Texas Department of Health

Charles E. Bell, M.D.
Executive Deputy Commissioner

1100 West 49th Street
Austin, Texas 78756-3189
(512) 458-7111

Radiation Control
(512) 834-6688

01 JUL 25 AM 10: 14

OSP

July 17, 2001

United States Nuclear Regulatory Commission
ATTN: Paul Lohaus, Deputy Director
Office of State Programs
Mail Stop O3H20
Washington, D.C. 20555

Dear Mr. Lohaus:

The Texas Department of Health (TDH) has received a request from USX Corporation (USX), Texas Uranium Operations, Radioactive Material License No. L02449, dated February 14, 2001 (Enclosure 1), to terminate their license.

The license authorized in situ leach mining. This facility was operated from 1977 to 1987, when production operations were ceased and reclamation efforts were commenced.

From 1987 until 1999 groundwater restoration was performed along with limited surface reclamation. The Texas Natural Resource Conservation Commission authorized ceasing groundwater restoration and final plugging of all wells in January 1999 (Enclosure 2). Following plugging of all wells, full scale surface reclamation and decommissioning began.

During surface reclamation and decommissioning all material and equipment was surveyed for radioactive contamination. Any material and/or equipment which was contaminated was disposed of by utilizing one of the following methods:

transfer to another licensed mine site;
decontamination and release for unrestricted use; or
disposal at a licensed byproduct disposal facility.

Proper disposal of all material and/or equipment was documented by the licensee.

On-site disposal of solid radioactive material or byproduct material was not authorized at this facility. Thus, there is no land to be transferred to the State of Texas or the Federal Government.

DCD SP08

STP Template

Direct surveys, by the licensee, to confirm the effectiveness of reclamation and decommissioning activities of the facilities were performed by defining ten meter by ten meter squares in a grid pattern across the production area and taking five readings in each square with a micro-R meter. The licensee subsequently requested release for unrestricted use of all licensed facilities and license termination. TDH amended their license to allow unrestricted use of the facilities.

Reclamation and decommissioning activities were completed at the site in 2001.

On October 18-20, 1999, TDH personnel performed surveys of the Moser I, Moser II, and Moser Shallow (III) wellfields. On August 15-17, 2000, TDH personnel performed surveys of the Clay West Deep and Shallow wellfields. On November 28-29, 2000, TDH personnel performed surveys of the Burns Ranch wellfields. The surveys were performed using one-by-one sodium iodide probes and Ludlum 14C survey meters. The purpose of the surveys was to determine suitability for license termination and to allow the release of the wellfields for unrestricted use . Two times background was used as an allowable limit (Regulatory Guide 5.10, Guidelines for Conducting Close Out Surveys of Open Lands and Requesting Release for Unrestricted Use). The surveys were performed by walking 10 meters apart moving across the wellfield pattern. Background readings for the different survey meters ranged from 1500 cpm to 4000 cpm.

Soil samples were retrieved from 39 areas. Soil samples collected were representative of the 100 square meter (m^2) by 15 centimeter in depth sampling method. Five 15 centimeter deep core samples were collected in each 100 m^2 area. The samples from each 100 m^2 area were then dried and mixed together. A representative sample from the mixture was used for analysis. Soil sample analysis results were within the regulatory limits for radium-226 and natural uranium soil concentrations of 5 pCi/gm and 30 pCi/gm except for 7 areas. Five areas were cleaned and resampled on January 7, 2000 and March 16, 2001 by TDH personnel. Soil and sample analysis results were within the regulatory limits for radium-226 and natural uranium soil concentrations of 5 pCi/gm and 30 pCi/gm.

The 2 other sample sites which exceeded release limits were not cleaned and resampled. At the first sample site which exceeded the release standard, the survey reading was just twice background, with background sample at 2.1 +/- 0.2 pCi/gram and the sample at 7.2 +/- 0.4 pCi/gram. At best case this would be 4.5 pCi/gram so no further action was deemed necessary. At the second sample site which exceeded the release standard, the survey reading was only background, with background sample at 2.1 +/- 0.2 pCi/gram and the sample at 7.9 +/- 0.4 pCi/gram. At best case this would be 5.2 pCi/gram. There is no explanation why this background surveyed location has such high sample results. As the results were near the release limit no further action was deemed necessary.

As a result of these findings, we are proposing to terminate this license (Enclosure 3). All data supporting our proposal are kept on file and is available at BRC should it be necessary for reference at a future date. Please advise if the U.S. Nuclear Regulatory Commission wishes additional material or information in order to make a determination regarding concurrence with our proposal that the license be terminated. If additional information is required, please contact Mr. Eugene Forrer of my staff at (512) 834-6688, ext. 2208.

As maintaining this license places an undue economic burden and hardship on the licensee, we request expeditious processing of this request.

Sincerely,

Richard A. Ratliff, P.E., Chief
Bureau of Radiation Control

Enclosures

Enclosure 1

USX Corporation
Texas Uranium Operations
Drawer V
George West, TX 78022
512 566 2441

February 14, 2001

USX

Mr. Gene Forrer, Chief
Uranium Licensing Project
Texas Department of Health
1100 West 49th Street
Austin, TX 78756-3189

Re: License Termination Request
License L0 2449

Dear Mr. Forrer:

USX/Texas Uranium Operations (TUO) has completed the requirements of 25 TAC 289.252(l) regarding the termination of the above referenced license. Attachment 1 contains a certification notice required in 25 TAC 289(l)(18)(A, B). USX/Texas Uranium Operations is therefore requesting the termination of License L0 2449.

In addition to the above request, TUO is providing the following attachments as requested by the Agency.

Attachment 2	Moser Data
Attachment 3	Clay West Data
Attachment 4	Burns Ranch Data

TUO would also like to request the termination of the financial assurance requirements set forth in 25 TAC 289.252(u).

TUO will be closing the plant site office within two weeks. All pertinent records will be retained for 3 years after the termination of the license. You may request records or other data by contacting Doug Boyea or myself at the following address or telephone numbers.

Address: USX/Texas Uranium Operations
600 Grant Street
Room 2068
Pittsburgh, PA 15219

Telephone:	Chuck Wentz	412-433-5912
	Doug Boyea	412-433-5914
Facsimile		412-433-5920

If you have any questions regarding this request, or need additional information, please call me at 361-566-2441.

Sincerely,

Charles N. Wentz

Charles N. Wentz
Manager - Operations

Enclosure 2

Received 15 Oct 98 DPB

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

October 9, 1998

Mr. Douglas P. Boyea, Jr.
Reservoir Engineer
USX/Texas Uranium Operations
George West, TX 78022

Re: Restoration Determination and Extension of Plugging Deadline
Production Area 1, UR02130-011, Clay West Mine

Dear Mr. Boyea:

The Texas Natural Resource Conservation Commission (TNRCC) has received the restoration data for Production Area 1 of the Clay West Mine. A review of the data shows that the production area has been restored according to the specifications contained in Permit UR02130 and as required by 30 TAC §331.107. You are now authorized to cease any restoration activities, including monitoring, at these production areas.

Since, you also requested an extension of the 120 day deadline for plugging and abandonment of the wells, an extension until November 1, 1999 is hereby authorized.

The Commission must approve any changes to the plugging procedures or the plugging schedule.

Please notify the Commission before commencing plugging activities to provide the opportunity for TNRCC personnel to be present. If you have any questions, please contact Mr. John Santos 512/239-1030, or correspondence may be sent to mail code MC131.

Sincerely,

Ben Knape

Ben Knape
UIC Permitting Team Leader
Underground Injection Control & Radioactive Waste Section

BK/JJS/jb

cc: Mr. John Santos

I:\URW\SANTOS\USX\2130\2130-011.P&A

Received
29 Nov 1999
DPB

R. J. BRANDES COMPANY
Consulting in Water Resources

November 22, 1999

Texas Natural Resource Conservation Commission
Uranium and Radioactive Waste Section
Industrial and Hazardous Waste Division
P.O. Box 13087
Austin, TX 78711-3087

Attention: Mr. Ben Knape
Uranium Team Leader

Re: U. S. Steel (USX Corporation), Texas Uranium Operations
Clay West Mine (Permit No. UR02130, PAA-011)
Class III Well Plugging and Abandonment Certification

Dear Mr. Knape:

I have viewed the well plugging and abandonment procedures at the Clay West Mine and have reviewed the TNRCC-approved plugging and abandonment plans and other records and related documentation. Based on my review of this information, the plugging and abandonment of wells at the above referenced site have been accomplished in accordance with the TNRCC-approved plugging and abandonment plan.

If you have any questions or need additional information, please feel free to call me at 343-1070.

Sincerely,

L. Stephen Stecher, P.E.
Senior Engineer

STATE OF TEXAS
L. S. STECHER
55645
REGISTERED
PROFESSIONAL ENGINEER

cc: Mr. Douglas P. Boyea, Jr., Manager - Environmental Affairs U. S. Steel

9011 Mountain Ridge Dr., Suite 100
Austin, Texas 78759

Telephone: 512/343-1070
Facsimile: 512/343-1083

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

Rec'd 17 Feb 2000
CNW

February 11, 2000

Mr. Douglas Boyea, Manager-Environmental Affairs
USX Corporation
Drawer V
George West, TX 78022

Re: Voluntary Revocation of Permit UR02130-001, USX - Clay West Mine

Dear Mr. Boyea:

Attached is a certificate of permit revocation for:

UR02130-001, Clay West

Should you have any questions, please contact John Santos at (512) 239-1030, or send correspondence to Mail Code 131 (MC-131).

Sincerely,

Alice Rogers

Alice Hamilton Rogers, P.E., Manager
Underground Injection Control and Radioactive Waste Section
Waste Permits Division

AHR/JJS/jb

cc: Mr. Ray Leissner, EPA Region 6, 6WQ-S
Mr. Gene Forrer, TDH

I:\URW\SANTOS\U S X\2130\UR02130 permit revocation

REVOCATION OF
UNDERGROUND INJECTION CONTROL PERMIT UR02130-001
ISSUED ON SEPTEMBER 14 ,1988
TO USX CORPORATION - TEXAS URANIUM OPERATIONS
(CLAY WEST MINE)

The activities authorized by the permit have ceased, the aquifer has been restored in accordance with 30 TAC §331.107, and all Class III wells have been plugged and abandoned in accordance with requirements of the permit and 30 TAC §331.46 as certified by an independent registered professional engineer and confirmed by inspection of the site by the staff of the Texas Natural Resource Conservation Commission.

THEREFORE:

Permit UR02130-001 is revoked pursuant to the provisions of 30 Texas Administrative Code Sections 305.67(b) and 331.86(b).

APPROVED, ISSUED AND EFFECTIVE in accordance with 30 Texas Administrative Code, Section 305.67.

ISSUED DATE: FEB 14 2000

For the Commission

Received
4 Feb 99
DPB

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 28, 1999

Mr. Douglas P. Boyea, Jr.
Manager, Environmental Affairs
USX/Texas Uranium Operations
George West, TX 78022

Re: Restoration Determination and Extension of Plugging Deadline
UR01890-001, Burns/Moser Mine

Dear Mr. Boyea:

The Texas Natural Resource Conservation Commission (TNRCC) has received the restoration data for Production Areas 1, 2, 3, and 4 of the Burns/Moser Mine. A review of the data shows that the production areas have been restored according to the specifications contained in Permit UR01890-001 and as required by 30 TAC §331.107. You are now authorized to cease any restoration activities, including monitoring, at these production areas.

The Commission must approve any changes to the plugging procedures or the plugging schedule.

Please notify the Commission before commencing plugging activities to provide the opportunity for TNRCC personnel to be present. If you have any questions, please contact Mr. John Santos 512/239-1030; correspondence should be sent to mail code MC131.

Sincerely,

Ben Knape

Ben Knape
UIC Permitting Team Leader
Underground Injection Control & Radioactive Waste Section
Permits Division

BK/JJS/jb

cc: Mr. John Santos
Mr. Bruce Calder - TDH

I:\URW\SANTOS\USX\1890\1890.P&A

R. J. BRANDES COMPANY
Consulting in Water Resources

December 22, 1999

Texas Natural Resource Conservation Commission
Uranium and Radioactive Waste Section
Industrial and Hazardous Waste Division
P.O. Box 13087
Austin, TX 78711-3087

Attention: Mr. Ben Knape
Uranium Team Leader

Re: U. S. Steel (USX Corporation), Texas Uranium Operations
Burns Ranch Mine (Permit No. UR01890, PAA-021 and PAA-031)
Class III Well Plugging and Abandonment Certification

Dear Mr. Knape:

I have viewed the well plugging and abandonment procedures at the Burns Ranch Mine and have reviewed the TNRCC-approved plugging and abandonment plans and other records and related documentation. Based on my review of this information, the plugging and abandonment of wells at the above referenced site have been accomplished in accordance with the TNRCC-approved plugging and abandonment plan.

If you have any questions or need additional information, please feel free to call me at 343-1070.

Sincerely,

L. Stephen Stecher, P.E.
Senior Engineer

STATE OF TEXAS
L. S. STECHER
55645
REGISTERED
PROFESSIONAL ENGINEER

cc: Mr. Douglas P. Boyea, Jr., Manager - Environmental Affairs U. S. Steel

9011 Mountain Ridge Dr., Suite 100
Austin, Texas 78759

Telephone: 512/343-1070
Facsimile: 512/343-1083

Transmittal Cover Page

R. J. BRANDES COMPANY
9011 Mountain Ridge Drive, Suite 100
Austin, Texas 78759

Telephone: 512 / 343-1070
Facsimile: 512 / 343-1083

December 22, 1999

Number of Pages: 1 (Excluding Title Page)

TO: Texas Department of Health
1100 W. 49th Street
Austin, TX 78756

ATTENTION: GENE FORRER

CONTACT: Steve Stecher

COMMENTS: Attached is the Class III Well Plugging and Abandonment Certification for the Burns Ranch Mine (Permit No. UR01890, PAA-021 and 031) If you have any questions, please fell free to call me at 343-1070 or Doug Boyea of USX at 512/566-2441.

Received
10 Feb 2000
D 013

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 7, 2000

Mr. Douglas Boyea, Manager-Environmental Affairs
USX Corporation
Drawer V
George West, TX 78022

Re: Voluntary Revocation of Permit UR01890-001, Burns/Moser Mine

Dear Mr. Boyea:

Attached is a certificate of permit revocation for:

UR01890-001, Burns/Moser

Moser A zone only
Does not include "C" zone
PAA
not Burns A
021, 031

Should you have any questions, please contact Mr. John Santos at (512) 239-1030, or send correspondence to Mail Code 131 (MC-131).

Sincerely,

Alice Rogers

Alice Hamilton Rogers, Manager
Underground Injection Control and Radioactive Waste Section
Waste Permits Division

AHR/JJS/jb

cc: Mr. Ray Leissner, EPA Region 6, 6WQ-S
Mr. Gene Forrer, TDH
Mr. John Santos

I:\URW\SANTOS\U S X\1890\UR01890 permit revocation

17 Feb 2000
10:57. spoke to
J. Santos 001 is
the base permit and
covers PAA-011, 021,
031 under

REVOCATION OF
UNDERGROUND INJECTION CONTROL PERMIT UR01890-001
ISSUED ON DECEMBER 10 ,1985
TO USX CORPORATION - TEXAS URANIUM OPERATIONS

The activities authorized by the permit have ceased, the aquifer has been restored in accordance with 30 TAC §331.107, and all Class III wells have been plugged and abandoned in accordance with requirements of the permit and 30 TAC §331.46 as certified by an independent registered professional engineer and confirmed by inspection of the site by the staff of the Texas Natural Resource Conservation Commission.

THEREFORE:

Permit UR01890-001 is revoked pursuant to the provisions of 30 Texas Administrative Code Sections 305.67(b) and 331.86(b).

APPROVED, ISSUED AND EFFECTIVE in accordance with 30 Texas Administrative Code, Section 305.67.

ISSUED DATE: FEB 0 2 2000

For the Commission

Received
4 Feb 99
DPB

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

January 28, 1999

Mr. Douglas P. Boyea, Jr.
Manager, Environmental Affairs
USX/Texas Uranium Operations
George West, TX 78022

Re: Restoration Determination and Extension of Plugging Deadline
UR01890-001, Burns/Moser Mine

Dear Mr. Boyea:

The Texas Natural Resource Conservation Commission (TNRCC) has received the restoration data for Production Areas 1, 2, 3, and 4 of the Burns/Moser Mine. A review of the data shows that the production areas have been restored according to the specifications contained in Permit UR01890-001 and as required by 30 TAC §331.107. You are now authorized to cease any restoration activities, including monitoring, at these production areas.

The Commission must approve any changes to the plugging procedures or the plugging schedule.

Please notify the Commission before commencing plugging activities to provide the opportunity for TNRCC personnel to be present. If you have any questions, please contact Mr. John Santos 512/239-1030; correspondence should be sent to mail code MC131.

Sincerely,

Ben Knape

Ben Knape
UIC Permitting Team Leader
Underground Injection Control & Radioactive Waste Section
Permits Division

BK/JJS/jb

cc: Mr. John Santos
Mr. Bruce Calder - TDH

I:\URW\SANTOS\USX\1890\1890.P&A

Received
7 Sept 1999
D.R.B

R. J. BRANDES COMPANY
Consulting in Water Resources

August 31, 1999

Texas Natural Resource Conservation Commission
Uranium and Radioactive Waste Section
Industrial and Hazardous Waste Division
P.O. Box 13087
Austin, TX 78711-3087

Attention: Ben Knape
Uranium Team Leader

Re: U. S. Steel (USX Corporation), Texas Uranium Operations
Moser Mine (Permit No. UR01890, PAA-011)
Class III Well Plugging and Abandonment Certification

Dear Mr. Knape:

I have viewed the well plugging and abandonment procedures at the Moser Mine and have reviewed the TNRCC-approved plugging and abandonment plans and other records and related documentation. Based on my review of this information, the plugging and abandonment of wells at the above referenced site have been accomplished in accordance with the TNRCC-approved plugging and abandonment plan.

If you have any questions or need additional information, please feel free to call me at 343-1070.

Sincerely,

L. Stephen Stecher, P.E.
Senior Engineer

STATE OF TEXAS
L. S. STECHER
55645
REGISTERED PROFESSIONAL ENGINEER

cc: Mr. Douglas P. Boyea, Jr., Manager - Environmental Affairs U. S. Steel

9011 Mountain Ridge Dr., Suite 100
Austin, Texas 78759

Telephone: 512/343-1070
Facsimile: 512/343-1083

Received
10 Feb 2000
D 013

TEXAS NATURAL RESOURCE CONSERVATION COMMISSION

Protecting Texas by Reducing and Preventing Pollution

February 7, 2000

Mr. Douglas Boyea, Manager-Environmental Affairs
USX Corporation
Drawer V
George West, TX 78022

Re: Voluntary Revocation of Permit UR01890-001, Burns/Moser Mine

Dear Mr. Boyea:

Attached is a certificate of permit revocation for:

UR01890-001, Burns/Moser

Moser A zone only
Does not include "C" zone
PAA-
not Burns A-
021, 031

Should you have any questions, please contact Mr. John Santos at (512) 239-1030, or send correspondence to Mail Code 131 (MC-131).

Sincerely,

Alice Rogers

Alice Hamilton Rogers, Manager
Underground Injection Control and Radioactive Waste Section
Waste Permits Division

AHR/JJS/jb

cc: Mr. Ray Leissner, EPA Region 6, 6WQ-S
Mr. Gene Forrer, TDH
Mr. John Santos

I:\URW\SANTOS\U S X\1890\UR01890 permit revocation

17 Feb 2000
10:57. spoke to
J. Santos 001 is
the base permit and
covers PAA-011, 021,
031 and 04

REVOCATION OF
UNDERGROUND INJECTION CONTROL PERMIT UR01890-001
ISSUED ON DECEMBER 10 ,1985
TO USX CORPORATION - TEXAS URANIUM OPERATIONS

The activities authorized by the permit have ceased, the aquifer has been restored in accordance with 30 TAC §331.107, and all Class III wells have been plugged and abandoned in accordance with requirements of the permit and 30 TAC §331.46 as certified by an independent registered professional engineer and confirmed by inspection of the site by the staff of the Texas Natural Resource Conservation Commission.

THEREFORE:

Permit UR01890-001 is revoked pursuant to the provisions of 30 Texas Administrative Code Sections 305.67(b) and 331.86(b).

APPROVED, ISSUED AND EFFECTIVE in accordance with 30 Texas Administrative Code, Section 305.67.

ISSUED DATE: FEB 0 2 2000

For the Commission

Enclosure 3

TEXAS DEPARTMENT OF HEALTH

MEMO

TO: GENE FORRER
LICENSE FILE L02449

THRU: ROBERT FREE
ARTHUR TATE
RUTH MCBURNEY

FROM: BRAD CASKEY

SUBJECT: RELEASE FOR UNRESTRICTED USE
MOSER PATTERNS
USX CORPORATION, GEORGE WEST, TX

DATE: FEBRUARY 5, 2001

MOSER I PATTERN:

On October 18-20, 1999, Bureau of Radiation Control employees, Brad Caskey, Mike Dunn, Martine Utley, and Rick Munoz performed surveys of the Moser I, Moser II, and Moser Shallow (III) Patterns at USX Corporation in George West, Texas. The surveys were performed using one-by-one sodium iodide probes and Ludlum 14C survey meters. The purpose of the survey was to allow the Licensee to release patterns for unrestricted use. Two times background was used as an allowable limit (Regulatory Guide 5.10, Guidelines for Conducting Close Out Surveys of Open Lands and Requesting Release for Unrestricted Use). The survey was performed by walking 10 meters apart moving across the wellfield pattern. Background readings for the different survey meters ranged from 1500 cpm to 2400 cpm.

Soil samples were retrieved from 16 areas. Soil samples collected were representative of the 100 square meter by 15 centimeter in depth sampling method. Five each 15 centimeter deep core samples were collected in each 100 square meter area. The five core samples from each 100 square meter area were then dried and mixed together. A representative sample from the mixture was used for analysis. Results of the 16 soil samples for radium-226 and natural uranium concentrations in picocuries per gram (pCi/gm) are as follows:

	Sample #	Radium-226 (pCi/gm)	Nat Uranium (pCi/gm)
Moser I	3	4.9 (2.9)	4.1
	4	2.3 (.3)	2.4
	5	15.0 (13.0)**	2.0
	6	1.2 (0.0)	<2.0
	Background	2.0	<2.0
	10	0.8 (0.0)	<2.0
	12	0.7 (0.0)	<2.0
Moser II	1	1.3 (0.0)	<2.0
	2	10.0 (6.1)**	8.4
	7	4.8 (0.9)	3.1
	Background	3.9	<2.0
	13	1.9 (0.0)	5.1
	14	1.4 (0.0)	2.0
	15	8.9 (5.0)**	9.0
	16	3.2 (0.0)	3.2
Moser III	8	2.6 (0.0)	3.2

(x) results after subtracting background
** exceeds regulatory limits

Soil sample results were within regulatory limits for radium-226 and natural uranium soil concentrations (5 pCi/gm and 30 pCi/gm, respectively) except for soil sample #'s 2,5, and 15. The areas were cleaned and resampled on January 7, 2000 by Martine Utley.

Results of the three soil samples for radium-226 and natural uranium concentrations in picocuries per gram (pCi/gm) are as follows:

Sample #	Radium-226 (pCi/gm)	Nat Uranium (pCi/gm)
2	6.0 (2.1)	3.8
5	2.1 (0.1)	<2.0
15	4.8 (0.9)	10.0

(x) results after subtracting background

CONCLUSION:

Recommend the Moser Patterns wellfields be released for unrestricted use.

TEXAS DEPARTMENT OF HEALTH

MEMO

TO: GENE FORRER
LICENSE FILE L02449

THRU: ROBERT FREE
ARTHUR TATE
RUTH MCBURNEY

FROM: BRAD CASKEY

SUBJECT: RELEASE FOR UNRESTRICTED USE
CLAY WEST PATTERNS
USX CORPORATION, GEORGE WEST, TX

DATE: FEBRUARY 5, 2001

On August 15-17, 2000,Bureau of Radiation Control employees, Brad Caskey, Martine Utley, and Gene Forrer performed surveys of the Clay West Deep and Shallow Patterns at USX Corporation in George West, Texas. The surveys were performed using one-by-one sodium iodide probes and Ludlum 14C survey meters. The purpose of the survey was to allow the Licensee to release patterns for unrestricted use. Two times background was used as an allowable limit (Regulatory Guide 5.10, Guidelines for Conducting Close Out Surveys of Open Lands and Requesting Release for Unrestricted Use). The survey was performed by walking 10 meters apart moving across the wellfield pattern. Background readings 4000 cpm.

Soil samples were retrieved from 12 areas. Soil samples collected were representative of the 100 square meter by 15 centimeter in depth sampling method. Five each 15 centimeter deep core samples were collected in each 100 square meter area. The five core samples from each 100 square meter area were then dried and mixed together. A representative sample from the mixture was used for analysis. Results of the 12 soil samples for radium-226 and natural uranium concentrations in picocuries per gram (pCi/gm) are as follows:

Sample #	Radium-226 (pCi/gm)	Nat Uranium (pCi/gm)
Clay West Deep		
Background	2.1	2.3
2	3.4 (1.3)	3.8
3	5.6 (3.5)	2.3
4	5.3 (3.2)	2.7
5	7.2 (5.1)**	3.4
6	7.9 (5.8)**	4.8
Clay West Shallow		
Background	1.8	2.5
8	3.1 (1.3)	2.7
9	2.2 (0.4)	2.0
10	4.1 (2.3)	2.9
11	2.2 (0.4)	2.7
12	1.6 (0.0)	<2.0

(x) results after subtracting background
** exceeds regulatory limits

Soil sample results were within regulatory limits for radium-226 and natural uranium soil concentrations (5 pCi/gm and 30 pCi/gm, respectively) except for soil sample #'s 5 and 6.

At #5, the survey reading was just twice background, with background sample at 2.1 +/- 0.2 pCi/gram and the sample at 7.2 +/- 0.4 pCi/gram. At best case this would be 4.5 pCi/gram.

At #6, the survey reading was only background, with background sample at 2.1 +/- 0.2 pCi/gram and the sample at 7.9 +/- 0.4 pCi/gram. At best case this would be 5.2 pCi/gram. There is no explanation why this background surveyed location has such high sample results.

CONCLUSION:

Because of unusual sample results from background surveyed location, recommend the Clay West Patterns wellfields be released for unrestricted use.

TEXAS DEPARTMENT OF HEALTH

MEMO

TO: GENE FORRER
LICENSE FILE L02449

THRU: ROBERT FREE
ARTHUR TATE
RUTH MCBURNEY

FROM: BRAD CASKEY

SUBJECT: RELEASE FOR UNRESTRICTED USE
BURNS RANCH PATTERN
USX CORPORATION, GEORGE WEST, TX

DATE: MAY 29, 2001

On November 28-29, 2000, Bureau of Radiation Control employees, Brad Caskey, Martine Utley, Ruben Cortez, Rick Munoz and Kathy McGuire performed surveys of the Burns Ranch Pattern at USX Corporation in George West, Texas. The surveys were performed using one-by-one sodium iodide probes and Ludlum 14C survey meters. The purpose of the survey was to allow the Licensee to release patterns for unrestricted use. Two times background was used as an allowable limit before sampling (Regulatory Guide 5.10, Guidelines for Conducting Close Out Surveys of Open Lands and Requesting Release for Unrestricted Use). The survey was performed by walking 10 meters apart moving across the wellfield pattern. Background readings were 2000 cpm.

Soil samples were retrieved from 12 areas. Soil samples collected were representative of the 100 square meter by 15 centimeter in depth sampling method. Five each 15 centimeter deep core samples were collected in each 100 square meter area. The five core samples from each 100 square meter area were then dried and mixed together. A representative sample from the mixture was used for analysis. Two areas, #6 and #12, had readings greater than twice and were cleaned and resurveyed. They were then sampled. A third area, #12, was sampled and was above the release limits but was in an outcropping. Results of the 12 soil samples for radium-226 and natural uranium concentrations in picocuries per gram (pCi/gm) are as follows:

Sample #	Initial Reading (cpm)	Cleanup Reading (cpm)	Radium-226 (pCi/gm.)	Nat Uranium (pCi./gm.)
1	2000		0.9 (0.3)	<2.0
2 (background)	3000		0.6	<2.0
3	2000		0.8 (0.2)	<2.0
4	2000		1.9 (1.3)	<2.0
5	4000		3.2 (2.6)	3.2
6	10000	6000	9.6 (9.0)*	4.4
7	2000		1.4 (0.8)	<2.0
8	4000		1.6 (1.0)	<2.0
9	2000		0.7 (0.1)	<2.0
10	12000	6000	5.6 (5.0)	3.3
11	4000		1.4 (0.8)	2.0
12			6.9 (6.3)**	2.2

(x) results after subtracting background
* exceeded regulatory limits
**sample taken from outcropping

Sample area #6 was cleaned after the elevated results were known, and On March 16, 2001, the area was resampled by Brad Caskey. The result of that sample was:

Sample #	Radium-226 (pCi/gm.)	Nat Uranium (pCi./gm.)
#6	2.9 (2.3)	3.1

Soil sample results were within regulatory limits for radium-226 and natural uranium soil concentrations (5 pCi/gm and 30 pCi/gm, respectively) .

CONCLUSION:

Recommend the Burns Ranch Pattern wellfield be released for unrestricted use.