	—	—	—	—	—	—	—	—	—	—	—	<10
40	10/14/81		—	<10	<10	<10	62	—	—	—	—	—	—	—	30
41	10/21/81		—	<10	<10	<10	<10	—	—	—	—	—	—	—	<20
42			—	—	—	—	—	—	—	—	—	—	—	—	75 → 84 β
43			—	<10	<10	<10	<10	—	—	—	—	—	—	—	34
44			—	—	—	—	—	—	—	—	—	—	—	—	<10
45			84	<10	12	14	—	<10	—	<10	—	—	—	—	33
46			<10	<10	<20	<10		<20		<10		<10	<10	<10	<20
47			30	<10	<10	<10	39			<10		<10	<10	<10	65
48			<20	<10	<10	<10	<20	—	—	—	—	—	—	—	<10
49															89
50															<20
51															
52															
53															
54															

* On April 28, 1981 an overflow of the sump was observed into the City's storm sewer. This is the only observed overflow during 1981 to date and therefore represents the only release from the sump to offsite. All other samples from this site represent contained water that was not being released.

KERR-McGEE CORPORATION
KERR-McGEE CENTER • OKLAHOMA CITY, OKLAHOMA 73125

ENVIRONMENT AND HEALTH MANAGEMENT DIVISION

December 2, 1982

CERTIFIED MAIL-RETURN RECEIPT REQUESTED

Mr. William A. Nixon
Uranium Process Licensing Section
Uranium Fuel Licensing Branch
Division of Fuel Cycle & Material Safety
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Re: License STA 583
Docket No. 40-2061

Dear Mr. Nixon:

In accordance with requests from you and Mr. Ping Chee of Argonne National Laboratory, additional data relative to the West Chicago facility is attached.

1. Surface water samples analyses providing Gross α and Gross β values for all sampling sites are contained on Table 1. Table 2 contains isotopic analyses for those sample analyses 15 pCi/l Gross α. Sample locations are identified in Figure 1.

2. Airborne exposure as measured by TH Nat MPC Hours at West Chicago during 1981 and the three quarters of 1982 are attached.

3. The personal dosimetry report of August 15 to September 14, 1982 as measured by R. S. Landauer, Jr. & Co. showing total cumulative, monthly, quarterly and year to date exposures is attached. Exposure histories prior to employment at West Chicago are contained in Table 3.

8303220442
2 pp

If you have questions, please call me.

Sincerely,

W. J. Shelley, Vice-President
Nuclear Licensing & Regulation

WJS/TLB/pd

Attachments

cc: I. L. Denny
J. B. Rhinelander
J. C. Berghoff

Kerr-McGee Chemical Corporation
West Chicago Illinois Facility
Surface Water Discharge Sampling Data
Gross α and β (pCi/ℓ)

SITE IDENTIFICATION

Kress Creek Outfall

Bldg. 14 collection sump

Date		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
11/13/81	Gross α	—(1)	—	—	—	—	<10	<10	<10	22	<10	<10	<10	—	—	
	Gross β						<20	<20	<20	<20	<20	<20	<20			
12/1/81		<10	—	<10	<10	39	—	—	—	—	—	—	—	—	—	
		<20		<20	<20	<20										
12/21/81		—	—	—	—	—	<10	<10	<10	<10	(4)	<10	13	—	—	
							<20	<20	<20	<20		<20	<20			
2/22/82		<10	<10	<10	<10	<10	17	<10	<10	<10	<10	<10	<10	—	—	
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20			
3/15/82		(3)	11	23	53	84	<10	<10	(4)	(4)	<10	<10	<10	—	—	
			<20	<20	<20	<20	<20	<20			<20	<20	<20			
3/16/82		—	—	—	—	—	—	—	—	—	—	—	—	170 (5)	—	
														32		
3/19/82		<10	<10	11	11	49	<10	—	—	<10	<10	—	—	—	—	
		<20	<20	<20	<20	<20	<20			<20	<20					
3/30/82		<10	<10	<10	<10	40	<10	—	—	11	—	—	—	—	<10	
		<20	<20	<20	<20	<20	<20			<20					<20	
4/2/82		(3)	<10	<10	<10	93	<10	—	—	29	—	—	—	—	<10	
			<20	<20	<20	<20	<20			<20					<20	
4/3/82		<10	<10	<10	39	54	<10	—	—	<10	—	—	—	105 (5)	<10	
		<20	<20	<20	<20	<20	<20			<20				35	<20	
4/16/82		<10	<10	14	<10 11	20	14	—	—	26	—	—	—	61 (5)	11	
		<20	<20	<20	<20 <20	20	<20			<20				20	<20	
4/28/82		(3)	<10	13	66	86	11	<10	<10	46	12	<10	10	—	<10	
			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20		<20	
5/14/82		(3)	<10	<10	67	63	<10	<10	<10	29	<10	<10	14	—	11	
			<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20		<20	
5/26/82		10	11	<10	<10	61	<10	—	—	12	—	—	—	—	10	
		<20	<20	<20	<20	<20	<20			<20					<20	
5/27/82		13	13	11	14	51	13	—	—	13	—	—	—	—	<10	
		<20	<20	<20	<20	<20	<20			<20					<20	
6/15/82		14	<10	13	21	56	11	131	<10	20	14	14	13	—	11	
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20		<20	
6/28/82		<10	11	12	25	69	<10	—	—	21	—	—	—	—	<10	
		<20	<20	<20	<20	<20	<20			<20					<20	
7/7/82		18	<10	<10	31	83	<10	—	—	<10	—	—	—	70 (5)	<10	
		<20	<20	<20	<20	<20	<20			<20				20	<20	
7/15/82		21	<10	<10	48	80	<10	<10	<10	33	<10	<10	<10	—	10	
		<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20		<20	
7/19/82		33	11	15	32	84	11	—	—	14	—	—	—	51 (5)	<10	
		<20	<20	<20	<20	<20	<20			<20				<20	<20	
7/22/82		18	<10	<10	18	30	<10	—	—	<10	—	—	—	29 (5)	<10	
		<20	<20	<20	<20	<20	<20			<20				<20	<20	
7/29/82		—	—	—	—	—	—	—	—	—	—	—	—	26 (5)	—	
														<20		

Notes:

1. Spaces marked (-) indicate a sample was not collected.
2. Blank spaces indicate analytical results are not yet available.
3. Insufficient water to collect sample.
4. Sample lost in shipment.
5. An overflow of the Bldg. 14 sump was observed into the City's storm sewer on this date. Sample collected in sump, not from overflow.

Note: Isotopic analyses performed if gross α/β exceeds 15pCi/ℓ.

TABLE 1 (cont.)

Kerr-McGee Chemical Corporation
West Chicago, Illinois Facility
Surface Water Discharge Sampling Data
Gross α and β (pCi/ℓ)

SITE IDENTIFICATION

Date		1	2	3	4	5	6	7	8	9	10	11	12	13	14	
7/28/82	Gross α	38	<10	<10	39	80	<10	—	—	41	—	—	—	—	<10	
	Gross β	<20	<20	<20	<20	<20	<20			<20					<20	
8/1/82		<10	<10	<10	(2)	19	<10	—	—	18	—	—	—	—	<10	
		<20	<20	<20		<20	<20			<20					<20	
8/5/82		<10	<10	<10	<10	12	<10	—	—	<10	—	—	—	—	<10	
		<20	<20	<20	<20	<20	<20			<20					<20	
8/17/82		—	—	—	—	—	<10	<10	<10	33	<10	<10	<10	—	<10	
							<20	<20	<20	<20	<20	<20	<12		<20	
9/15/82		—	—	—	—	—	<10	<10	<10	14	<10	<10	<10	—	<10	
							<20	<20	<20	<20	<20	<20	<20		<20	
10/11/82		(3)				(3)		—	—		—	—	—	—		
10/18/82		—	—	—	—	—								—		
10/20/82		(3)				(3)		—	—		—	—	—	—		
11/1/82						(3)		—	—		—	—	—	—		
11/2/82						(3)		—	—		—	—	—	—		
11/9/82						(3)		—	—		—	—	—	—		

Table 2

Kerr-McGee Chemical Corporation
West Chicago, Illinois Facility
Surface Water Discharge Sampling Data
Isotopic Analyses

Site No.	Date		Gross α (pCi/ℓ)	Gross β (pCi/ℓ)	Ra-224 (pCi/ℓ)	Ra-226 (pCi/ℓ)	Th-230 (pCi/ℓ)	Th-232 (pCi/ℓ)	U-238 (mg/ℓ)	
9	11/13/81		22	<20	0.02 ±0.05	0.17 ±0.04	0.040 ±0.011	0.003 ±0.004	0.02	
5	12/1/81		39	<20	0.12 ±0.03	0.20 ±0.02	0.051 ±0.014	0.008 ±0.006	0.06	
6	2/22/82		17	<20	0.02 ±0.08	0.24 ±0.10	0.019 ±0.009	0.003 ±0.005	0.001	
3	3/15/82		23	<20	2.0 ±0.2	0.87 ±0.14	0.090 ±0.020	0.016 ±0.002	0.007	
4	3/15/82		53	<20	0.097 ±0.061	0.44 ±0.07	0.043 ±0.014	0.004 ±0.004	0.07	
5	3/15/82		84	<20	0.023 ±0.048	0.032 ±0.050	0.049 ±0.013	0.009 ±0.006	0.12	
13	3/16/82		170	32	0.45 ±0.23	1.48 ±0.25	0.049 ±0.015	0.004 ±0.005	0.18	
5	3/19/82		49	<20	0.13 ±0.08	0.05 ±0.08	0.068 ±0.017	0.004 ±0.006	0.07	
5	3/30/82		40	<20	0.25 ±0.02	0.06 ±0.02	0.023 ±0.013	0.006 ±0.008	0.077	
5	4/2/82		73	<20	0.00 ±0.01	0.02 ±0.01	0.031 ±0.011	0.007 ±0.008	0.11	
9	4/2/82		29	<20	0.14 ±0.11	0.03 ±0.13	0.111 ±0.019	0.003 ±0.004	0.04	
	4/3/82		39	<20	0.08 ±0.05	0.22 ±0.07	0.027 ±0.013	0.011 ±0.009	0.06	
5	4/3/82		54	<20	0.03 ±0.02	0.18 ±0.03	0.019 ±0.008	0.006 ±0.005	0.08	
13	4/3/82		105	35	8.54 ±0.41	1.31 ±0.37	0.041 ±0.011	0.009 ±0.006	0.06	
5	4/14/82		20	20	0.11 ±0.05	0.08 ±0.07	0.023 ±0.009	0.003 ±0.003	0.04	
9	4/16/82		26	<20	0.08 ±0.04	0.03 ±0.04	0.11 ±0.006	0.006 ±0.005	0.004	
13	4/16/82		64	20	2.83 ±0.22	0.79 ±0.22	0.041 ±0.015	0.008 ±0.007	0.03	
4	4/29/82		66	<20	0.26 ±0.27	0.29 ±0.35	0.035 ±0.012	0.009 ±0.007	0.11	
5	4/29/82		86	<20	0.02 ±0.01	0.02 ±0.01	0.029 ±0.011	0.009 ±0.006	0.11	
9	4/29/82		46	<20	0.09 ±0.05	0.05 ±0.06	0.018 ±0.009	0.003 ±0.003	0.05	
4	5/14/82		67	<20	0.00 ±0.09	0.51 ±0.06	0.02 ±0.01	0.13 ±0.025	0.07	
5	5/14/82		63	<20	0.13 ±0.06	0.04 ±0.07	0.023 ±0.009	0.009 ±0.006	0.07	
9	5/14/82		29	<20	0.00 ±0.06	0.10 ±0.05	0.25 ±0.10	0.007 ±0.006	0.04	
	5/26/82		61	<20	0.14 ±0.01	0.01 ±0.01	0.035 ±0.016	0.006 ±0.006	0.07	
5	5/27/82		51	<20	0.12 ±0.01	0.25 ±0.01	0.032 ±0.014	0.014 ±0.011	0.03	
4	6/15/82		21	<20	0.13 ±0.06	0.13 ±0.03	0.036 ±0.012	0.015 ±0.013	0.02	
5	6/15/82		56	<20	0.09	0.04	0.047	0.004	0.11	

Table 2 (Cont.)

te No.	Date		Gross α (pCi/ℓ)	Gross β (pCi/ℓ)	$Ra\text{-}224_s$ (pCi/ℓ)	$Ra\text{-}226_s$ (pCi/ℓ)	Th-230 (pCi/ℓ)	Th-232 (pCi/ℓ)	U-238 (mg/ℓ)	
9	6/15/82		20	<20	0.034 ±0.01	0.047 ±0.01	0.028 ±0.013	0.004 ±0.004	0.02	
4	6/23/82		25	<20	0.3 ±0.04	0.67 ±0.05	0.037 ±0.018	0.007 ±0.010	0.02	
5	6/23/82		67	<20	0.2 ±0.05	0.02 ±0.04	0.025 ±0.009	0.013 ±0.006	0.09	
9	6/28/82		21	<20	0.00 ±0.18	0.25 ±0.13	0.025 ±0.012	0.009 ±0.008	0.03	
1	7/7/82		18	<20	1.49 ±0.70	0.37 ±0.59	0.053 ±0.046	0.027 ±0.027	0.0004	
4	7/7/82		31	<20	0.05 ±0.05	0.53 ±0.07	0.012 ±0.007	0.003 ±0.004	0.04	
5	7/7/82		83	<20	0.10 ±0.10	0.15 ±0.12	0.017 ±0.00[illegible]	0.003 ±0.003	0.13	
13	7/7/82		70	28	1.81 ±0.16	0.91 ±0.17	0.046 ±0.015	0.005 ±0.006	0.06	
1	7/15/82		21	<20	2.11 ±0.22	0.67 ±0.19	0.022 ±0.011	0.013 ±0.009	0.0009	
4	7/15/82		48	<20	0.14 ±0.15	0.99 ± .17	0.049 ±0.022	0.008 ±0.008	0.06	
5	7/15/82		80	<20	0.15 ±0.03	0.08 ±0.03	0.040 ±0.011	0.007 ±0.007	0.13	
	7/15/82		33	<20	0.33 ±0.14	0.05 ±0.12	0.027 ±0.009	0.003 ±0.004	0.04	
1	7/19/82		33	<20	2.83 ±0.76	0.72 ±0.65	0.035 ±0.017	0.007 ±0.007	0.0009	
4	7/19/82		32	<20	0.00 ±0.00	0.08 ±0.02	0.026 ±0.015	0.006 ±0.006	0.04	
5	7/19/82		84	<20	0.011 ±0.026	0.05 ±0.028	0.022 ±0.015	0.007 ±0.007	0.14	
9	7/19/82		14	<20	0.16 ±0.03	0.16 ±0.02	0.053 ±0.013	0.009 ±0.006	0.03	
13	7/19/82		51	<20	4.27 ±0.56	2.05 ±0.6	0.014 ±0.006	0.003 ±0.003	0.03	
1	7/22/82		18	<20	3.13 ±0.4	0.91 ±0.44	0.024 ±0.011	0.004 ±0.004	<0.002	
4	7/22/82		18	<20	0.24 ±0.22	0.56 ±0.28	0.029 ±0.012	0.012 ±0.008	0.01	
5	7/22/82		30	<20	0.05 ±0.21	0.04 ±0.28	0.050 ±0.017	0.005 ±0.005	0.07	
13	7/22/82		29	<20	3.31 ±0.14	0.41 ±0.17	0.038 ±0.014	0.013 ±0.009	0.009	
13	7/27/82		26	<20	0.54 ±0.12	0.97 ±0.14	0.016 ±0.007	0.003 ±0.004	0.008	
1	7/28/82		38	<20	3.97 ±1.93	2.45 ±2.24	0.020 ±0.013	0.006 ±0.009	0.003	
4	7/28/82		39	<20	0.08 ±0.09	0.59 ±0.13	0.036 ±0.011	0.001 ±0.001	0.06	
	7/29/82		80	<20	0.04 ±0.03	0.04 ±0.02	0.022 ±0.009	0.003 ±0.003	0.11	
9	7/29/82		41	<20	0.17 ±0.10	0.15 ±0.12	0.028 ±0.010	0.006 ±0.025	0.04	
5	8/4/82		19	<20	0.11 ±0.207	0.03 ±0.005	0.027 ±0.009	0.009 ±0.006	0.02	

Table 2 (Cont.)

Site No.	Date		Gross α (pCi/ℓ)	Gross β (pCi/ℓ)	$Ra\text{-}224_S$ (pCi/ℓ)	$Ra\text{-}226_S$ (pCi/ℓ)	Th-230 (pCi/ℓ)	Th-238 (pCi/ℓ)	U-238 (mg/ℓ)	
9	8/4/82		18	< 20	0.32 ± 0.32	0.09 ± 0.26	0.018 ± 0.008	0.003 ± 0.004	0.03	
9	8/17/82		33	< 20	0.05 ± 0.06	0.11 ± 0.06	0.034 ± 0.011	0.009 ± 0.006	0.05	

FIGURE 1
Kerr-McGee Chemical Corporation
West Chicago, Illinois Facility
WATER SAMPLING LOCATIONS

- Storm Sewer / Outfall
- ⊙ Surface Water

Location #9E (Storm Sewer outfall) of Exhibit 2 of Supplemental Information Requested in Connection with License Amendment Nos. 5 and 6. dated 02/04/83 (Kerr-McGee)

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
KERR-McGEE CHEMICAL CORPORATION	)	Docket No. 40-2061
	)	(Amendments 5 and 6)
(West Chicago Rare Earths Facility)	)	
	)	

SUPPLEMENTAL INFORMATION REQUESTED IN CONNECTION WITH LICENSE AMENDMENT NOS. 5 AND 6

EXHIBITS 1 THROUGH 8

Gerald Charnoff, P.C.
John B. Rhinelander, P.C.
Robert E. Zahler, P.C.
SHAW, PITTMAN, POTTS & TROWBRIDGE
1800 M Street, N.W.
Washington, D.C. 20036
Tel: (202) 822-1000

John C. Berghoff, Jr.
CHADWELL & KAYSER, LTD.
8500 Sears Tower
Chicago, Illinois 60606-6592
Tel: (312) 876-2100

Attorneys for Kerr-McGee
Chemical Corporation

Dated: February 4, 1983

SURFACE WATER & STORM SEWER MONITORING

Location No. 9
Storm Sewer Outfall to Kress Creek + EJE R.R.

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
4/3/80	<10	<18
5/6/80	31	<18
6/11/80	32	<18
7/21/80	<10	<18
9/9/80	<10	<20
11/10/80	17	<20
12/8/80	<10	<20
2/17/81	<10	<20
3/13/81	29	<20
4/9/81	<10	<20
4/14/81	<10	<20
4/28/81	<10	<20
5/11/81	27	<20
5/29/81	<10	<20
6/16/81	<10	<20
7/13/81	<10	<20
7/28/81	<10	<20
8/5/81	<10	<20
8/4/81	10	<20
8/25/81	<10	<20

SURFACE WATER & STORM SEWER MONITORING

Location No. 9

Storm Sewer Outfall to Kress Creek + EJE R.R.

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
9/15/81	26	<20
11/13/81	22	<20
12/21/81	<10	<20
2/22/82	<10	<20
3/19/82	<10	<20
3/30/82	11 -	<20
4/2/82	29	<20
4/3/82	<10	<20
4/16/82	26	<20
4/28/82	46	<20
5/14/82	29	<20
5/26/82	12	<20
5/27/82	13	<20
6/15/82	20	<20
6/28/82	21	<20
7/7/82	<10	<20
7/15/82	33	<20
7/19/82	16	<20
7/22/82	<10	<20
7/28/82	41	<20

SURFACE WATER & STORM SEWER MONITORING

Location No. 9

Storm Sewer Outfall to Kress Creek + EJE R.R.

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
8/4/82	18	<20
8/5/82	<10	<20
8/17/82	33	<20
9/15/82	14	<20
10/11/82	<10	<20
	-	

SURFACE WATER & STORM SEWER MONITORING

Location No. 13

Waste Pump House (Bld # 14) - holding tank

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
7/21/80	19	<18
12/8/80	24	<20
3/30/81	38	<20
4/21/81	<10	<20
4/28/81	<10	<20
4/29/81	232	52
5/11/81	50	<20
5/14/81	24	45
5/27/81	25	<20
6/4/81	12	<20
6/9/81	20	<20
6/10/81	<10	<20
6/23/81	<10	<20
7/13/81	233	61
7/15/81	22	<20
7/24/81	26	<20
7/28/81	28	<20
8/5/81	23	<20
8/13/81	28	<20
8/14/81	25	<20

SURFACE WATER & STORM SEWER MONITORING

Location No. 13

Waste Pump House (Bld. # 14) - holding tank

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
8/25/81	19	<20
8/25/81	37	<20
8/31/81	37	<20
9/8/81	47	<20
9/15/81	32	<20
9/21/81	42	<20
9/26/81	30	<20
9/28/81	75	<20
9/29/81	34	<20
10/5/81	33	<20
10/14/81	65	<20
10/21/81	29	<20
11/4/81	25	<20
11/13/81	40	<20
11/24/81	46	<20
12/1/81	52	<20
12/7/81	40	<20
12/14/81	52	<20
2/23/82	202	52
3/15/82	53	<20

SURFACE WATER & STORM SEWER MONITORING

Location No. 13

Waste Pump House (Bld #14) - holding tank

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
3/15/82	53	<20
3/16/82	170	32
3/19/82	182	40
3/26/82	202	70
3/30/82	186	62
4/2/82	154	43
4/3/82	103	35
4/14/82	146	<20
4/16/82	64	20
4/23/82	62	<20
4/28/82	47	30
5/6/82	57	<20
5/14/82	40	<20
5/21/82	68	<20
5/26/82	49	<20
5/27/82	49	<20
6/2/82	52	<20
6/11/82	52	<20
6/15/82	58	<20
6/23/82	56	<20

SURFACE WATER & STORM SEWER MONITORING

Location No. 13

Waste Pump House (Bld. #14) - holding-tank

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
6/28/82	70	<20
7/7/82	71	29
7/7/82	70	28
7/19/82	51	<20
7/22/82	29	<20
7/27/82	26	<20
7/29/82	26	<20
8/4/82	27	<20
8/5/82	23	<20
8/12/82	39	<20
8/17/82	51	<20
8/25/82	57	37
9/1/82	44	<20
9/15/82	34	<20
9/17/82	130	33

SURFACE WATER & STORM SEWER MONITORING

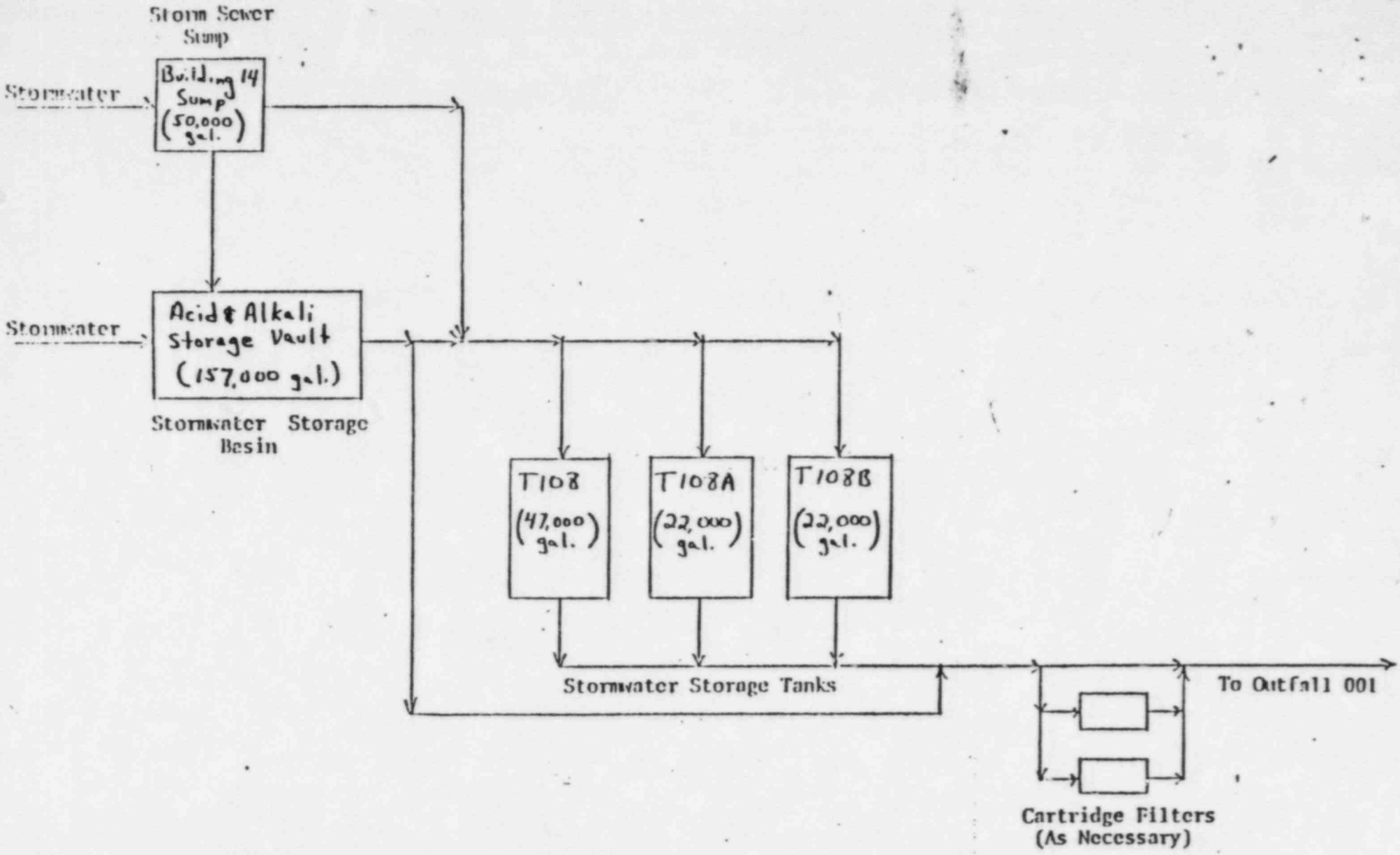
Location No. 14

Joliet St. + Wilson St. Outfall

Date Collected	Gross Alpha (pCi/l)	Gross Beta (pCi/l)
3/30/82	<10	<20
4/2/82	<10	<20
4/3/82	<10	<20
4/16/82	"	<20
4/28/82	<10	<20
5/14/82	"	<20
5/26/82	10	<20
5/27/82	<10	<20
6/15/82	"	<20
6/28/82	<10	<20
7/7/82	<10	<20
7/15/82	10	<20
7/19/82	<10	<20
7/22/82	<10	<20
7/28/82	<10	<20
8/4/82	<10	<20
8/5/82	<10	<20
8/17/82	<10	<20
9/15/82	<10	<20
10/11/82	<10	<20

WEST CHICAGO FACILITY
RELEASES FROM MONITORING LOCATION NO. 13
1982

Date	Gross Alpha pCi/l	Gross Beta pCi/l	Ra-224 pCi/l	Ra-226 pCi/l	Th-230 pCi/l	Th-232 pCi/l	U-238 mg/l
03/16/82	170	32	0.45 ± 0.23	1.48 ± 0.25	0.049 ± 0.015	0.004 ± 0.005	0.18
04/03/82	105	35	8.54 ± 0.41	1.31 ± 0.37	0.041 ± 0.011	0.009 ± 0.006	0.06
04/16/82	64	20	2.83 ± 0.22	0.78 ± 0.22	0.041 ± 0.015	0.008 ± 0.007	0.03
07/07/82	71	29	1.41 ± 0.58	1.24 ± 0.63	0.018 ± 0.008	0.006 ± 0.005	0.07
07/19/82	51	<20	4.27 ± 0.56	2.05 ± 0.60	0.014 ± 0.006	0.003 ± 0.003	0.03
07/22/82	29	<20	3.31 ± 0.14	0.41 ± 0.17	0.038 ± 0.014	0.013 ± 0.008	0.009
07/27/82	26	<20	0.54 ± 0.12	0.97 ± 0.14	0.016 ± 0.007	0.003 ± 0.004	0.008
AVG.	74	25	3.05	1.18	0.031	0.007	0.06
MPC	--	--	2000	30	2000	2000	120
FRACTION MPC	--	--	1.5×10^{-3}	3.9×10^{-2}	1.55×10^{-5}	3.5×10^{-6}	5.0×10^{-4}



SIMPLIFIED FLOW SCHEMATIC
STORMWATER HANDLING SYSTEM
KERR-McGEE CHEMICAL CORPORATION
WEST CHICAGO, ILLINOIS FACILITY