DP-MS-87-54X
Revised

Pu-238 PRODUCTION AT THE SAVANNAH RIVER PLANT

by

Paul L. Roggenkamp
E. I. du Pont de Nemours and Company
Savannah River Laboratory
Aiken, SC 29808

A summary of a paper proposed for presentation at the
ANS 1987 Winter Meeting
Los Angeles, CA
November 15-19, 1987

and for publication in the transactions

This paper was prepared in connection with work done under Contract No. DE-AC09-76SR00001 with the U.S. Department of Energy.

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PRODUCTION OF Pu-238 AT THE SAVANNAH RIVER PLANT

Paul L. Roggenkamp, Senior Consultant
E. I. du Pont de Nemours and Company, Inc.

Capability exists at the Savannah River Plant (SRP) of the Department of Energy to produce about 50 kg of Pu-238 annually for use as the source of heat for radioisotope powered electric generators. The factor that limits the Pu-238 production is the availability of Np-237 which is the target nuclide in which neutrons are captured to produce Pu-238 by the subsequent decay of the Np-238 neutron capture product. Capacities of processing facilities at SRP match the 50 kg/yr with varying margins up to 50 percent.

Pu-238 is being considered as the heat source for electric power generation for the Boost Surveillance and Tracking System for the Strategic Defense Initiative. The Pu-238 heat source would be coupled with a dynamic energy conversion system.

The SRP reactors are ideal reactors for isotope production. The heavy water moderator provides excellent neutron economy. Reactor fuel is highly enriched uranium contained in tubular elements which are separate from the target elements whether the product be Pu-238, Pu-239, tritium or other nuclide species. The use of fuel and target elements that are separate generally simplifies the isotope recovery process. Over the years a great variety of isotopes have been produced.

For the production of Pu-238, the target nuclide is Np-237. To manufacture the neptunium targets, NpO_2 powder is compacted with aluminum powder to form a billet core which is assembled with aluminum components into a composite billet. The composite billet is extruded into a target tube having the NpO_2-Al cermet core and aluminum cladding. The target tube is irradiated in the production reactor lattice where it displaces one of the depleted uranium target assemblies used for Pu-239 production. Up to one-fourth of the depleted uranium target assemblies may be replaced at any one time. During irradiation to produce specification plutonium at about 83% Pu-238, about 25% of the Np-237 is transmuted by neutron capture with about 16% remaining as Pu-238. The 9% difference is in higher mass plutonium isotopes and fission products.

The Pu-238 product is recovered from the Np-237 targets chemically (Ref. 1). After cooling, the targets are dissolved in nitric acid in a special section of the chemical reprocessing canyon. The plutonium, neptunium, and fission products and aluminum are partitioned by ion exchange techniques. In a facility with manipulator handling capability, the plutonium and neptunium nitrates are converted to oxides. The neptunium is recycled to target assemblies and the plutonium is sent to the heat source fabrication facility where it is formed into spheres each containing a nominal 112 grams of Pu-238, the spheres are then enclosed within an iridium shell.

The Np-237 feed material is produced gratuitously in the course of making the Pu-239 and tritium major products of SRP. The primary source of Np-237 is the enriched uranium fuel which is recycled for economic reasons. About 16% of neutron absorptions in U-235 result in the formation of U-236, which upon uranium recycle accompanies the U-235 back into the reactor. The U-237 that results from neutron capture in U-236 decays to Np-237. A secondary source results from an (n,2n) reaction on the U-238 target material for Pu-239 production. The Np-237 is recovered during reprocessing of both the enriched uranium fuel and the depleted uranium targets.

The current inventory of Np-237 is about 400 kg, which with the annual production rate of Np-237 of about 80 kg, will sustain an annual Pu-238 production rate of about 50 kg. The unit cost of the Pu-238 is about $1200 per gram for manufacture and about $400 per gram for heat source fabrication exclusive of the cost of the iridium shell material.

1. G. A. Burney, Pu-238 Processing at Savannah River Plant, ANS Transactions 45, 247 (1983).

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OSR 25-5
(REV 3-83)

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
ATOMIC ENERGY DIVISION
SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA 29808-0001
(TWX: 810-771-2670, TEL: 803-725-6211, WU: AUGUSTA, GA.)

June 2, 1987

Mr. M. R. Grant, Tech Program Chairman
Attn: Transactions Office
American Nuclear Society
555 North Kensington Avenue
La Grange Park, IL 60525

Dear Mr. Grant:

Four copies of the summary of the paper "Pu-238 Production at the Savannah River Plant" (DP-MS-87-54X) by P. L. Roggenkamp are enclosed. This is an invited paper for the ANS 1987 Winter Meeting in Los Angeles in November. The Summary Cover and Filing and Mailing Information Sheets (pages 2 and 3) are also enclosed.

If we can be of further assistance, please let me know.

Very truly yours,

J W Ice

L. W. Ice
Publications Division

LWI:tww

Enclosures

BCC: P. L. Roggenkamp, 773-41A
T. C. Sutherland, 773-A
SRL File: (DP-MS-87-54X), 773-A

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OSR 25-5
(REV 3-63)

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
ATOMIC ENERGY DIVISION
SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA 29808-0001
(TWX: 810-771-2670, TEL: 803-725-6211, WU: AUGUSTA, GA.)

June 12, 1987

Ms. Joann Hollensteiner
ANS Transactions Coordinator
American Nuclear Society
555 North Kensington Avenue
La Grange Park, IL 60525

Dear Ms. Hollensteiner:

Attached are the original and three copies of a revised version of the Summary, Pu-238 Production at the Savannah River Plant (DP-MS-87-54X, revised) by P. L. Roggenkamp, your Log #27. Please replace the initial version of the summary with the revised version.

If we can be of further assistance, please let me know.

Yours very truly,

L. W. Ice
Publications Division

LWI:tww

Enclosures

BCC: P. L. Roggenkamp, 773-41A
T. C. Sutherland, 773-A
SRL File: (DP-MS-87-54X), 773-A

OSR 24J-22 (Rev 0...

SAVANNAH RIVER
PUBLICATION APPROVAL SHEET

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DOCUMENT NO. DP-MS-87-54X

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DP REPORT ☐ PAPER ☒

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AUTHOR(S) Paul L. Roggenkamp

TITLE Pu-238 Production at the Savannah River Plant

DIVISION Operational Planning

MANUSCRIPT APPROVAL

Route in turn to

	Initials	Date		Initials	Date
1. AUTHOR	PLR	4/30/87	6. AUTHOR		
2. SUPERVISOR	—		7. DIVISION HEAD/DEPARTMENT SUPERINTENDENT		
3. DIVISION HEAD/DEPARTMENT SUPERINTENDENT	PLR	4/30/87	8. SECTION DIRECTOR/ GENERAL SUPERINTENDENT		
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CLASSIFICATION

Circle one for each

OVERALL	S	C (U)
ABSTRACT	S	C (U)
TITLE	S	C (U)
TRANSMITTAL LETTER	S	C (U)

APPROVAL: PLR (Division Head/ Department Superintendent) CJB 5/1/87 (PD)

CLASSIFICATION GUIDE TOPICS

SR-1/C-50

Topic 292-11

PATENT CONSIDERATIONS

POSSIBLE NOVEL FEATURES NA

CLOSEST PRIOR ART

APPROVAL: (Author) CJB 5/1/87 (PD)

BUDGET SUBCODE

of Work Described 8333 - 2M

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JOURNAL Transactions of the American Nuclear Society

MEETING ANS 1987 Winter Meeting

Give complete official title and attach copy of instructions to contributors.

CITY Los Angeles, CA

DATES Nov. 15-19, 1987

DEADLINE FOR SUBMISSION

~~ABSTRACT~~ Summary June 19, 1987 NO. COPIES 4

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CHAIRMAN Norbert R. Grant, Tech. Program Chrmn

ADDRESS Attn: Transactions Office
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555 North Kensington Ave
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Paper will be routed for review prior to presentation.

FOR ORAL PRESENTATION, THE AUTHOR MUST SIGN THE FOLLOWING STATEMENT AFTER THE CLASSIFICATION REVIEW IS COMPLETE:

I UNDERSTAND THE SIGNIFICANCE OF, AND THE LIMITATIONS IMPOSED BY, THE PERTINENT SROO CLASSIFICATION GUIDE TOPICS COVERING CLASSIFIED INFORMATION RELATED TO THE SUBJECT OF THIS PAPER. THE PERTINENT TOPICS INCLUDE:

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OSR 25-5
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SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA 29808-0001
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CC: W. F. Perrin, DOE-SR (2)
M. F. Sujka, 703-A
J. F. Ortaldo, 703-A
L. W. Ice, 703-43A
J. M. Boswell-P. L. Roggenkamp, 773-41A
File (DP-MS-87-54X)

May 6, 1987

Mr. J. R. Powell, Technical Information Officer
U. S. Department of Energy
Savannah River Operations Office
Aiken, SC 29801

Dear Mr. Powell:

REQUEST FOR APPROVAL TO RELEASE SCIENTIFIC/TECHNICAL INFORMATION

The attached document is submitted for your approval for external release. Please complete Part II of this letter and return the letter to the undersigned, by: ASAP 6/19/87 Patent clearance is requested and received via direct communication between DOE Patent Counsel and AED Patent Reviewer. The document has ~~not~~ been reviewed for classification and UCNI. The document is ~~classified~~/unclassified and contains no UCNI. (Strike words that do not apply.)

C. J. Banick AED Classification Officer
C. J. Banick

I. DETAILS OF REQUEST FOR RELEASE

DP-MS-87-54X, "PU-238 PRODUCTION AT THE SAVANNAH RIVER PLANT", By P. L. Roggenkamp

A summary of a paper proposed for presentation at the ANS 1987 Winter Meeting in Los Angeles, CA., on November 15-19, 1987.

Technical questions pertaining to the contents of this document should be addressed to the author(s) or

P. L. Roggenkamp, Senior Consultant
Operational Planning
Savannah River Laboratory

Questions concerning processing of this document should be addressed to the AED Classification Officer & Patent Reviewer at Extension 52606.

II. DOE-SR ACTION Date Received by TIO_____

___ Approved as written ___ Not approved as written, ___ revise and resubmit to DOE
___ Remarks ___ Approved upon completion of changes marked on document

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_____

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_____, Date _____
J. R. Powell, Technical Information Officer, DOE-SR

May 6, 1987

TO: J. F. SABINO

FROM: C. J. BANICK CJB

DOCUMENT REVIEW

Document(s): DP-MS-87-54X

Title(s): "PU-238 PRODUCTION AT THE SAVANNAH RIVER PLANT"

Author(s): P. L. Roggenkamp

Contractual Origin: DE-AC09-76SR00001

Present Classification: Unclassified Paper

References:

No items were noted that, in my opinion, should be called to the attention of the DOE for patent consideration.

OSR 25-5,
(REV 3-83)

E. I. DU PONT DE NEMOURS & COMPANY
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II. DOE-SR ACTION Date Received by TIO 5/7/87

✓ Approved as written ___ Not approved as written, ___ revise and resubmit to DOE
___ Remarks ___ Approved upon completion of changes marked on document

J. R. Powell
J. R. Powell, Technical Information Officer, DOE-SR, Date 5/29/87

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(REV 3-83)

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May 6, 1987

Mr. A. F. Westerdahl, Chief
Patent Branch
U. S. Department of Energy
Aiken, South Carolina 29808

Dear Mr. Westerdahl:

REQUEST FOR PATENT REVIEW

Please review for patent matters:

DP-MS-87-54X, "PU-238 PRODUCTION AT THE SAVANNAH RIVER PLANT", By P. L. Roggenkamp

A summary of a paper proposed for presentation at the ANS 1987 Winter Meeting in Los Angeles, CA., on November 15-19, 1987.

Please telephone your comments to the Records Management Office (Ext. 52606) and notify me by signing and returning to C. J. Banick the original of this letter. A copy is provided for your file.

If you decide to pursue a patent on any development covered, I shall be happy to supply additional information required such as appropriate reference and the names of persons responsible for the development.

Very truly yours,

C. J. Banick

C. J. Banick,
AED Patent Reviewer

The above item is approved for release

A. F. Westerdahl 5/7/87

A. F. Westerdahl — Date
Chief Patent Branch
DOE-SR

OSR 14-357

AUTHORIZATION FOR DISTRIBUTION OF TECHNICAL INFORMATION

PREPARED BY RECORDS MANAGEMENT

I. DESCRIPTION OF DOCUMENT

NO.

DP-MS-87-54X

TITLE

PU-238 PRODUCTION AT THE SAVANNAH RIVER PLANT"

AUTHOR(S)

P. L. Roggenkamp

TYPE OF DOCUMENT

- ☐ CLASSIFIED DP REPORT
- ☐ UNCLASSIFIED DP REPORT
- ☐ CLASSIFIED LETTER
- ☐ UNCLASSIFIED LETTER
- ☐ CLASSIFIED PAPER
- ☐ UNCLASSIFIED REPORT
- ☐ CLASSIFIED ABSTRACT OR SUMMARY
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Authorized by: P.L. Roggenkamp P L Roggenkamp (RESEARCH MANAGER OR DEPARTMENT SUPERINTENDENT) ✓ 5/7/87 DATE

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Authorized by: P.L. Roggenkamp P L Roggenkamp (RESEARCH MANAGER OR DEPARTMENT SUPERINTENDENT) ✓ 5/7/87 DATE

B. CLASSIFICATION

Reviewed by: P.L. Roggenkamp P L Roggenkamp (AUTHORIZED DERIVATIVE CLASSIFIER) ✓ 5/7/87 DATE

C. J. Banick C J Banick (AED CLASSIFICATION OFFICER) 5/5/87 DATE

Authority for Classification Determination SR-1C-50, Topic 292.11 (GUIDE NO. AND TOPIC NO.(S))

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IV. CATEGORY IF DP REPORT

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(REV 3-83)

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L. W. Ice, 703-43A
P. L. Roggenkamp, 773-41A
File: (DP-MS-87-54)

September 30, 1987

Mr. J. R. Powell, Technical Information Officer
U. S. Department of Energy
Savannah River Operations Office
Aiken, SC 29801

Dear Mr. Powell:

REQUEST FOR APPROVAL TO RELEASE SCIENTIFIC/TECHNICAL INFORMATION

The attached document is submitted for approval for external release. Please complete Part II of this letter and return the letter to the undersigned, by: 10/14/87 Patent clearance is requested and received via direct communication between DOE Patent Counsel and AED Patent Reviewer. The document has ~~not~~ been reviewed for classification and UCNI. The document is ~~classified/un~~classified and contains no UCNI. (Strike words that do not apply.)

C. J. Banick
AED Classification Officer
C. J. Banick

I. DETAILS OF REQUEST FOR RELEASE

DP-MS-87-54, "PU-238 PRODUCTION AT THE SAVANNAH RIVER PLANT", By P. L. Roggenkamp.

A paper proposed for presentation at the ANS 1987 Winter Meeting in Los Angeles, CA., on November 15-19, 1987.

Technical questions pertaining to the contents of the document should be addressed to the author(s) or

P. L. Roggenkamp, Senior Consultant
Operational Planning
Savannah River Laboratory

Questions concerning processing of this document should be addressed to the AED Classification Officer & Patent Reviewer at Extension 5-2606.

II. DOE-SR ACTION

DATE RECEIVED BY TIO 10-5-87

✓ Approved as written
___ Remarks
___ Not approved as written, ___ revise and resubmit to DOE
___ Approved upon completion of changes marked on document

J. R. Powell
J. R. Powell, Technical Information Officer, DOE-SR

Date 10/14/87

OSR 14-357
(Rev 10-86)

SAVANNAH RIVER
DOCUMENT APPROVAL SHEET
(See SRP Procedures Manual Item 101)

Document Number DP-MS-87-54
UC or C Number

1. DESCRIPTION OF DOCUMENT (to be completed by author)

TITLE Pu-238 Production at the Savannah River Plant

AUTHOR(S) Paul L. Roggenkamp PHONE NO. 5-5320

TYPE: ☐ INTERNAL DOCUMENT ☐ EXTERNAL DOCUMENT
☐ DP Report
☒ Paper (see below)
☐ Other

Additional Information for External Papers

PAPER FOR: Presentation Only x * Publication Only _____ Both _____

MEETING NAME ANS Winter Meeting

CITY Los Angeles, CA DATES Nov. 15-19, 1987

CHAIRMAN & ADDRESS Norbert R. Grant, ANS, 555 N. Kensington Ave., LaGrange Park, IL 60525

JOURNAL NAME --

DEADLINES FOR PUBLICATION: Abstract (already accepted) No. of Copies _____
Paper Nov. 13, 1987 No. of Copies 25

*Copies are to be available at the meeting.

I understand that for the information in this paper for external distribution:
A. Approvals by both Du Pont and DOE-SR managements are required.
B. Distribution verbally, or by publication, must be in accordance with policies set forth in DOE-SR orders.
C. Content of the external distribution must be limited to that actually approved by DOE-SR.

AUTHOR'S SIGNATURE Paul L Roggenkamp

2. APPROVAL BY AUTHOR'S ORGANIZATION (required for all technical documents)

SRP/SRL ORGANIZATION AED Planning

DERIVATIVE CLASSIFIER P. L. Roggenkamp

Classification Unclassified Topic _____

DISTRIBUTION
_____ Limit to List Attached. Reason: _____
_____ Limit to SRP & SRL. Reason: _____
_____ Limit to DOE-SR & Du Pont Contractual Family. Reason: _____
_____ Site-Specific Procedure Data Sheet, TA, etc.
__x__ Unlimited To General Public

APPROVED BY RESEARCH MANAGER/SUPERINTENDENT P L Roggenkamp DATE 9/29/87

3. CLASSIFICATION & PATENT INFORMATION (to be completed by Patent & Classification Reviewer)

CLASSIFICATION (circle one for each)

Overall	S	C	UCNI	(U)
Abstract	S	C	UCNI	(U)
Title	S	C	UCNI	(U)
Cover Letter	S	C	UCNI	U

CLASSIFICATION GUIDE TOPICS
SR-IC-50
Topics 292.11.1
292.12.5

PATENT CONSIDERATIONS
Possible Novel Features _____
Closest Prior Art _____

APPROVED BY AED PATENT & CLASSIFICATION OFFICER E J Barnick DATE 9/30/87

4. PUBLICATIONS DIVISION PROCESSING

DATE RECEIVED _____ PUBLICATIONS SUPERVISOR _____
EDITOR _____ DATE ASSIGNED _____
DATE COPIES SUBMITTED FOR RELEASE _____
DOE-SR RELEASE DATES: Patent Branch _____ Tech. Info. Office _____
DATE COMPLETED _____ DATE SUBMITTED TO OSTI _____

OSR 24J-22 (Rev 0-...)

SAVANNAH RIVER
PUBLICATION APPROVAL SHEET

SHADED AREAS FOR PUBLICATIONS DIVISION USE ONLY

DOCUMENT NO. DP-MS-87-54

TYPE OF PUBLICATION (Check one)
DP REPORT ☐ PAPER ☒

DP CATEGORY

AUTHOR(S) Paul L. Roggenkamp 773-41A

TITLE Pu-238 Production at the Savannah River Plant

DIVISION Operational Planning

MANUSCRIPT APPROVAL

Route in turn to

	Initials	Date		Initials	Date
1. AUTHOR	PLR	9/25	6. AUTHOR		
2. SUPERVISOR			7. DIVISION HEAD/DEPARTMENT SUPERINTENDENT		
3. DIVISION HEAD/DEPARTMENT SUPERINTENDENT	PLR	9/25	8. SECTION DIRECTOR/ GENERAL SUPERINTENDENT		
4. PD EDITOR	Lwi	9-29	9. PD		
5. PUBLICATIONS REVIEWER					

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A minimum of six weeks is required by PD for editing and formal release of a paper after receipt of the approval draft.

CLASSIFICATION
Circle one for each

	S	C	
OVERALL	S	C	(U)
ABSTRACT	S	C	U
TITLE	S	C	(U)
TRANSMITTAL LETTER	S	C	U

APPROVAL: Division Head/Department Superintendent CJB 9/28/87 PD

CLASSIFICATION GUIDE TOPICS
SR-C-50
Topics 292.11.1
292.12.5

PATENT CONSIDERATIONS

POSSIBLE NOVEL FEATURES None

CLOSEST PRIOR ART

APPROVAL: Author CJB 9/28/87 PD

BUDGET SUBCODE

of Work Described 8333 - 2L

FILL IN FOR PAPERS ONLY

PAPER FOR: PRESENTATION ONLY ☒ PUBLICATION ONLY ☐ PRESENTATION AND PUBLICATION ☐

JOURNAL None, but copies of paper will be available.

MEETING ANS Winter Meeting
Give complete official title and attach copy of instructions to contributors.

CITY Los Angeles, CA

DATES November 15 - 19, 1987

DEADLINE FOR SUBMISSION November 13, 1987

CHAIRMAN Norbert R. Grant

ADDRESS Amer. Nucl. Soc.
555 N. Kensington Ave.
LaGrange Park, IL 60525

ABSTRACT _____ NO. COPIES _____
Summary - completed; paper accepted.

PAPER _____ NO. COPIES _____

FOR ORAL PRESENTATION, THE AUTHOR MUST SIGN THE FOLLOWING STATEMENT AFTER THE CLASSIFICATION REVIEW IS COMPLETE:

I UNDERSTAND THE SIGNIFICANCE OF, AND THE LIMITATIONS IMPOSED BY, THE PERTINENT SROO CLASSIFICATION GUIDE TOPICS COVERING CLASSIFIED INFORMATION RELATED TO THE SUBJECT OF THIS PAPER. THE PERTINENT TOPICS INCLUDE: _____

_____
Author

cc: W.F. Perrin, DOE-SR(2)
M.F. Sujka, SRP 703-A
J.F. Ortaldo 703-A
L.W. Ice 703-43A
P.L. Roggenkamp, SRL 773-41A
File (DP-MS-87-54)

~~To Roberts~~
To Powell:

P.L. Roggenkamp, Senior Consultant
Operational Planning
~~E I R~~ Laboratory

OSR 14 357 is on the way

---

no others needed

OSR 25-5
(REV 3-83)

E. I. DU PONT DE NEMOURS & COMPANY
INCORPORATED
ATOMIC ENERGY DIVISION
SAVANNAH RIVER PLANT
AIKEN, SOUTH CAROLINA 29808-0001
(TWX: 810-771-2670, TEL: 803-725-6211, WU: AUGUSTA, GA.)

July 20, 1987

Mr. A. F. Westerdahl, Chief
Patent Branch
U. S. Department of Energy
Aiken, South Carolina 29808

Dear Mr. Westerdahl:

REQUEST FOR PATENT REVIEW

Please review for patent matters:

DP-MS-87-54, "AGENCY UPDATE", By B. J. Eberhard.

A paper proposed for publication only from the IMOG Joining Committee Meeting held at Rocky Flats on March 10-12, 1987.

Please telephone your comments to the Records Management Office (Ext. 52606) and notify me by signing and returning to C. J. Banick the original of this letter. A copy is provided for your file.

If you decide to pursue a patent on any development covered, I shall be happy to supply additional information required such as appropriate reference and the names of persons responsible for the development.

Very truly yours,

J.R. Coughenour for

C. J. Banick,
AED Patent Reviewer

The above item is approved for release

A. F. Westerdahl
Chief Patent Branch
DOE-SR

7/22/87
Date

OSR 24J-22 (Rev 6-83)

SAVANNAH RIVER
PUBLICATION APPROVAL SHEET

SHADED AREAS FOR PUBLICATIONS DIVISION USE ONLY

DOCUMENT NO. DP-MS-86-54

TYPE OF PUBLICATION (Check one)

DP REPORT ☐ - PAPER ☒

DP CATEGORY

AUTHOR(S) B. J. BERNARD

TITLE AGENCY UPDATE

DIVISION EED

MANUSCRIPT APPROVAL

Route in turn to

	Initials	Date		Initials	Date
1. AUTHOR	*		6. AUTHOR		
2. SUPERVISOR	*		7. DIVISION HEAD/DEPARTMENT SUPERINTENDENT	*	
3. DIVISION HEAD/DEPARTMENT SUPERINTENDENT	*		8. SECTION DIRECTOR/ GENERAL SUPERINTENDENT	*	
4. PD EDITOR			9. PD		
5. PUBLICATIONS REVIEWER					

* SEE ATTACHED OSR 14-308

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A minimum of six weeks is required by PD for editing and formal release of a paper after receipt of the approval draft.

CLASSIFICATION

Circle one for each

OVERALL	S	C	(U)
ABSTRACT	S	C	(U)
TITLE	S	C	(U)
TRANSMITTAL LETTER	S	C	U

APPROVAL: _____ (Division Head/ Department Superintendent) GJB 4/15/87 (PD)

CLASSIFICATION GUIDE TOPICS

CG-DAR-1

Topic 1.1

PATENT CONSIDERATIONS

POSSIBLE NOVEL FEATURES NA

CLOSEST PRIOR ART

APPROVAL: _____ (Author) EJB 4/15/87 (PD)

BUDGET SUBCODE

of Work Described

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JOURNAL- * See attached ... (enrolled in ...)

MEETING

Give complete official title and attach copy of instructions to contributors.

CITY

DATES

DEADLINE FOR SUBMISSION

CHAIRMAN

ABSTRACT NO. COPIES ADDRESS

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Author

(Rev 5-79)

REVIEW – APPROVAL ROUTING FOR TECHNICAL PAPER DRAFT

REFERENCE: SRP PROCEDURES MANUAL, PROCEDURE 513
WORKS TECHNICAL STANDARD PRACTICE MANUAL, BULLETIN 7-2

DATE: 3/10/87

TITLE OF PAPER: AGENCY UPDATE

AUTHOR(S): B. J. EBERHARD

DEPARTMENT: SRL/ERD

FOR JOURNAL ARTICLE: ☐ YES ☒ NO

NAME AND ADDRESS OF JOURNAL: FOR INCLUSION IN THE MINUTES OF SPRING 1987 MEETING OF THE IM06 - JOINING SUBGROUP HELD AT ROCKY FLATS ON 3/10-12/87.

PAPER FOR ORAL PRESENTATION: ☒ YES ☐ NO

DATE AND LOCATION OF MEETING: ROCKY FLATS 3/10-12/87

NAME OF MEETING: IM06 - JOINING COMMITTEE

SPONSORED BY: DOE

REQUIRED APPROVAL

DEPARTMENT SUPERINTENDENT: H L Cook — SIGNATURE

GENERAL SUPERINTENDENT: D L Deluche — SIGNATURE

ROUTE TO: ~~1. AUTHOR~~ 2. TECHNICAL SERVICES, 703A, B-219

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If Item IIA. is checked, do not complete any subsequent parts of this form.

☐ B. Request DOE-SR concurrence, then distribute per their instructions. DOE-SR's instructions usually call for sending document to TIC for distribution as specified on the form (DOE F 1332.15) attached to the document.

Authorized by: _____ (RESEARCH MANAGER OR DEPARTMENT SUPERINTENDENT) _____ DATE

TO BE APPROVED FIRST BY ORIGINATOR'S MANAGEMENT, THEN BY RECORDS MANAGEMENT

III. APPROVALS FOR EXTERNAL DISTRIBUTION *To be completed only if item IIB. has been completed.*

A. TECHNICAL CONTENT

Authorized by: _____ (RESEARCH MANAGER OR DEPARTMENT SUPERINTENDENT) _____ DATE

B. CLASSIFICATION

Reviewed by: _____ (AUTHORIZED DERIVATIVE CLASSIFIER) _____ DATE

C. J. Banick, _____ (AED CLASSIFICATION OFFICER) _____ DATE

Authority for Classification Determination: CG-DAR-1, Topic 1.1 (GUIDE NO. AND TOPIC NO.(S))

TO BE COMPLETED BY RECORDS MANAGEMENT

IV. CATEGORY IF DP REPORT

Approved by: _____ (RECORDS MANAGEMENT SUPERVISION) _____ DATE

V. DOE RELEASES *(Unlimited only)*

Patent Branch: (See Form Letter "Request for Patent Reviews") _____

Technical Information Office: (See Form signed by DOE-SR Technical Information Office) _____

July 20, 1987

TO: J. F. SABINO

FROM: C. J. BANICK

DOCUMENT REVIEW

Document(s): DP-MS-87-54

Title(s): "AGENCY UPDATE"

Author(s): B. J. Eberhard

Contractual Origin: DE-AC09-76SR00001

Present Classification: Unclassified Paper

References:

No items were noted that, in my opinion, should be called to the attention of the DOE for patent consideration.