OUTGOING LTR NO.

91 RF 3604

0019650

000024868

DIST.	LTR	ENC
[illegible]TZKE, J.C.		
[illegible]INGAME, A.H.		
[illegible]P, R.D.		
[illegible]UCHER, D.W.		
[illegible]IS, J.G.		
[illegible]RED, J.E.	X	X
[illegible]RERA, D.W.		
FERRIS, L.R.		
FRAIKOR, F.J.		
FRANCIS, G.E.		
GOODWIN, R.		
HEALY, T.J.		
JOEKER, E.H.		
[illegible]NS, J.P.		
KEELE, P.B.		
KERSH, J.M.	X	X
KIRBY, W.A.		
KIRKEBO, J.A.		
LEE, E.M.		
MAJESTIC, J.R.		
MATHEWS, T.A.		
MEURRENS, B.E.		
MORGAN, R.V.		
NORTH, P.		
PALMER, L.A.		
POTTER, G.L.		
PIZZUTO, V.M.		
RHOADES, J.I.		
SAFFELL, B.F.		
SWANSON, E.R.		
WIEBE, J.S.		
WILKINSON, R.B.		
WILLIAMS, R.E.		
WILSON, J.M.		
YOUNG, E.R.		
ZANE, J.O.	X	X
E.D. Hobbs	X	X
K.M. McTyl	X	X
S.A. Betts	X	X
CORRES CONTROL	X	X
TRAFFIC		

CLASSIFICATION:		
UCNI		
UNCLASSIFIED	X	X
CONFIDENTIAL		
SECRET		

AUTHORIZED CLASSIFIER SIGNATURE

6/20/91

DATE

IN REPLY TO LTR NO.

PC#

LTR APPROVALS:

ORIG & TYPIST INITIALS

KMM:VBS

RF-0469 (Rev. 3-91)

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

APR 1995 RECEIVED RECORDS CENTER

June 20, 1991

91-RF-3604

Robert M. Nelson, Jr.
Manager
DOE, RFO

Attn: J. M. Kiefer

GUIDANCE ON REGENERATION OF USED GRANULAR ACTIVATED CARBON - JMK-0241-91

Environmental & Waste Management's Clean Water Act Division (E&WM/CWAD) continues to pursue regeneration of spent granular activated carbon (GAC) used in the treatment of RFP pond water. GAC is a commonly used adsorbent material which is routinely leased and subsequently returned to the vendor for regeneration.

The spent GAC has received extensive analysis for both radionuclides and TCLP constituents, and the results of these analyses are attached. The data have been reviewed internally by EG&G, with J. Rampe of your staff, and with the Environmental Protection Agency (EPA). E&WM is also currently pursuing a risk assessment of the regeneration process. It is our understanding that with the exception of the Colorado Department of Health, all parties agree that the GAC is suitable for return/regeneration. E&WM recommends that a meeting be scheduled with F. Dowsett of CDH to resolve the issue of GAC regeneration.

J. M. Kersh, Associate General Manager
Environmental and Waste Management

KMM:vbs

Orig. and 1 cc - R. M. Nelson, Jr.

Attachment:
J. M. Kersh letter to Robert M. Nelson, Jr., 91-RF-0318, dated January 31, 1991.

ADMIN RECORD
A-SW-002600

ES. CONTROL
GOING LTR NO.

RF 0318

	LTR	CMS
	X	X
NGAM, A.H.	X	X
CHER, D.W.		
J.G.		
D, J.E.	X	X
RA, D.W.	X	X
RA, Y.P.		
S, L.R.		
DR, F.J.		
IS, G.E.		
WIN, R.		
T.J.		
R, E.H.		
J.P.		
, J.M.	X	X
W.A.		
BO, J.A.		
M.		
TIC, J.R.		
IEL, M.G.		
RENS, B.E.		
ROSS, R.W.		
AN, R.V.	X	X
R.P.		
R, L.A.		
LL, R.E.		
B, G.I.	X	X
O, V.M.		
DES, J.L.	X	X
LL, B.F.		
ION, W.M.		
SON, E.R.		
J.S.		
ISON, R.B.		
N, J.M.		
S, E.R.	X	X
J.O.	X	X
SON, K.D.	X	X
M.B.	X	X
ch, A.A.	X	X
G, L.M.	X	X
ER, D.S.	X	X
bs, F.D.	X	X
D.L.	X	X
yl, K.M.	X	X
S, G.A.	X	X
bert, A.L.	X	X
TRACKING	X	X
ES CONTROL	X	X
IC		

SSIFICATION:

	X	X
ASSIFIED	X	X
IDENTIAL		
ET		

RIZED CLASSIFIER
SIGNATURE
K.A. Sodrk
1/24/91

PLY TO LTR NO.
52-RF

APPROVALS

TYPIST INITIALS

EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

January 31, 1991 91-RF-0318

Robert M. Nelson, Jr.
Manager
DOE, RFO

RELEASE OF GRANULAR ACTIVATED CARBON FOR OFF-SITE REGENERATION

EG&G Environmental Restoration/Clean Water Act Division (ER/CWA) is currently treating pond water to assure that offsite water discharges meet water quality standards. The treatment that has been in place since October, 1989, includes the use of granular activated carbon (GAC) to remove trace levels of organic contaminants.

Pond water treatment operations are currently being consolidated to one pond location. This consolidation has resulted in approximately 100 tons of used GAC that must be stored, handled, and disposed of properly. EG&G is recommending that the GAC be returned to the vendor for regeneration, retention, and redistribution by the vendor. This is customary industrial practice for disposition of GAC after use.

Eight treatment vessels containing GAC were sampled on September 12, 1990. Samples were collected from the top one to three feet of carbon in each vessel. The sampling location was dictated by the accessibility to the carbon. However, this provided a conservative measure of contaminant levels, as contaminants should have concentrated in the upper layer of carbon located on the inlet side of the vessel. A background GAC sample was also collected from a vessel containing carbon that had not been used to treat pond water. The analyses of this sample have been used as background contaminant levels for the GAC.

Although the CWA treatment operation is specifically exempted from RCRA regulations, both the regenerable and waste materials produced by the process may potentially exhibit RCRA characteristics. Therefore, the carbon samples were analyzed for corrosivity, ignitability, reactivity, and 39 Toxicity Characteristic Leaching Procedure (TCLP) parameters. GAC analyses for RCRA parameters are summarized in Table 1 (See Attachments). All quantities are significantly below established regulatory limits.

The samples were also analyzed for radionuclide constituents, including gross alpha, gross beta, plutonium, americium, and uranium. These results are summarized in Tables 2 and 3. As the values indicate, the used GAC is slightly elevated above the background parameters, that is, for unused GAC. However, the highest level of plutonium detected (0.079 pCi/g) is still significantly below the Colorado Department of Health (CDH) concern level for construction in soil (0.9 pCi plutonium/g dry soil). Additionally, the material is well below the Department of Transportation limit for radionuclides (2,000 pCi/g). However, no regulatory or DOE guidance has been established authorizing the offsite shipment of a regenerable material that contains slightly elevated levels of radionuclides.

As a reference, it should be noted that a survey of eight Colorado cities has shown plutonium levels in soils ranging from 0.01 pCi/g near Burlington to 0.08 pCi/g near Penrose (as reported in the Rocky Flats Plant Site Environmental Report, 1989).

The vendor has previously received approximately 180 tons of used granular activated carbon from Rocky Flats Plant for regeneration. The return of the used GAC to the vendor was authorized by the Department of Energy, in the attached letter dated January 11, 1990. The radionuclide data collected for that shipment are summarized in Table 4.

Based on the results presented in this letter, EG&G requests DOE/RFO concurrence in returning the GAC to the vendor for regeneration, and not considering it a potential low level waste form to be stored on plantsite. Since there is a large amount of this material accumulated, we would appreciate your giving this issue high priority.

If you have any questions or comments, please contact F. D. Hobbs, extension 7006 or K. M. Motyl, extension 4074.

J. M. Kersh, Associate General Manager
Environmental Restoration and Waste Management
EG&G Rocky Flats

SAP:fm

Orig. and 1cc - R. M. Nelson, Jr.

Attachments:
As Stated

TABLE 1: SUMMARY OF CARBON ANALYSES FOR RCRA PARAMETERS

Sample Number	Location	Parameter	Concentration	Reporting Limit	Regulatory Limit
902689-001	Pond C-2	Cyanide, total	1.1 mg/kg	0.1 mg/kg	250 mg/kg
902689-002	Pond C-2	Cyanide, total	1.7 mg/kg	0.1 mg/kg	250 mg/kg
902689-003	Pond A-4	Cyanide, total	3.9 mg/kg	0.1 mg/kg	250 mg/kg
902689-004	Pond A-4	Cyanide, total Methylethylketone	1.8 mg/kg (5.7)* ug/L	0.1 mg/kg 500 ug/L	250 mg/kg 200 mg/L
902689-005	Pond A-4	Cyanide, total (Duplicate)	2.0 mg/kg	0.1 mg/kg	250 mg/kg
902689-006	Pond A-4	Cyanide, total Arsenic Methylethylketone	0.8 mg/kg 0.04 mg/L (16)* ug/L	0.1 mg/kg 0.02 mg/L 500 ug/L	250 mg/kg 5.0 mg/L 200 mg/L
902689-007	Pond A-4	Cyanide, total Arsenic	0.7 mg/kg 0.02 mg/L	0.1 mg/kg 0.02 mg/L	250 mg/kg 5.0 mg/L
902689-008	Pond B-5	Cyanide, total	4.0 mg/kg	0.1 mg/kg	250 mg/kg
902689-009	Pond B-5	Cyanide, total	5.3 mg/kg	0.1 mg/kg	250 mg/kg
902689-010	Pond B-5 (Blank)	Cyanide, total Arsenic	0.7 mg/kg 0.03 mg/L	0.1 mg/kg 0.02 mg/L	250 mg/kg 5.0 mg/L

* Detected below reporting limit; quantitation may be unreliable.

TABLE 2: SUMMARY OF CARBON ANALYSES FOR RADIONUCLIDE PARAMETERS

Location	Alpha (pCi/g)	Beta (pCi/g)	Uranium (ug/g)
Pond C-2	2.92 ± 2.39	11.6 ± 4.32	6.36 ± 1.85
Pond C-2	4.63 ± 2.69	9.62 ± 4.16	4.45 ± 1.32
Pond A-4	4.12 ± 2.89	9.61 ± 3.81	14.0 ± 3.86
Pond A-4	7.35 ± 3.30	11.9 ± 4.10	11.4 ± 3.19
Pond A-4 (Duplicate)	6.22 ± 3.42	10.2 ± 3.78	10.9 ± 3.08
Pond A-4	5.32 ± 2.83	6.52 ± 3.32	9.91 ± 2.81
Pond A-4	4.29 ± 3.02	7.37 ± 3.94	5.56 ± 1.62
Pond B-5	5.09 ± 2.78	7.27 ± 3.59	12.0 ± 3.37
Pond B-5	4.73 ± 2.86	7.67 ± 3.74	8.44 ± 2.41
Pond B-5 (Blank)	2.75 ± 2.22	4.16 ± 3.32	2.80 ± 0.865

Values are as reported by the laboratory. Required minimum detectable activities are 4 pCi/g (gross alpha), 10 pCi/g (gross beta), and 0.3 pCi/g (uranium isotopes).

TABLE 3: SUMMARY OF CARBON ANALYSES FOR RADIONUCLIDE PARAMETERS (cont.)

Location	Pu-239,240 (pCi/g)	Pu-238 (pCi/g)	Americium (pCi/g)
Pond C-2	0.026 ± 0.009	0.000 ± 0.002	0.009 ± 0.005
Pond C-2	0.079 ± 0.016	0.001 ± 0.002	0.013 ± 0.006
Pond A-4	0.007 ± 0.006	0.000 ± 0.003	0.007 ± 0.004
Pond A-4	0.015 ± 0.006	0.001 ± 0.001	0.016 ± 0.005
Pond A-4 (Duplicate)	0.016 ± 0.007	0.001 ± 0.002	0.010 ± 0.004
Pond A-4	0.004 ± 0.003	0.001 ± 0.002	0.002 ± 0.005
Pond A-4	0.001 ± 0.001	0.002 ± 0.002	0.003 ± 0.003
Pond B-5	0.038 ± 0.009	0.001 ± 0.001	0.001 ± 0.001
Pond B-5	0.023 ± 0.007	0.003 ± 0.002	0.019 ± 0.006
Pond B-5 (Blank)	0.003 ± 0.002	0.002 ± 0.002	0.004 ± 0.003

Values are as reported by the laboratory. Required minimum detectable activities are 0.03 pCi/g (Pu-239,240) and 0.02 pCi/g (Am-241).

TABLE 4: SUMMARY OF CARBON ANALYSES FOR RADIONUCLIDE PARAMETERS (1989)

Sample	Pu239,240 (pCi/g)	Am241 (pCi/g)	Uraniuum (pCi/g)
Vessel 1	0.00 ± 0.01	*	4.88 ± 0.12
Vessel 2/3	0.00 ± 0.01	*	4.04 ± 0.09
Vessel 4	0.00 ± 0.01	*	3.87 ± 0.09
Composite	0.00 ± 0.01	*	4.85 ± 0.21

*Valid americium-241 were not obtainable by the laboratory, despite repeated efforts. Thus, no values are reported for americium -241.