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January 11, 1983

Mr. Jay Silhanek
The Office of Radiation Programs
Mail Code ANR-460
U.S. Environmental Protection Agency
Washington, D.C. 20260

Subject: Monthly Report No. 3, Dec. 1-31, 1982 - Background Information on Radionuclide Emissions from Uranium Mines

Dear Jay:

As noted previously, we plan to estimate the nearby (within five kilometers) populations surrounding 28 underground uranium mines. Our approach was to use orthophotoquad maps combined with census data. We have examined the photo maps, but the resolution does not appear to be sufficient to confidently identify isolated single structures except where a small community or farm exists. There, the pattern of streets, lots and fields helps to identify single structures. We will evaluate the use of stereophotos to identify isolated single structures. These maps provide a three-dimensional view. From past experience, we believe that we will be able to identify single structures on these maps. The maps cover a smaller area and require special viewing equipment and the cost is higher than with the orthophotoquad maps.

We estimated the costs of installing 20 meter stacks on boreholes for underground uranium mines. The estimates range from \$10,000 for a 4 1/2 foot diameter, corrugated metal stack to \$40,000 for a six-foot diameter pre-fabricated carbon steel plate stack with electrical heaters to prevent icing. We believe that the most likely costs will range from \$20,000 for an unheated stack to \$35,000 for a heated stack. Most stacks will require heating.

In addition to these more immediate tasks, we are continuing to gather information on the uranium mining industry and emissions from uranium mines.

Our actual and planned expenditures nearly coincide, as shown on the attached figure.

Very truly yours,

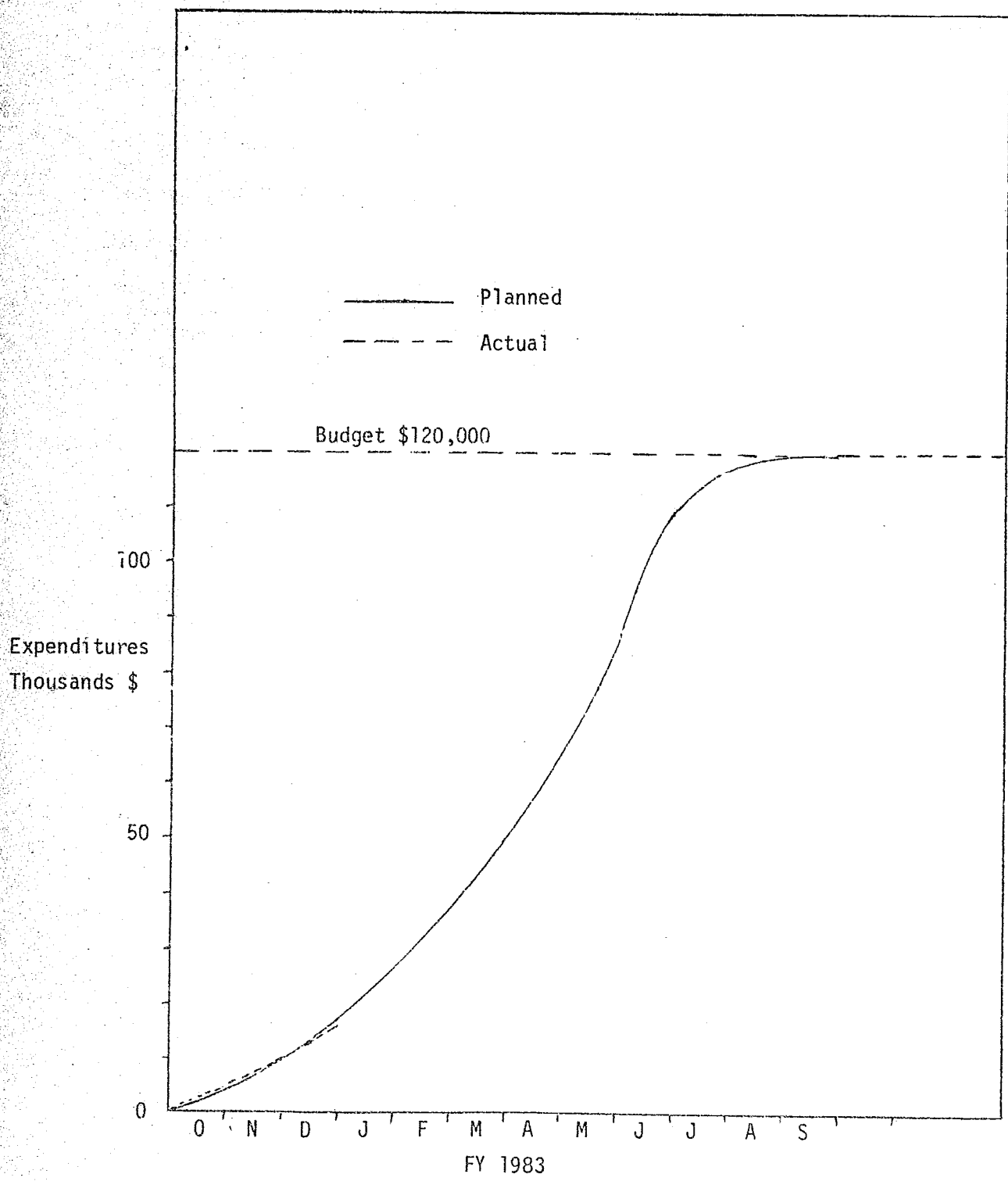
C.H. Bloomster
Manager
Advanced Technology Economics

CHB:r1
Attachment

bcc: JK Young
GA Bruno
S Marks

PO Jackson
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18 JAN 1983



Planned and Actual Expenditures
 Background Information on Radionuclide Emission from Underground Uranium Mines



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February 24, 1983

Mr. Jay Silhanek
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Dear Jay:

Attached are three tables summarizing population, land ownership, and land values surrounding the mines we surveyed recently. As a reminder, although all of these mines were reported as active in the 3rd quarter CY 1982, many have since ceased operations. If you have any questions, please call.

Very truly yours,

C. H. Bloomster
Manager
Advanced Technology Economics

CHB:bg
Attach.

TABLE 1. Population

<u>Mine</u>	<u>State</u>	<u>0-1/2 km</u>	<u>0-1 km</u>	<u>0-2 km</u>	<u>0-3 km</u>	<u>0-4 km</u>	<u>0-5 km</u>
Sunday	CO	0	0	0	0	0	0
King Soloman	CO	0	0	0	0	0	0
Velvet	UT	0	0	0	0	0	0
Tony M	UT	0	0	0	0	0	0
Hack Canyon	AZ	1	1	1	1	1	1
Pidgeon	AZ	0	0	0	0	0	0
Kabab North	AZ		0	0	0	0	0
Dermo- Snyder	CO/UT	0	8	33	53	73	83
Wilson- Silverbell	UT/CO	0	0	0	12	20	23
Lisbon	UT	0	0	0	4	44	44
LaSal	UT	0	0	53	101	194	194
Hecla	UT	16	16	20	40	73	73
Big Eagle	WY	0	0	0	0	0	3
Golden Eagle	WY	0	0	0	9	12	12
Sheep Mtn.	WY	0	0	0	0	0	12
Mt. Taylor	NM	0	100	317	336	336	336
Old Church Rock	NM	0	0	65	93	192	469
Church Rock NE	NM	12	31	51	53	53	93
Church Rock #1	NM	12	30	51	54	54	93
Church Rock East	NM	0	0	19	19	30	78

TABLE 1. (Continued)

<u>Mine</u>	<u>State</u>	<u>0-1/2 km</u>	<u>0-1 km</u>	<u>0-2 km</u>	<u>0-3 km</u>	<u>0-4 km</u>	<u>0-5 km</u>
Kerr-McGee Sec 30 East	NM	3	3	8	8	12	13
Kerr-McGee Sec 30 West	NM	0	0	0	0	0	0
Kerr-McGee Sec 19	NM	0	0	0	0	0	0
Kerr McGee Sec 35	NM	0	0	0	0	0	0
Kerr-McGee Sec 36	NM	0	0	0	0	0	0
Homestake Sec 23	NM	0	0	0	3	3	4
Homestake Sec 25	NM	0	0	0	0	0	0
Nose Rock	NM	2	3	14	31	55	86*
Mariano Lake	NM	3	5	21	47	83	130*
Totals		49	197	653	855	1235	1963

* Estimates for intermediate distances apportioned an area. These were on Indian land. Roads were impassable. Estimates out to 5 km obtained from Office of Environmental Health, USPHS Indian Hospital, Crown Point, New Mexico.

TABLE 2. Land Ownership Percentages

Mine	P/M/G*					
	0-1/2 km	0-1 km	0-2 km	0-3 km	0-4 km	0-5 km
Sunday	0/0/100	0/0/100	0/0/100	3/ 1/97	8/1/91	10/1/89
King Solomon	0/0/100	0/2/98	0/5/95	0/3/97	0/3/97	0/3/97
Velvet	14/0/86	10/0/90	6/0/94	12/0/88	24/0/76	27/0/73
Tony M	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100
Hack Canyon	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100
Pidgeon	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100
Kanab North	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100	1/0/ 99
Dermo-Snyder	84/0/16	87/0/13	84/0/16	89/0/11	85/0/15	81/0/19
Wilson-Silverbell	80/0/20	95/0/5	95/0/5	94/0/6	91/0/9	81/0/19
Lisbon	0/0/100	0/0/100	6/0/94	17/2/81	21/1/78	16/1/83
LaSal	8/0/92	25/0/75	34/0/66	41/0/59	34/0/66	26/0/74
Hecla	25/0/75	25/0/75	48/0/52	37/0/63	28/0/72	21/0/79
Big Eagle	0/100/0	0/88/12	0/80/20	0/8/92	0/5/95	1/3/96
Golden Eagle	60/20/20	89/7/4	85/3/2	94/1/5	91/1/8	90/1/9
Sheep Mtn.	30/45/25	18/42/40	5/28/69	2/18/80	4/11/85	12/8/80
Mt. Taylor	75/19/6	58/26/16	58/25/17	47/17/36	39/13/48	40/8/52
Old Church Rock	0/0/100	0/0/100	0/0/100	0/0/100	2/0/98	3/1/96
Church Rock NE	0/0/100	0/7/93	0/23/77	0/13/87	0/8/92	0/5/95
Church Rock #1	0/0/100	0/7/93	0/23/77	0/13/87	0/8/92	0/5/95
Church Rock East	0/0/100	0/7/93	0/6/94	3/4/93	5/2/93	3/1/96

TABLE 2. (Continued)

Mine	0-1/2 km	0-1 km	0-2 km	P/M/G*		
				0-3 km	0-4 km	0-5 km
Kerr-McGee Sec 30 East	11/89/0	4/91/5	2/70/28	4/78/18	10/79/11	13/77/10
Kerr-McGee Sec 30 West	11/89/0	24/76/0	17/72/11	16/69/15	22/66/12	27/57/16
Kerr-McGee Sec 19	0/100/0	23/77/0	46/39/15	45/39/16	32/37/31	29/38/33
Kerr-McGee Sec 35	0/100/0	0/85/15	8/59/33	14/55/31	10/57/33	14/52/34
Kerr-McGee Sec 36	5/42/53	14/22/64	27/14/59	36/8/56	36/5/59	39/3/58
Homestake Sec 23	74/0/26	68/0/32	61/6/33	50/18/32	47/17/36	53/12/35
Homestake Sec 25	100/0/0	85/0/15	59/0/41	58/1/41	50/2/48	43/10/47
Nose Rock	0/50/50	0/50/50	0/45/55	0/41/59	0/38/62	0/35/65
Mariano Lake	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100	0/0/100
Average	20/22/58	22/20/58	22/17/61	23/13/64	22/12/66	22/11/67

* P = Private, M = Mineowner, G = Government, federal, state, local, and Indian lands

TABLE 3. Estimated Value of Private Land*

<u>Mine</u>	<u>0-1/2 km</u>	<u>0-1 km</u>	<u>\$</u> <u>0-2 km</u>	<u>0-3 km</u>	<u>0-4 km</u>	<u>0-5 km</u>
Sunday	NA	NA	NA	48,000	208,000	384,000
King Soloman	NA	NA	NA	NA	NA	NA
Velvet	5,500	16,000	36,000	172,800	603,200	1,048,000
Tony M	NA	NA	NA	NA	NA	NA
Hack Canyon	NA	NA	NA	NA	NA	NA
Pidgeon	NA	NA	NA	NA	NA	NA
Kanab North	NA	NA	NA	NA	NA	≈100 acres of patented mining claims
Derma- Snyder	79,700	260,370	922,640	1,852,070	3,028,940	4,432,770
Wilson- Silverbell	39,090	186,350	535,750	1,667,150	2,861,590	3,368,740
Lisbon	NA	NA	50,000	306,000	810,340	810,540
LaSal	4,000	228,430	920,880	1,427,800	2,484,530	2,534,530
HecLa	36,820	147,260	380,000	691,000	965,850	1,000,540
Big Eagle	NA	NA	NA	NA	NA	NA
Golden Eagle	35,400	209,000	796,200	2,121,000	3,584,000	5,435,000
Sheep Mtn.	18,000	42,300	42,300	42,300	150,000	898,000
Mt. Taylor	39,600	225,100	890,700	1,211,800	1,604,900	2,296,300
Old Church Rock	NA	NA	NA	NA	543,300	1,443,100
Church Rock NE	NA	NA	NA	NA	NA	NA
Church Rock #1	NA	NA	NA	NA	NA	NA

TABLE 3. (Continued)

<u>mine</u>	<u>0-1/2 km</u>	<u>0-1 km</u>	<u>0-2 km</u>	<u>0-3 km</u>	<u>0-4 km</u>	<u>0-5 km</u>
Church Rock East	NA	NA	NA	122,200	355,600	355,600
Kerr-McGee Sec 30 East	35,000	35,000	35,000	53,500	147,560	239,960
Kerr-McGee Sec 30 West	31,100	132,200	147,800	157,900	194,800	235,100
Kerr-McGee Sec 19	NA	194,400	244,800	1,229,400	1,405,100	1,532,800
Kerr-McGee Sec 35	NA	NA	37,000	137,800	168,000	336,000
Kerr-McGee Sec 36	3,400	23,500	124,300	336,000	588,000	977,800
Homestake Sec 23	217,800	528,000	994,100	1,158,700	1,485,200	2,361,800
Homestake Sec 25	295,600	622,200	987,800	1,478,000	1,632,200	1,645,600
Nose Rock	NA	NA	NA	NA	NA	NA
Mariano Lake	NA	NA	NA	NA	NA	NA
Totals	841,000	2,850,200	7,745,220	14,213,420	22,821,310	31,937,080

* Includes structures on private land only

NA = not assessed: All land owned by either the mine owner or public.