CAMECO RESOURCES
CROW BUTTE OPERATION

86 Crow Butte Road
P.O. Box 169
Crawford, Nebraska 69339-0169

(308) 665-2215
(308) 665-2341 – FAX

February 1, 2011

Mr. Keith I. McConnell, Deputy Director
Decommissioning and Uranium Recovery Licensing Directorate
Division of Waste Management and Environmental Protection
Office of Federal and State Materials and Environmental Management Programs
U.S. Nuclear Regulatory Commission
Mail Stop T8-F5
Washington D.C. 20555-0001

Re: Annual Report of Changes, Tests, or Experiments
License No. SUA-1534
Docket No. 40-8943

Dear Mr. McConnell:

Crow Butte Resources, Inc. (CBR) d/b/a Cameco Resources – Crow Butte Operation (CBO) is providing this annual report summarizing the changes, tests or experiments made under License Condition 9.4 of SUA-1534 during calendar year 2010. This report is made in accordance with the reporting requirements contained in License Condition 9.4 (E).

CBR's source material license was renewed on March 4, 1998. The renewed license contained Performance Based License Conditions (PBLC). In a PBLC, CBR is allowed to make changes or conduct tests and experiments under certain conditions. These changes, tests, and experiments must be reviewed and approved by the CBR Safety and Environmental Review Panel (SERP). During 2010, the CBR SERP approved ten changes.

The following materials are attached to provide the required summary information and documentation required by License Condition 9.4 (E).

- SERP Evaluation Index, which summarizes each SERP Action and tracks any modifications to an approved action affected by subsequent SERP actions.

- A copy of the text of each approved SERP Evaluation. These evaluations describe the change or test approved and the safety and environmental evaluation performed by the SERP. Supporting documentation is maintained on site for NRC review

By letter dated October 19, 2009, in the response to violation of 10 CFR 40.42 (h)(1) and 10 CFR 40.42 (i), CBO submitted a request for an alternate decommissioning (groundwater restoration) schedule for mine units 2 through 5. CBO also indicated in this request that an annual review of the groundwater decommissioning schedule would be added to the Annual Summary of Changes list.

By letter dated August 20, 2009, NRC approved the alternate decommissioning schedule for the above mentioned mine units. The following is the groundwater decommissioning status of these mine units at the end of 2010.

Summary of Groundwater Restoration at Mine Units 2 through 5

Mine Unit	Current Phase of Ground Water Restoration	Alternate Decommissioning Date	On Track to Meet Alternate Decommissioning Date (Yes / No)
2	Beginning stage of recirculation	July 1, 2012	Yes
3	Beginning stage of recirculation	July 1, 2013	Yes
4	IX Treatment*	January 1, 2015	Yes
5	IX Treatment	July 1, 2016	Yes
6	**		

* On December 17, 2008, a bioremediation field study was started on six production wells in Wellhouse 9. This study area is still under review.

** Mine Unit 6 was put into restoration on October 28, 2010. A request for an alternate decommissioning schedule was submitted on December 21, 2010.

If you have any questions or require further information, please do not hesitate to contact me at (307) 316-7595.

Sincerely,
CAMECO RESOURCES
CROW BUTTE OPERATION

Thomas P. Young
Vice-President of Operations

Enclosures: As Stated

cc: Mr. Ron Burrows
Project Manager
Office of Federal and State Materials and
Environmental Management Programs
US Nuclear Regulatory Commission
Mail Stop T8-F5
Washington, DC 20555-0001

ec: CR – Cheyenne Office

2010 SERP Evaluation Index

Safety and Environmental Review Panel

2010 SERP Index

SERP Evaluation Number	Date	Action Taken	Modifications to Previous SERP Actions
SERP 10-01	1 Feb 10	Approval to operate additional wells in Wellhouse 6	None
SERP 10-02	5 Feb10	Wellhouse 53 Approval to Operate	None
SERP 10-03	23 Feb 10	Approval to operate additional well in Wellhouse 6	None
SERP 10-04	25 Mar 10	Approval to operate additional well in Wellhouse 47	None
SERP 10-05	30 Apr 10	Approval to operate Pond Water Treatment Circuit	None
SERP 10-06	17 May 10	Approval to operate additional well in Wellhouse 47	None
SERP 10-07	20 May 10	Approval of changes made to the organizational structure	None
SERP 10-08	9 July 10	Wellhouse 54 Approval to Operate	None
SERP 10-09	8 Nov 10	Approval to Operate Mine Unit 11 and Wellhouse 61	None
SERP 10-10	8 Nov 10	Approval of changes made to the organizational structure	None

SERP 10-01 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-01

Approval to Operate Additional Wells in Wellhouse 6

February 1, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve in Mine Unit 3 the addition of six new wells to Wellhouse 6.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	General Manager	Management
Doug Pavlick	Operations Manager	Operations
Larry Teahon	Manager of Health, Safety, and Environmental Affairs	Safety
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Wade Beins	Senior Geologist	Well Construction
Dave Moody	Wellfield Superintendent	Wellfield Operations
Steven Boeselager	Restoration Foreman	Restoration Operations

Mr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

Purpose of SERP Evaluation

CAMECO RESOURCES
CROW BUTTE OPERATION

SERP 10-01

The purpose of this evaluation by the CBR SERP was to review and approve the addition of six new wells (RES-1E, RES-2E, RES-3E, RES-4E, RES-2I, and RES-3I) in Wellhouse 6.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Environmental, Health, and Safety Management System (EHSMS) Volume II, *Management Procedures*, EHS-6, *Managing Change*. The SERP reviewed the licensing requirements, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 24 dated October 21, 2009;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;
- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;

- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 24 to SUA-1534 dated October 21, 2009 was reviewed for specific requirements related to approval and operation of additional wells.

Mine Unit 3 was previously approved by License Amendment #19 dated January 6, 1993. Therefore, no review of monitor well location, installation or baseline sampling and Upper Control Limit determination is required for this approval.

License Condition 10.2: This License Condition requires that CBR construct all wells in accordance with the methods contained in the Section 3.1.2 of the approved License Renewal Application (LRA). License Condition 10.2 also requires that CBR perform mechanical integrity tests (MIT) for all injection and production wells.

The well construction methods in use for Wellhouse 6 are the same as those described in the LRA and contained in EHSMS Volume III, *Operations Manual*, Procedure P-25, *Well Installation.* MIT's were performed in accordance with EHSMS Volume III, *Operations Manual*, Procedure P-23, *Mechanical Integrity Test (MIT).* The MIT data sheets were provided by the Senior Geologist and reviewed by the SERP. The records indicate that the MIT's performed in Wellhouse 6 met the requirements.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 3.3 also discusses instrumentation, including wellhouse injection and production instrumentation and wet building alarms for wellhouses. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Final Inspection of Piping Wellhead to Plant and Pressure Testing sheets. These checklists were developed by the Wellfield Construction staff to document completion of all required actions before initiating operations of these wells.

Some of these actions are required by regulatory and licensing requirements, while some were developed over the course of mining experience at Crow Butte. Construction activities are governed by EHSMS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place. A copy of the testing sheets is attached to this SERP Evaluation.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Well construction and testing as described in the EA has been completed for the wells associated with Wellhouse 6.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with Wellhouse 6 and found that it met the intent of the EA.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 24 to SUA-1534 in the amount of $27,871,170.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety at Crow Butte and does not specifically address the issues related to approval of startup of new wells.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs prepared since license renewal directly address issues related to approval of new wells for operation.

Degradation of Essential Safety or Environmental Commitment

CAMECO RESOURCES
CROW BUTTE OPERATION

SERP 10-01

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined that safety commitments made in the LRA and discussed in the EA have been met and that startup of these wells will not degrade the safety and environmental commitments.

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of the six new wells in Wellhouse 6.

Approved this 1st day of February, 2010.

Jim Stokey, General Manager
SERP Chairman

Larry Teahon, Manager of Health, Safety, and Environmental Affairs
SERP Secretary

Doug Pavlick
Operations Manager

Rhonda Grantham, Radiation Safety Officer

Bob Tiensvold, Maintenance Superintendent

Wade Beins, Senior Geologist

Dave Moody, Wellfield Superintendent

Steven Boeselager, Restoration Foremena

STATE OF NEBRASKA

Dave Heineman
Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

DEC 17 2009

Mr. Tom Young
Crow Butte Resources, Inc.
141 Union Boulevard, Suite 330
Lakewood, Colorado 80228

Dear Mr. Young:

On December 7, 2009 the Nebraska Department of Environmental Quality received a submittal of information from Crow Butte Resources, Inc. The submittal serves as a Notice of Intent to Operate Restoration Wells and contains Well Completion Reports and Casing Integrity Test Reports for seven recently installed wells (RES-1E, RES-2E, RES-3E, RES-4E, RES-2I, RES-3I, and RES-4I) in Mine Unit 2. The installation of these wells is intended to assist with restoration of Mine Units 2 and 3.

The Department has reviewed the information submitted and determined that it is adequate and complete. Upper Control Limits and Restoration Values established for Mine Unit 2 have been previously approved. Approval of the additional wells will not alter those values. The Department hereby approves the Notice of Intent to Operate the seven additional restoration wells in Mine Unit 2.

If you have any questions concerning this matter, please contact Jennifer Abrahamson of my staff at (402) 471-4290.

Sincerely,

Michael J. Linder
Director

ML/jla
word/CBR/letter/NOI_MU2restoration.doc
Cc: Dave Carlson, NDEQ
Jim Stokey, CBR

Well House Start-Up Checklist

Well House # 6

Item	Description	Person	Comments	Date Completed	Initial
1	Permit To Operate	Beins / Stokey	Completed	12/17/09	WB
2	Complete Pressure Testing (Trunkline and House)	Boeselager / V.Stokey / Stokey	Completed	2-1-10	VS
3	Pipelines checked for leaks	McDowell / Tiensvold / Stokey	Completed	2-2-10	SB
4	Pipelines buried	V.Stokey / Boeselager / Stokey	Completed	1-27-10	VS
5	Pressure gauges manifolds	V.Stokey / Boeselager / Stokey	Completed	1-4-10	SB
6	Injection lines equipped with totalizing flow meters	Retzlaff / V.Stokey / Stokey	Completed	1-18-10	VCR
7	Injection and Production total flows can be measured	V.Stokey / Retzlaff / Stokey	Completed	1-27-10	VCR
8	Unused trunkline locked out by two separate means	V.Stokey / Boeselager / Stokey	unused laterals are dbl iso	1-18-10	SB
9	Isolation valves are closed and chained	McDowell / Tiensvold / Stokey	NA	NA	NA
10	Map of 2" lines in house	McDowell / Beins / Tiensvold / Stokey	Completed	1-27-10	SB
11	Well-field Layout map in house	McDowell / Beins / Tiensvold / Stokey	Completed	1-27-10	SB
12	Check berms	Nelson / Boeselager / Stokey	Completed	1-25-10	WW
13	Pressure check oxygen lines	Roberts / Tiensvold / Stokey	NA	NA	NA
14	Continuity check on producers	Scoggan / Tiensvold / Stokey	Completed	1-26-10	
15	Ground fault check	Scoggan / Tiensvold / Stokey	NA	NA	NA
16	Communications wire check	Hagman / Tiensvold / Stokey	Completed	1-18-10	BT
17	Heater size check	Scoggan / Tiensvold / Stokey	Completed	1-26-10	BT
18	Processor installed well house	Hagman / Tiensvold / Stokey	NA	NA	NA
19	UPS installed and operational	Scoggan / Tiensvold / Stokey	NA	NA	NA
20	Wet house alarm installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
21	Wet house alarm checked	Scoggan / Tiensvold / Stokey	NA	NA	NA
22	Oxygen solenoid checked	Hagman / Tiensvold / Stokey	NA	NA	NA
23	Check fuses in control panel	Scoggan / Tiensvold / Stokey	NA	NA	NA
24	Program MMI	Hagman / Tiensvold / Stokey	NA	NA	NA
25	Program PLC	Hagman / Tiensvold / Stokey	OK	1-18-10	TH
26	Set Scalar Card 'K' Factors	K. Forbes/P. Dunn / Boeselager / Stokey	Completed	1-26-10	SB
27	Off tags and lockouts	K. Forbes/P. Dunn / Boeselager / Stokey	Completed	1-26-10	SB
28	Contaminated and uncontaminated cans	K. Forbes/P. Dunn / Tiensvold / Stokey	NA	NA	NA
29	Complete 2" lateral inspection	McDowell / Tiensvold / Stokey	ok	1-27	
30	Visually inspect entire system to plant	McDowell / Tiensvold / Stokey	OK	1-27	
31	Labels on Monitor Wells	Moody / Tiensvold / Stokey	Completed	1-25-10	
32	Valve Station Covers and Stairs Built	Roberts / Tiensvold / Stokey	NA	NA	NA
33	Manifold Pressure Switches Installed	Scoggan / Tiensvold / Stokey	Completed	1-26-10	
34	Injection Filter Installed	McDowell / Tiensvold / Stokey	NA	NA	NA
35	Filter instrumentation and gauges installed	McDowell / Tiensvold / Stokey	NA	NA	NA
36	Electric door lock installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
37	Update Daily Walk Through Inspection form EHS 4-1	Teahon / Tiensvold / Stokey	NA	NA	NA

Crow Butte Resources

Final Inspection of Piping Wellhead to Plant

Wellhouse: 6

Review of Pressure Test Data Complete: [signature]

Work Completed 02-02-2010 [signature]

Date: 1/29/10

Mine Manager: [signature]

W.F.C. Foreman: [signature]

Non-Service Lines Locked-Out: [signature]

Item #	Well #	Initialed by	Comments
1	P		
2	P Res 1 E	[signature]	Need inspected after PSI check
3	P		
4	P		
5	P		
6	P Res 2 E	[signature]	Need inspected after PSI check
7	P		
8	P Res 3 E	[signature]	Need inspected after PSI check
9	P		
10	P Res 4 E	[signature]	Need inspected after PSI check
11	P		
12	P		
13	P		
14	P		
15	P		
16	P		
17	P		
18	P		
19	P		

Item #	Well #	Initialed by	Comments
20	P		
21	P		
22	P		
23	P		
24	P		
25	P		
26	P		
27	P		
28	P		
29	P		
30	P		

Item #	Well #	Initialed by	Comments
1	I		
2	I Res 2 I	[illegible]	Need inspected after PSI check
3	I Res 3 I	[illegible]	Need inspected after PSI check
4	I Res 4 I	[illegible]	Need inspected after PSI check
5	I		
6	I		
7	I		
8	I		
9	I		
10	I		
11	I		
12	I		
13	I		
14	I		
15	I		
16	I		
17	I		
18	I		
19	I		

Item #	Well #	Initialed by	Comments
20	I		
21	I		
22	I		
23	I		
24	I		
25	I		
26	I		
27	I		
28	I		
29	I		
30	I		
31	I		
32	I		
33	I		
34	I		
35	I		
36	I		
37	I		
38	I		

Well House Pressure Check Verification

Pressure Check for Well House 6 Date: 2-1-10

Injection ☐ **Production** ☒
On Res 4E the 2" laterals were pressured to 95 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 95 psi at 1000 (am)/pm
Stop: 93 psi at 1015 (am)/pm

[signature] 2-1-10
Wellfield Operator performing test Date

Injection ☐ **Production** ☐
On ____________ the 2" laterals were pressured to ______________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: ________ psi at ________ am/pm
Stop: ________ psi at ________ am/pm

Wellfield Operator performing test Date

Injection ☐ **Production** ☐
On ____________ the 2" laterals were pressured to ______________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: ________ psi at ________ am/pm
Stop: ________ psi at ________ am/pm

Wellfield Operator performing test Date

Injection ☐ **Production** ☐
On ____________ the 2" laterals were pressured to ______________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: ________ psi at ________ am/pm
Stop: ________ psi at ________ am/pm

Wellfield Operator performing test Date

Well House Pressure Check Verification

Pressure check for Well House 6 . **Date:** 1-28-10

Injection ☒ **Production** ☐
On Res 21 the 2" laterals were pressured to 91 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 91 psi at 1404 AM/PM
Stop: 90 psi at 1419 AM/PM

[signature] 1-28-10
Wellfield Operator performing test Date

Injection ☒ **Production** ☐
On Res 3i the 2" laterals were pressured to 95 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 95 psi at 1448 AM/PM
Stop: 92 psi at 1503 AM/PM

[signature] 1-28-10
Wellfield Operator performing test Date

Injection ☐ **Production** ☐
On _____ the 2" laterals were pressured to _____ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: _____ psi at _____ AM/PM
Stop: _____ psi at _____ AM/PM

_____ _____
Wellfield Operator performing test Date

Injection ☐ **Production** ☐
On _____ the 2" laterals were pressured to _____ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: _____ psi at _____ AM/PM
Stop: _____ psi at _____ AM/PM

_____ _____
Wellfield Operator performing test Date

Well House Pressure Check Verification

Pressure check for Well House 6 . **Date:** 1-29-10

Injection □ **Production** ☒
On Res 1E the 2" laterals were pressured to 92 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 92 psi at 0851 AM/PM
Stop: 88 psi at 0906 AM/PM

[signature] 1-29-10
Wellfield Operator performing test — Date

Injection □ **Production** ☒
On Res 2E the 2" laterals were pressured to 95 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 95 psi at 0938 AM/PM
Stop: 91 psi at 0953 AM/PM

[signature] 1-29-10
Wellfield Operator performing test — Date

Injection □ **Production** ☒
On Res 3E the 2" laterals were pressured to 99 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 99 psi at 1046 AM/PM
Stop: 97 psi at 1101 AM/PM

[signature] 1-29-10
Wellfield Operator performing test — Date

Injection □ **Production** □
On _____ the 2" laterals were pressured to _____ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: _____ psi at _____ AM/PM
Stop: _____ psi at _____ AM/PM

_____ _____
Wellfield Operator performing test — Date

Crow Butte Resources

Pump Continuity

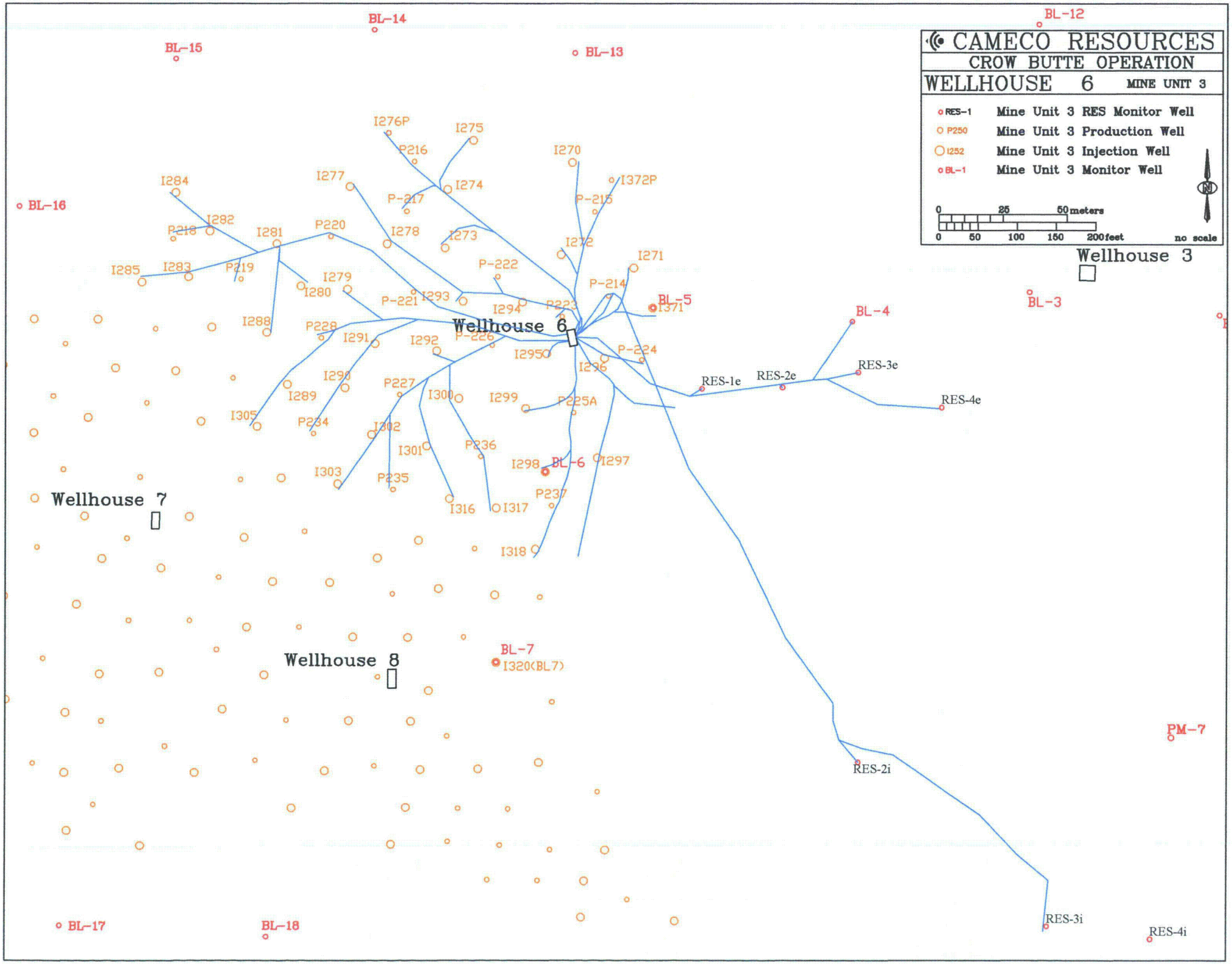
Wellhouse 6

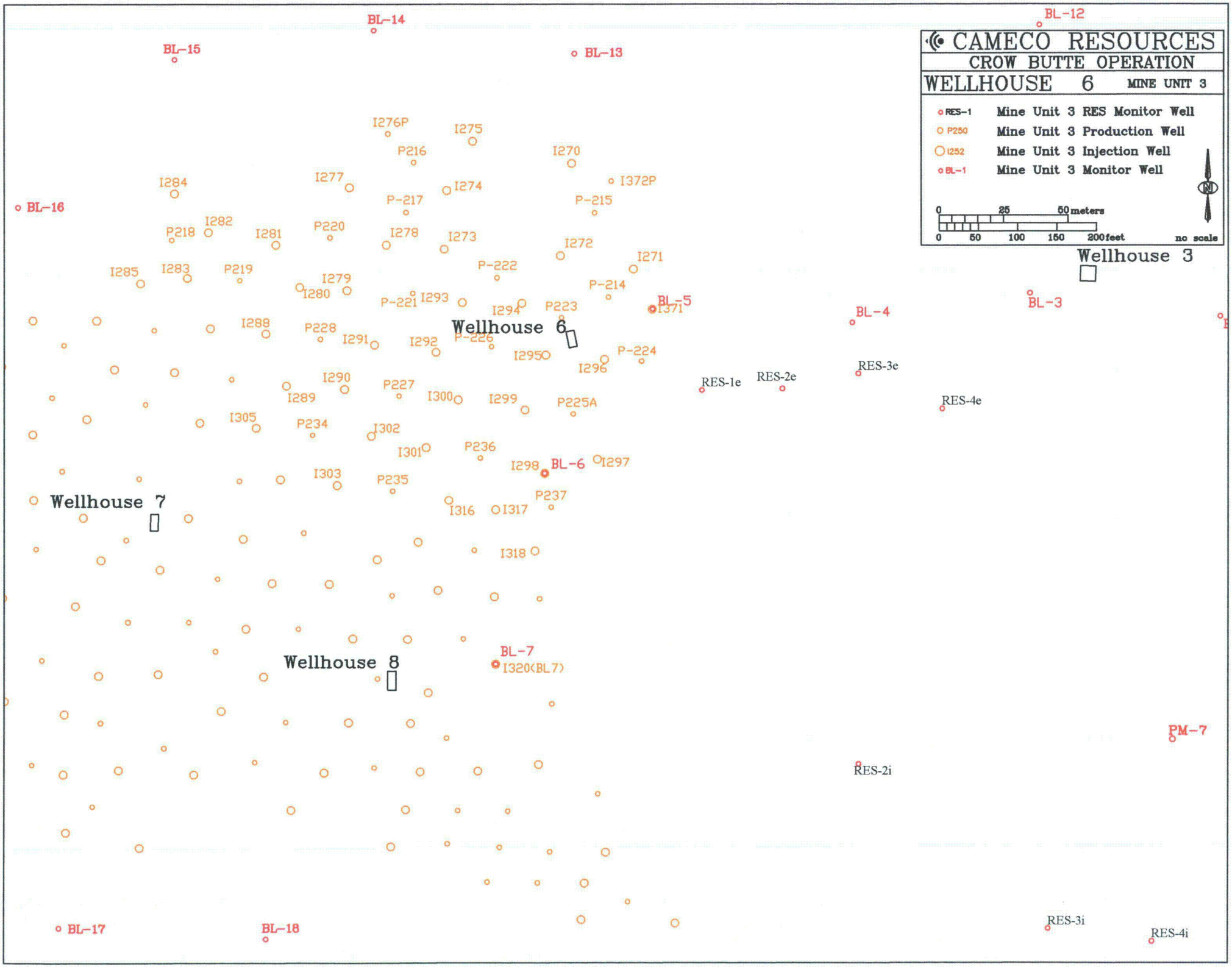
Date: 1-26-2010

Technician: Bob Tiensvold

Non-Service Lines Locked-Out: (Yes) No

Item #	Well #	Initial	Meter Reading	Comments
1	P		Ohms	
2	P Res 1 E		.7 Ohms	
3	P		Ohms	
4	P		Ohms	
5	P		Ohms	
6	P Res 2 E		.7 Ohms	
7	P		Ohms	
8	P Res 3 E		.9 Ohms	
9	P		Ohms	
10	P Res 4 E		1.4 Ohms	
11	P		Ohms	
12	P		Ohms	
13	P		Ohms	
14	P		Ohms	
15	P		Ohms	
16	P		Ohms	
17	P		Ohms	
18	P		Ohms	
19	P		Ohms	
20	P		Ohms	
21	P		Ohms	
22	P		Ohms	
23	P		Ohms	
24	P		Ohms	
25	P		Ohms	
26	P		Ohms	
27	P		Ohms	
28	P		Ohms	
29	P		Ohms	
30	P		Ohms	
			Ohms	
			Ohms	
			Ohms	
			Ohms	
			Ohms	
			Ohms	
			Ohms	
			Ohms	


CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 6 MINE UNIT 3
RES-1 Mine Unit 3 RES Monitor Well
P250 Mine Unit 3 Production Well
I252 Mine Unit 3 Injection Well
BL-1 Mine Unit 3 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
no scale
N
Wellhouse 3
Wellhouse 6
Wellhouse 7
Wellhouse 8
BL-12
BL-14
BL-15
BL-13
BL-16
BL-3
BL-4
BL-5
BL-6
BL-7
BL-17
BL-18
PM-7
I276P
I275
P216
I270
I277
I274
I372P
I284
P-217
P-215
I282
P218
I281
P220
I278
I273
I272
I271
I285
I283
P219
P-222
P-214
I279
I280
P-221
I293
I294
P223
I371
I288
P228
I291
I292
P-226
I295O
P-224
I296
I290
P227
I289
I300
I299
P225A
I305
P234
I302
I301
P236
I298
I297
I303
P235
P237
I316
I317
I318
I320(BL7)
RES-1e
RES-2e
RES-3e
RES-4e
RES-2i
RES-3i
RES-4i


CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 6 MINE UNIT 3
RES-1 Mine Unit 3 RES Monitor Well
P250 Mine Unit 3 Production Well
I252 Mine Unit 3 Injection Well
BL-1 Mine Unit 3 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
no scale
N
Wellhouse 3
Wellhouse 6
Wellhouse 7
Wellhouse 8
BL-12
BL-13
BL-14
BL-15
BL-16
BL-17
BL-18
BL-3
BL-4
BL-5
BL-6
BL-7
I320(BL7)
I276P
I275
P216
I270
I284
I277
I274
I372P
P-217
P-215
I282
P218
I281
P220
I278
I273
I272
I271
I285
I283
P219
I279
I280
P-222
P-214
P-221
I293
I294
P223
I371
I288
P228
I291
I292
P-226
I295
P-224
I296
I290
P227
I289
I300
I299
P225A
I305
P234
I302
I301
P236
I298
I297
I303
P235
P237
I316
I317
I318
RES-1e
RES-2e
RES-3e
RES-4e
RES-2i
RES-3i
RES-4i
PM-7

SERP 10-02 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-02

Wellhouse 53 Approval to Operate

February 5, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve operation of Wellhouse 53 in Mine Unit 10 at the Crow Butte Uranium Project.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	Mine Manager	Management
Larry Teahon	Manager of Health, Safety and Environmental Affairs	Environment
Doug Pavlick	Operations Manager	Operations
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Wade Beins	Senior Geologist	Well Construction
Dave Moody	Wellfield Superintendent	Wellfield Operations
Tate Hagman	Administrative Supervisor	Instrumentation

Dr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

SERP 10-02

Purpose of SERP Evaluation

The purpose of this evaluation by the CBR SERP was to review and approve Wellhouse 52 for operation.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Environmental, Health, and Safety Management System (EHSMS) Volume II, *Management Procedures*, EHS-6, *Managing Change*. The SERP reviewed the Wellhouse startup checklists and supporting documentation and evaluated this information as compared with the requirements of the licensing basis, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 24 dated October 21, 2009;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;

- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 24 to SUA-1534 dated October 21, 2009 was reviewed for specific requirements related to approval and operation of a wellhouse.

Mine Unit 10 was previously approved by a CBR SERP (see SERP 07-01 dated April 10, 2007). Therefore, no review of monitor well location, installation or baseline sampling and Upper Control Limit determination is required for approval of Wellhouse 53.

License Condition 10.2: This License Condition requires that CBR construct all wells in accordance with the methods contained in the Section 3.1.2 of the approved License Renewal Application (LRA). License Condition 10.2 also requires that CBR perform mechanical integrity tests (MIT) for all injection and production wells.

The well construction methods in use for Wellhouse 53 are the same as those described in the LRA and contained in EHSMS Volume III, *Operations Manual*, Procedure P-25, *Well Installation*. MITs were performed in accordance with EHSMS Volume III, *Operations Manual*, Procedure P-23, *Mechanical Integrity Test (MIT)*. All MIT data sheets were contained in the Notice of Intent to Operate Wellhouse 53 (or in the original Mine Unit 10 Notice of Intent) that was submitted to the NDEQ. These MIT data sheets were provided by the Senior Geologist and reviewed by the SERP. The records indicate that the MITs performed in Wellhouse 53 met the requirements.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 3.3 also discusses instrumentation, including wellhouse injection and production instrumentation and wet building alarms for wellhouses. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Wellhouse Start-up Checklist for Wellhouse 53. This checklist was developed by the Wellfield Construction staff to document completion of all required actions before initiating operations in a wellhouse. Some of these actions are required by regulatory and licensing requirements, while some were developed over the course of mining experience at Crow Butte. Construction activities are governed by EHSMS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place.
A copy of the Wellhouse Start-Up Checklist is attached to this SERP Evaluation. Supporting documentation in the form of pressure tests and ground continuity checks are also attached.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Well construction and testing as described in the EA has been completed for the wells associated with Wellhouse 53.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with Wellhouse 53 and found that they meet the intent of the EA.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 24 to SUA-1534 in the amount of $27,871,170.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety at Crow Butte and does not specifically address the issues related to approval of Wellhouse 53.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs

prepared since license renewal directly address issues related to approval of a new Wellhouse for operation.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined that safety commitments made in the LRA and discussed in the EA have been met and that startup of Wellhouse 53 in Mine Unit 10 will not degrade the safety and environmental commitments.

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of Wellhouse 53 in Mine Unit 10.

Approved this 5th day of February, 2010.

Jim Stokey, Mine Manager
SERP Chairman

Doug Pavlick, Operations Manager

Larry Teahon, Manager of Health, Safety and Environmental Affairs
SERP Secretary

Rhonda Grantham, Radiation Safety Officer

Bob Tiensvold, Maintenance Superintendent

Dave Moody, Wellfield Superintendent

Wade Beins, Senior Geologist

Tate Hagman, Administrative Supervisor

STATE OF NEBRASKA

Dave Heineman
Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

AUG 0 3 2009

Mr. Steve Collings
Crow Butte Resources, Inc.
141 Union Boulevard, Suite 330
Lakewood, Colorado 80228

Dear Mr. Collings:

On July 17, 2009 the Nebraska Department of Environmental Quality received a submittal of information from Crow Butte Resources, Inc. The submittal serves as a Notice of Intent to Operate and contains Well Completion Reports and Casing Integrity Test Reports for the wells in Mine Unit 10, Well House 53.

The Department has reviewed the information submitted and determined that it is adequate and complete. Upper Control Limits and Restoration Values established for Mine Unit 10 have already been submitted and approved. Approval of the wells for Well House 53 of Mine Unit 10 will not alter those values. The Department hereby approves the Notice of Intent to Operate the wells in Well House 53 in Mine Unit 10.

If you have any questions concerning this matter, please contact Jennifer Abrahamson of my staff at (402) 471-4290.

Sincerely,

Michael J. Linder
Director

ML/jla
word/CBR/letter/NOI_MU10_WH53.doc
Cc: Dave Carlson, NDEQ
Jim Stokey, CBR

Well House Start-Up Checklist

Well House # 53

Item	Description	Person	Comments	Date Completed	Initial
1	Permit To Operate	Beins/ Stokey		8-3-2009	WB
2	Complete Pressure Testing (Trunkline and House)	McDowell/Tiensvold/ Stokey		1-29-2010	KM
3	Pipelines checked for leaks	McDowell/Tiensvold/ Stokey		1-29-2010	KM
4	Pipelines buried	McDowell/Tiensvold/ Stokey		1-29-2010	KM
5	Pressure gauges manifolds	McDowell/Tiensvold/ Stokey		1-29-2010	KM
6	Injection lines equipped with totalizing flow meters	McDowell/Tiensvold/ Stokey		1-29-2010	KM
7	Injection and Production total flows can be measured	McDowell/Tiensvold/ Stokey		1-29-2010	KM
8	Unused trunkline locked out by two separate means	McDowell/Tiensvold/ Stokey		1-29-2010	KM
9	Isolation valves are closed and chained	McDowell/Tiensvold/ Stokey		1-29-2010	KM
10	Map of 2" lines in house	McDowell/Beins/Tiensvold/ Stokey		2-1-2010	KM
11	Well-field Layout map in house	McDowell/Beins/Tiensvold/ Stokey		2-1-2010	KM
12	Check berms	Teahon/Tiensvold/ Stokey		2/3/10	BT LT
13	Pressure check oxygen lines	Roberts/Tiensvold/ Stokey		2-1-10	KR
14	Continuity check on producers	Scoggan/Tiensvold/ Stokey		2-3-10	AA
15	Ground fault check	Scoggan/Tiensvold/ Stokey		2-3-10	AA
16	Communications wire check	Hagman/Tiensvold/ Stokey		2/3/10	BT
17	Heater size check	Scoggan/Tiensvold/ Stokey		2-3-10	AA
	ocessor installed well house	Hagman/Tiensvold/ Stokey		2/3/10	BT
19	UPS installed and operational	Scoggan/Tiensvold/ Stokey		2-3-10	AA
20	Wet house alarm installed	Scoggan/Tiensvold/ Stokey		2-3-10	AA
21	Wet house alarm checked	Scoggan/Tiensvold/ Stokey		2/3/10	BT
22	Oxygen solenoid checked	Hagman/Tiensvold/ Stokey		2/3/10	BT
23	Check fuses in control panel	Scoggan/Tiensvold/ Stokey		2-3-10	AA
24	Program MMI	Hagman/Tiensvold/ Stokey		2/3/10	BT
25	Program PLC	Hagman/Tiensvold/ Stokey		2/3/10	BT
26	Set Scalar Card 'K' Factors	K. Forbes/P. Dunn/Tiensvold/ Stokey		2-4-10	KF
27	Off tags and lockouts	K. Forbes/P. Dunn/Tiensvold/ Stokey		2-4-10	KF
28	Contaminated and uncontaminated cans	K. Forbes/P. Dunn/Tiensvold/ Stokey		2-4-10	KF
29	Complete 2" lateral inspection	McDowell/Tiensvold/ Stokey		2/3/10	BT
30	Visually inspect entire system to plant	McDowell/Tiensvold/ Stokey		1-29-2010	KM
31	Labels on Monitor Wells	McDowell/Tiensvold/ Stokey		1-29-2010	KM
32	Valve Station Covers and Stairs Built	Roberts/Tiensvold/ Stokey	N/A-Nave Needed	2/3/10	BT
33	Manifold Pressure Switches Installed	Scoggan/Tiensvold/ Stokey		2-3-10	AA
34	Injection Filter Installed	McDowell/Tiensvold/ Stokey		1-29-2010	KM
35	Filter instrumentation and gauges installed	McDowell/Tiensvold/ Stokey		2-1-2010	KM
36	Electric door lock installed	Scoggan/Tiensvold/ Stokey		2/3/10	BT
	pdate Daily Walk Through Inspection form EHS 4-1	Teahon/Tiensvold/ Stokey		2/5/10	LT

Crow Butte Resources

Pump Continuity

Wellhouse 53

Date: 1-22-10

Technician: Gabe Scoggan

Non-Service Lines Locked-Out: (Yes) No

Item #	Well #		Initial	Meter Reading		Comments
1	P	4008		1.0	Ohms	
2	P	4011		.8	Ohms	
3	P	4132		.7	Ohms	
4	P	4538		1.5	Ohms	
5	P	4541		.7	Ohms	
6	P	4542		.5	Ohms	
7	P	4546		.6	Ohms	
8	P	4547		.6	Ohms	
9	P	4548		.5	Ohms	
10	P	4636		1.5	Ohms	
11	P	4654		1.8	Ohms	
12	P	4657		1.9	Ohms	
13	P	4682		1.4	Ohms	
14	P	4684		1.7	Ohms	
15	P	4686		1.8	Ohms	
16	P	4703		1.1	Ohms	
17	P	4705		.9	Ohms	
18	P	4712		1.1	Ohms	
19	P	4723		.8	Ohms	
20	P	4730		1.9	Ohms	
21	P	4731		1.7	Ohms	
22	P	4732		1.2	Ohms	
23	P	4740		1.5	Ohms	
24	P	4749		.9	Ohms	
25	P	4752		1.0	Ohms	
26	P	4757		.8	Ohms	
27	P	4777		.9	Ohms	
28	P	4789		.4	Ohms	
29	P	4775			Ohms	NOT IN THIS HOUSE
30	P	4778			Ohms	NOT IN THIS HOUSE
					Ohms	
					Ohms	
					Ohms	
					Ohms	
					Ohms	
					Ohms	
					Ohms	
					Ohms	

Crow Butte Resources

Final Inspection of Piping Wellhead to Plant

Wellhouse: 53

Review of Pressure Test Data Complete: _____

Date: 1-27-2010

Mine Manager: _____

W.F.C. Foreman: Mark McDonald

Non-Service Lines Locked-Out: _____

Item #	Well #	Initialed by	Comments
1	P 4008	PS	
2	P 4011	PS	
3	P 4132	PS	
4	P 4538	PS	
5	P 4541	PS	
6	P 4542	PS	
7	P 4546	PS	
8	P 4547	PS	
9	P 4548	PS	
10	P 4636	PS	
11	P 4654	PS	
12	P 4657	PS	
13	P 4682	PS	
14	P 4684	PS	
15	P 4686	PS	
16	P 4703	PS	
17	P 4705	PS	
18	P 4712	PS	
19	P 4723	PS	

Item #	Well #	Initialed by	Comments
20	P 4730	PS	
21	P 4731	PS	
22	P 4732	PS	
23	P 4740	PS	
24	P 4749	PS	
25	P 4752	PS	
26	P 4757	PS	
27	P 4777	PS	
28	P 4789	PS	
29			
30			

Item #	Well #	Initialed by	Comments
1	I 4102	PS	~~Check~~ Replaced Gage
2	I 4130	PS	
3	I 4131	PS	
4	I 4170	PS	
5	I 4171	PS	
6	I 4539	PS	
7	I 4540	PS	
8	I 4543	PS	
9	I 4544	PS	
10	I 4584	PS	
11	I 4637	PS	
12	I 4646	PS	missing Plug Installed
13	I 4653	PS	
14	I 4656	PS	
15	I 4658	PS	
16	I 4660	PS	
17	I 4662	PS	
18	I 4674	PS	
19	I 4675	PS	

Item #	Well #	Initialed by	Comments
20	I 4679	PS	
21	I 4681	PS	
22	I 4683	PS	
23	I 4685	PS	
24	I 4697	PS	
25	I 4698	PS	
26	I 4699	PS	
27	I 4701	PS	
28	I 4702	PS	
29	I 4704	PS	
30	I 4706	PS	
31	I 4707	PS	
32	I 4708	PS	
33	I 4709	PS	
34	I 4711	PS	
35	I 4714	PS	
36	I 4719	PS	
37	I 4722	PS	
38	I 4724	PS	

Item #	Well #	Initialed by	Comments
39	I 4725	PS	
40	I 4726	PS	
41	I 4733	PS	
42	I 4734	PS	
43	I 4735	PS	
44	I 4745	PS	
45	I 4746	PS	
46	I 4747	PS	
47	I 4748	PS	
48	I 4753	PS	Gauge cracked — Replaced
49	I 4754	PS	
50	I 4756	PS	

CROW BUTTE RESOURCES, INC.
86 Crow Butte Road
P. O. Box 169 **(308) 665-2215**
Crawford, Nebraska 69339-0169 **(308) 665-2341 - FAX**

GROUND RESISTANCE TEST RECORD

TEST SET USED: AEMC Model 3711 Ground Resistance Tester

GROUND TEST RESULTS: Wellhouse 49
OHMS: 1/Total Resistance = 1/5.0 + 1/5.3 + 1/5.1
Total Resistance = 1.71 OHMS

CONCLUSIONS:

THE TEST RESULTS ARE SATISFACTORY

TEST PERFORMED BY:

CROW BUTTE RESOURCES, INC.

Bob Tiensvold Date: January, 26 2010

Well House Pressure Check Verification

Pressure check for Well House WH 53 Date: 1-29-2010

Injection:
On 1-27-2010 the injection lines and 2" laterals were pressured to _____psi. This was done using a centrifugal pump and potable water. The time interval was as follows:

Start: 125 psi at _____ AM / PM 30 minutes
Stop: 123 psi at _____ AM / PM

The section of trunk line checked was from valve station 12-53 to the well field in WH 53 KM.

Production:
On 1-26-2010 the production trunk lines and 2" laterals were pressured to 125 psi. This was done using a centrifugal pump and potable water. The pressure and time interval was as follows:

Start: 125 psi at _____ AM / PM 30 minutes
Stop: 124 psi at _____ AM / PM

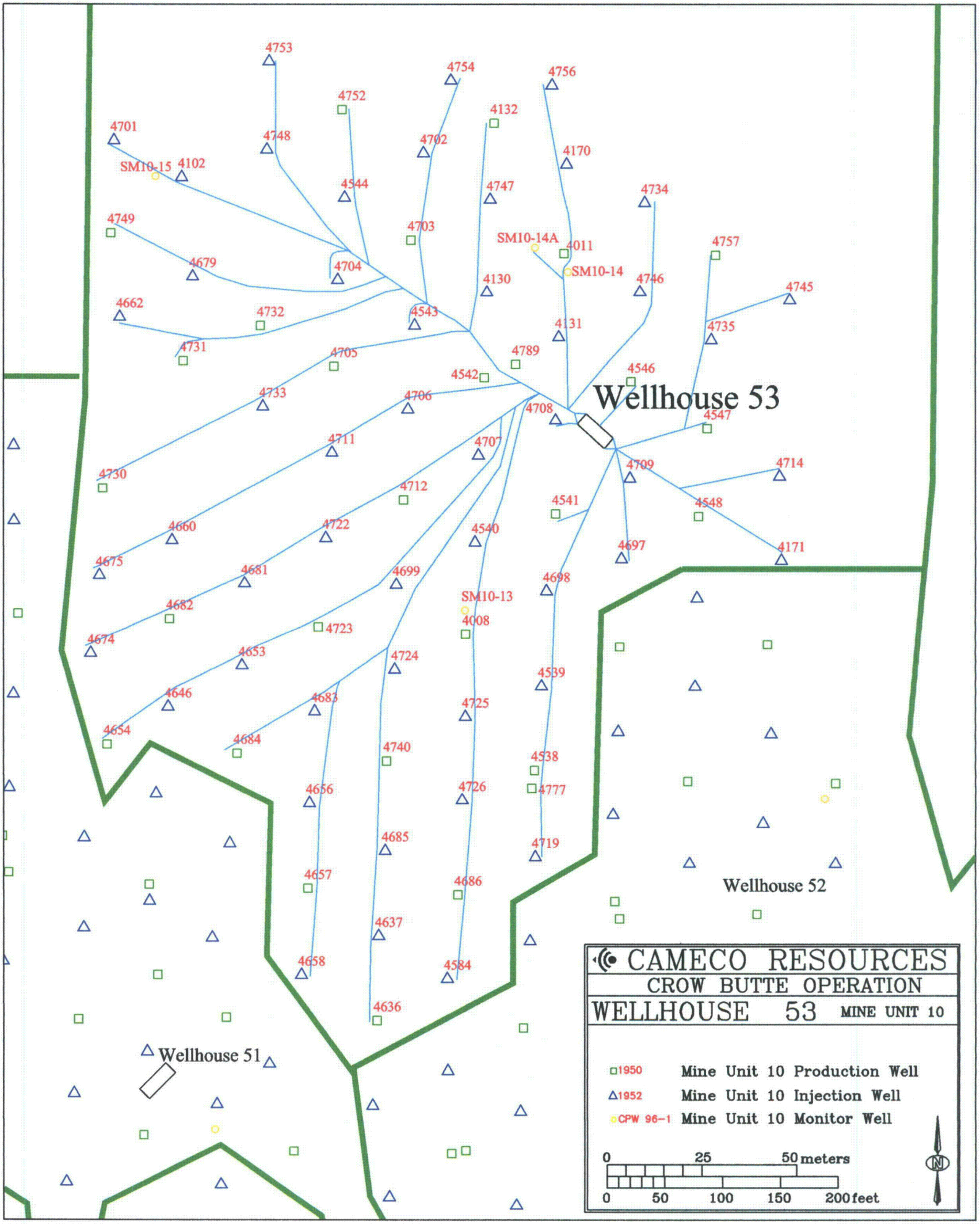
The section of trunk line was from valve station 13-53 to the well field in WH 53 KM.

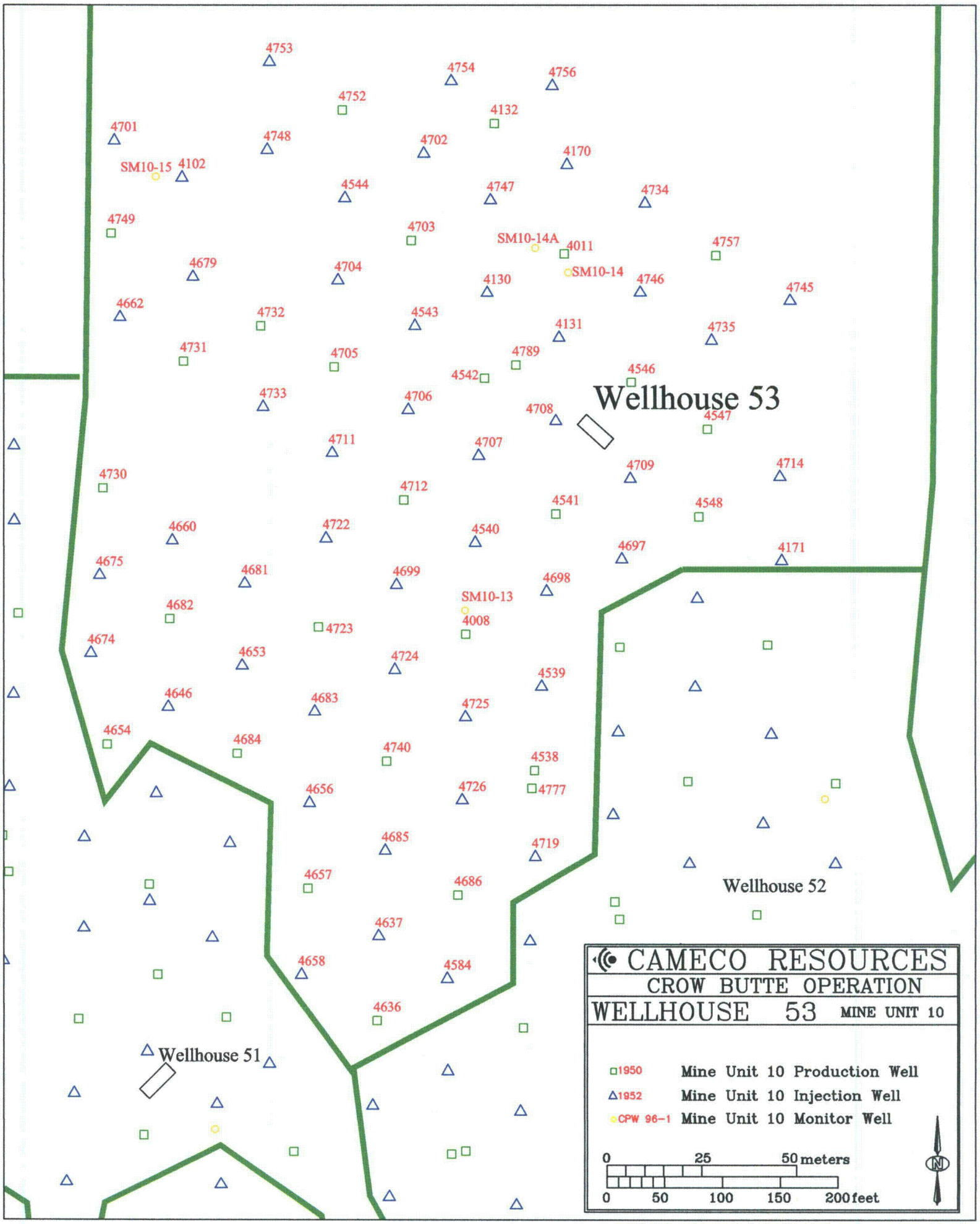
Oxygen:
On 2-1-10 the oxygen line was pressured to 125 psi. The pressure and time interval was as follows:

Start: ~~0~~ 125 psi at 08:00 AM / PM
Stop: 125 psi at 08:45 AM / PM

The section of trunk line checked was from valve station WH #52 to the well field in mine unit #10 to WH #53 MU #10

Bob [signature] WFC SUPERVISOR
Well Field Construction Foreman


4753
4754
4756
4752
4132
4701
4748
4702
4170
SM10-15
4102
4544
4747
4734
4749
4703
SM10-14A
4011
4757
4679
4704
SM10-14
4746
4745
4662
4732
4543
4130
4735
4731
4131
4705
4789
4546
4542
Wellhouse 53
4733
4706
4708
4547
4711
4707
4730
4709
4714
4712
4541
4548
4660
4722
4540
4697
4675
4681
4699
4698
4171
SM10-13
4682
4008
4723
4674
4724
4539
4653
4646
4683
4725
4654
4684
4740
4538
4656
4726
4777
4685
4719
4657
4686
4637
4658
4584
4636
Wellhouse 52
Wellhouse 51
CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 53 MINE UNIT 10
1950 Mine Unit 10 Production Well
1952 Mine Unit 10 Injection Well
CPW 96-1 Mine Unit 10 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
N


4753
4754
4756
4752
4132
4701
4748
4702
4170
SM10-15
4102
4544
4747
4734
4749
4703
SM10-14A
4011
4757
4679
4704
SM10-14
4130
4746
4745
4662
4732
4543
4131
4735
4731
4705
4789
4542
4546
Wellhouse 53
4733
4706
4708
4547
4711
4707
4709
4714
4730
4712
4541
4548
4660
4722
4540
4697
4171
4675
4681
4699
4698
SM10-13
4682
4008
4723
4674
4653
4724
4539
4646
4683
4725
4654
4684
4740
4538
4656
4726
4777
4685
4719
4657
4686
Wellhouse 52
4637
4658
4584
4636
Wellhouse 51
CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 53 MINE UNIT 10
1950 Mine Unit 10 Production Well
1952 Mine Unit 10 Injection Well
CPW 96-1 Mine Unit 10 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
N

SERP 10-03 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-03

Approval to Operate Additional Well in Wellhouse 6

February 23, 2010

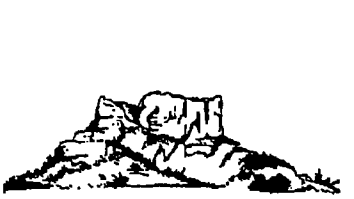
The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve in Mine Unit 3 the addition of one new well to Wellhouse 6.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	General Manager	Management
Doug Pavlick	Operations Manager	Operations
Larry Teahon	Manager of Health, Safety, and Environmental Affairs	Safety
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Wade Beins	Senior Geologist	Well Construction
Dave Moody	Wellfield Superintendent	Wellfield Operations
Steven Boeselager	Restoration Foreman	Restoration Operations

Mr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

Purpose of SERP Evaluation



SERP 10-03

The purpose of this evaluation by the CBR SERP was to review and approve the addition of one new well (RES-4I) in Wellhouse 6.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Environmental, Health, and Safety Management System (EHSMS) Volume II, *Management Procedures*, EHS-6, *Managing Change*. The SERP reviewed the licensing requirements, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 24 dated October 21, 2009;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;
- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;

- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 24 to SUA-1534 dated October 21, 2009 was reviewed for specific requirements related to approval and operation of additional wells.

Mine Unit 3 was previously approved by License Amendment #19 dated January 6, 1993. Therefore, no review of monitor well location, installation or baseline sampling and Upper Control Limit determination is required for this approval.

License Condition 10.2: This License Condition requires that CBR construct all wells in accordance with the methods contained in the Section 3.1.2 of the approved License Renewal Application (LRA). License Condition 10.2 also requires that CBR perform mechanical integrity tests (MIT) for all injection and production wells.

The well construction methods in use for Wellhouse 6 are the same as those described in the LRA and contained in EHSMS Volume III, *Operations Manual*, Procedure P-25, *Well Installation.* MIT's were performed in accordance with EHSMS Volume III, *Operations Manual*, Procedure P-23, *Mechanical Integrity Test (MIT).* The MIT data sheet was provided by the Senior Geologist and reviewed by the SERP. The records indicate that the MIT performed in Wellhouse 6 met the requirements.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 3.3 also discusses instrumentation, including wellhouse injection and production instrumentation and wet building alarms for wellhouses. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Final Inspection of Piping Wellhead to Plant and Pressure Testing sheets. These checklists were developed by the Wellfield Construction staff to document completion of all required actions before initiating operation of this well. Some of these actions are required by regulatory and licensing requirements, while some were developed over the course of mining experience at Crow Butte. Construction

activities are governed by EHSMS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place. A copy of the testing sheets is attached to this SERP Evaluation.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Well construction and testing as described in the EA has been completed for the wells associated with Wellhouse 6.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with Wellhouse 6 and found that it met the intent of the EA.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 24 to SUA-1534 in the amount of $27,871,170.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety at Crow Butte and does not specifically address the issues related to approval of startup of new wells.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs prepared since license renewal directly address issues related to approval of new wells for operation.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined

that safety commitments made in the LRA and discussed in the EA have been met and that startup of these wells will not degrade the safety and environmental commitments.

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of the new well in Wellhouse 6.

Approved this 23rd day of February, 2010.

Jim Stokey, General Manager
SERP Chairman

Larry Teahon, Manager of Health, Safety, and Environmental Affairs
SERP Secretary

Doug Pavlick
Operations Manager

Rhonda Grantham, Radiation Safety Officer

Bob Tiensvold, Maintenance Superintendent

Wade Beins, Senior Geologist

Dave Moody, Wellfield Superintendent

Steven Boeselager, Restoration Foremena

Well House Start-Up Checklist Res 4I

Well House # 6

Item	Description	Person	Comments	Date Completed	Initial
1	Permit To Operate	Beins / Stokey	Completed	12/17/09	WB
2	Complete Pressure Testing (Trunkline and House)	Boeselager / V.Stokey/V.Retzlaff / Stokey	Completed	2-23-10	
3	Pipelines checked for leaks	McDowell / Tiensvold / Stokey	Completed	2-23-10	
4	Pipelines buried	V.Stokey / Boeselager / Stokey	Completed	2-12-10	SB
5	Pressure gauges manifolds	V.Stokey / Boeselager / Stokey	Completed	1-4-10	SB
6	Injection lines equipped with totalizing flow meters	Retzlaff / V.Stokey / Stokey	Completed	2-12-10	VS
7	Injection and Production total flows can be measured	V.Stokey / Retzlaff / Stokey	Completed	2-12-10	VS
8	Unused trunkline locked out by two separate means	V.Stokey / Boeselager / Stokey	Unused laterals are OK isolation	1-18-10	SB
9	Isolation valves are closed and chained	McDowell / Tiensvold / Stokey	NA	NA	NA
10	Map of 2" lines in house	McDowell / Beins / Tiensvold / Stokey	Completed	2-22-10	SB
11	Well-field Layout map in house	McDowell / Beins / Tiensvold / Stokey	Completed	1-27-10	SB
12	Check berms	Nelson / Boeselager / Stokey	Completed	1-25-10	WN
13	Pressure check oxygen lines	Roberts / Tiensvold / Stokey	NA	NA	NA
14	Continuity check on producers	Scoggan / Tiensvold / Stokey	NA	NA	NA
15	Ground fault check	Scoggan / Tiensvold / Stokey	NA	NA	NA
16	Communications wire check	Hagman / Tiensvold / Stokey	Completed	1-18-10	TH
17	Heater size check	Scoggan / Tiensvold / Stokey	NA	NA	NA
18	Processor installed well house	Hagman / Tiensvold / Stokey	NA	NA	NA
19	UPS installed and operational	Scoggan / Tiensvold / Stokey	NA	NA	NA
20	Wet house alarm installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
21	Wet house alarm checked	Scoggan / Tiensvold / Stokey	NA	NA	NA
22	Oxygen solenoid checked	Hagman / Tiensvold / Stokey	NA	NA	NA
23	Check fuses in control panel	Scoggan / Tiensvold / Stokey	NA	NA	NA
24	Program MMI	Hagman / Tiensvold / Stokey	NA	NA	NA
25	Program PLC	Hagman / Tiensvold / Stokey	OK	1-18-10	TH
26	Set Scalar Card 'K' Factors	K. Forbes/P. Dunn / Boeselager / Stokey	Completed	1-26-10	SB
27	Off tags and lockouts	K. Forbes/P. Dunn / Boeselager / Stokey	completed	1-26-10	SB
28	Contaminated and uncontaminated cans	K. Forbes/P. Dunn / Tiensvold / Stokey	NA	NA	NA
29	Complete 2" lateral inspection	McDowell / Tiensvold / Stokey	Completed	2-12-10	
30	Visually inspect entire system to plant	McDowell / Tiensvold / Stokey	Completed	2-12-10	
31	Labels on Monitor Wells	Moody / Tiensvold / Stokey	Completed	1-25-10	
32	Valve Station Covers and Stairs Built	Roberts / Tiensvold / Stokey	NA	NA	NA
33	Manifold Pressure Switches Installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
34	Injection Filter Installed	McDowell / Tiensvold / Stokey	NA	NA	NA
35	Filter instrumentation and gauges installed	McDowell / Tiensvold / Stokey	NA	NA	NA
36	Electric door lock installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
37	Update Daily Walk Through Inspection form EHS 4-1	Teahon / Tiensvold / Stokey	NA	NA	NA

Item #	Well #	Initialed by	Comments
1	I		
2	I Res 2 I		
3	I Res 3 I		
4	I Res 4 I	[illegible]	Inspection Complete
5	I		
6	I		
7	I		
8	I		
9	I		
10	I		
11	I		
12	I		
13	I		
14	I		
15	I		
16	I		
17	I		
18	I		
19	I		

Item #	Well #	Initialed by	Comments
20	I		
21	I		
22	I		
23	I		
24	I		
25	I		
26	I		
27	I		
28	I		
29	I		
30	I		
31	I		
32	I		
33	I		
34	I		
35	I		
36	I		
37	I		
38	I		

Well House Pressure Check Verification

Pressure check for Well House 6. Date: 2-23-10

Injection ☒ Production ☐
On Res 4's the 2" laterals were pressured to 98 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 98 psi at 1457 AM/PM (PM circled)
Stop: 96 psi at 1512 AM/PM (PM circled)

_______________ Wellfield Operator performing test

2-23-10 Date

Injection ☐ Production ☐
On _______________ the 2" laterals were pressured to ___________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: ___________ psi at _______________ AM/PM
Stop: ___________ psi at _______________ AM/PM

_______________ Wellfield Operator performing test

_______________ Date

Injection ☐ Production ☐
On _______________ the 2" laterals were pressured to ___________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: ___________ psi at _______________ AM/PM
Stop: ___________ psi at _______________ AM/PM

_______________ Wellfield Operator performing test

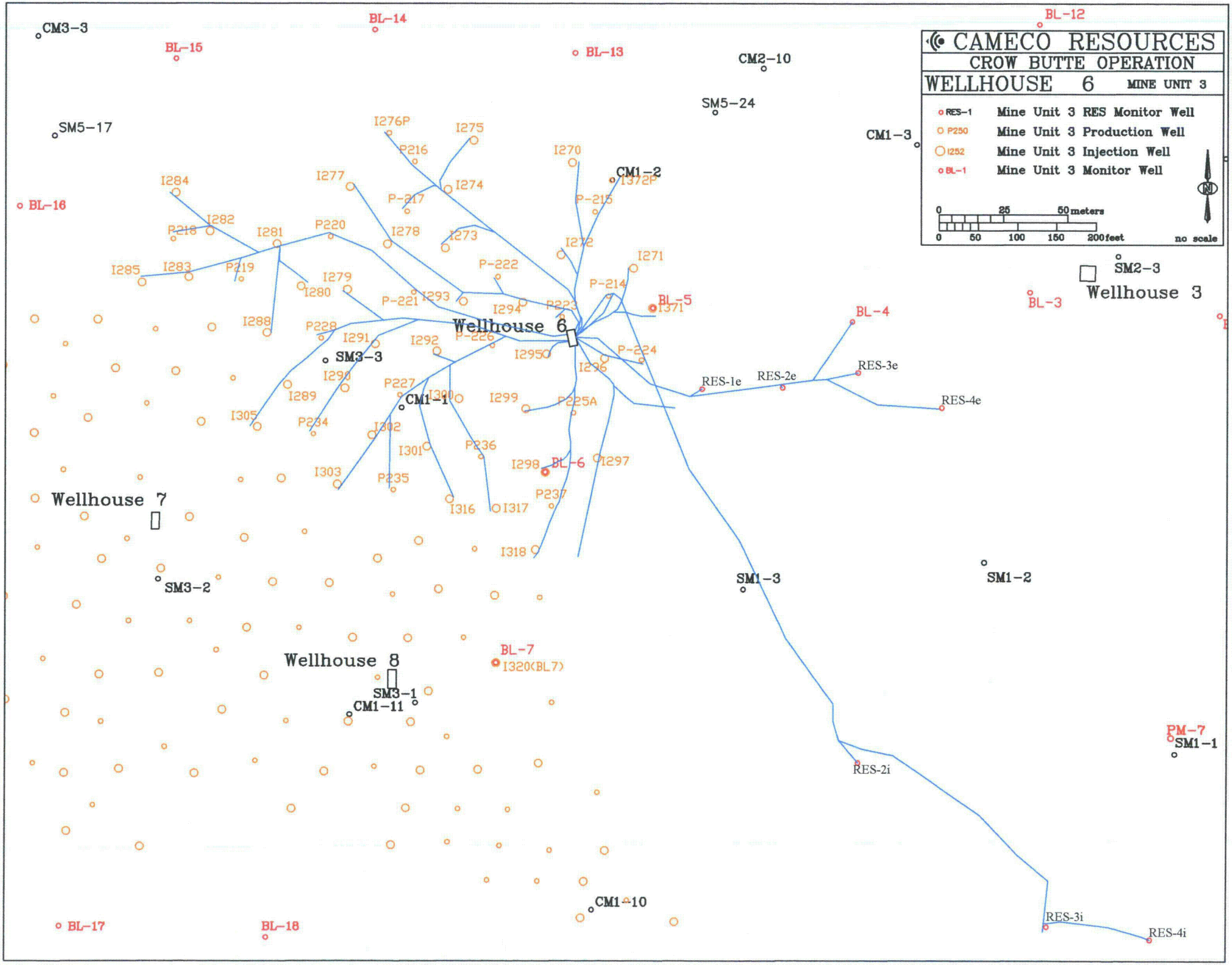
_______________ Date

Injection ☐ Production ☐
On _______________ the 2" laterals were pressured to ___________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: ___________ psi at _______________ AM/PM
Stop: ___________ psi at _______________ AM/PM

_______________ Wellfield Operator performing test

_______________ Date


CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 6 MINE UNIT 3
RES-1 Mine Unit 3 RES Monitor Well
P250 Mine Unit 3 Production Well
I252 Mine Unit 3 Injection Well
BL-1 Mine Unit 3 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
no scale
N
Wellhouse 6
Wellhouse 7
Wellhouse 8
Wellhouse 3
CM3-3
BL-14
BL-15
BL-13
BL-12
CM2-10
SM5-24
SM5-17
CM1-3
CM1-2
BL-16
SM2-3
BL-3
BL-4
BL-5
BL-6
BL-7
SM3-3
CM1-1
SM3-2
SM3-1
CM1-11
SM1-3
SM1-2
CM1-10
BL-17
BL-18
PM-7
SM1-1
RES-1e
RES-2e
RES-3e
RES-4e
RES-2i
RES-3i
RES-4i
I276P
I275
P216
I270
I277
I274
I372P
P-217
P-215
I284
I282
P218
I281
P220
I278
I273
I272
I271
I285
I283
P219
P-222
P-214
I279
I280
P-221
I293
I294
P223
I371
I288
P228
I291
I292
P-226
I295
P-224
I290
I296
I289
P227
I300
I299
P225A
I305
P234
I302
P236
I301
I298
I297
I303
P235
P237
I316
I317
I318
I320(BL7)

SERP 10-04 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-04

Approval to Operate Additional Well in Wellhouse 47

March 25, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve in Mine Unit 9 the addition of one new well to Wellhouse 47.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	General Manager	Management
Doug Pavlick	Operations Manager	Operations
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Wade Beins	Senior Geologist	Well Construction
Dave Moody	Wellfield Superintendent	Wellfield Operations
Steven Boeselager	Restoration Foreman	Restoration Operations

Mr. Stokey is the SERP Chairman. Ms. Grantham was appointed SERP Secretary for this evaluation.

Purpose of SERP Evaluation

The purpose of this evaluation by the CBR SERP was to review and approve the addition of one new well (5147) in Wellhouse 47.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Environmental, Health, and Safety Management System (EHSMS) Volume II, *Management Procedures*, EHS-6, *Managing Change*. The SERP reviewed the licensing requirements, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 24 dated October 21, 2009;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;
- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 24 to SUA-1534 dated October 21, 2009 was reviewed for specific requirements related to approval and operation of additional wells.

Mine Unit 9 was previously approved by SERP 03-05 dated October 22, 2003. Therefore, no review of monitor well location, installation or baseline sampling and Upper Control Limit determination is required for this approval. The start up of Wellhouse 47 was approved by SERP 06-06 dated December 1, 2006.

License Condition 10.2: This License Condition requires that CBR construct all wells in accordance with the methods contained in the Section 3.1.2 of the approved License Renewal Application (LRA). License Condition 10.2 also requires that CBR perform mechanical integrity tests (MIT) for all injection and production wells.

The well construction methods in use for Wellhouse 47 are the same as those described in the LRA and contained in EHSMS Volume III, *Operations Manual*, Procedure P-25, *Well Installation.* MIT's were performed in accordance with EHSMS Volume III, *Operations Manual*, Procedure P-23, *Mechanical Integrity Test (MIT).* The MIT data sheet was provided by the Senior Geologist and reviewed by the SERP. The records indicate that the MIT performed in Wellhouse 47 met the requirements.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 3.3 also discusses instrumentation, including wellhouse injection and production instrumentation and wet building alarms for wellhouses. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Final Inspection of Piping Wellhead to Plant and Pressure Testing sheets. These checklists were developed by the Wellfield Construction staff to document completion of all required actions before initiating operation of this well. Some of these actions are required by regulatory and licensing requirements, while some were developed over the course of mining experience at Crow Butte. Construction

activities are governed by EHSMS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place. A copy of the testing sheets is attached to this SERP Evaluation.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Well construction and testing as described in the EA has been completed for the wells associated with Wellhouse 47.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with Wellhouse 47 and found that it met the intent of the EA.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 24 to SUA-1534 in the amount of $27,871,170.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety at Crow Butte and does not specifically address the issues related to approval of startup of new wells.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs prepared since license renewal directly address issues related to approval of new wells for operation.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined

that safety commitments made in the LRA and discussed in the EA have been met and that startup of these wells will not degrade the safety and environmental commitments.

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of the new well in Wellhouse 47.

Approved this 25th day of March, 2010.

Jim Stokey, General Manager
SERP Chairman

Doug Pavlick
Operations Manager

Rhonda Grantham, Radiation Safety Officer
SERP Secretary

Bob Tiensvold, Maintenance Superintendent

Wade Beins, Senior Geologist

Dave Moody, Wellfield Superintendent

Steven Boeselager, Restoration Foremen

STATE OF NEBRASKA

Dave Heineman
Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

JUL 13 2009

Mr. Steve Collings
Crow Butte Resources, Inc.
141 Union Boulevard, Suite 330
Lakewood, Colorado 80228

Dear Mr. Collings:

On July 6, 2009 the Nebraska Department of Environmental Quality received a submittal of information from Crow Butte Resources, Inc. The submittal serves as a Notice of Intent to Operate and contains a Well Completion Report and a Casing Integrity Test Report for the recently installed well (5147) in Mine Unit 9, Well House 47.

The Department has reviewed the information submitted and determined that it is adequate and complete. Upper Control Limits and Restoration Values established for Mine Unit 9 have already been submitted and approved. Approval of the additional well in Well House 47 of Mine Unit 9 will not alter those values. The Department hereby approves the Notice of Intent to Operate the additional well in Mine Unit 9.

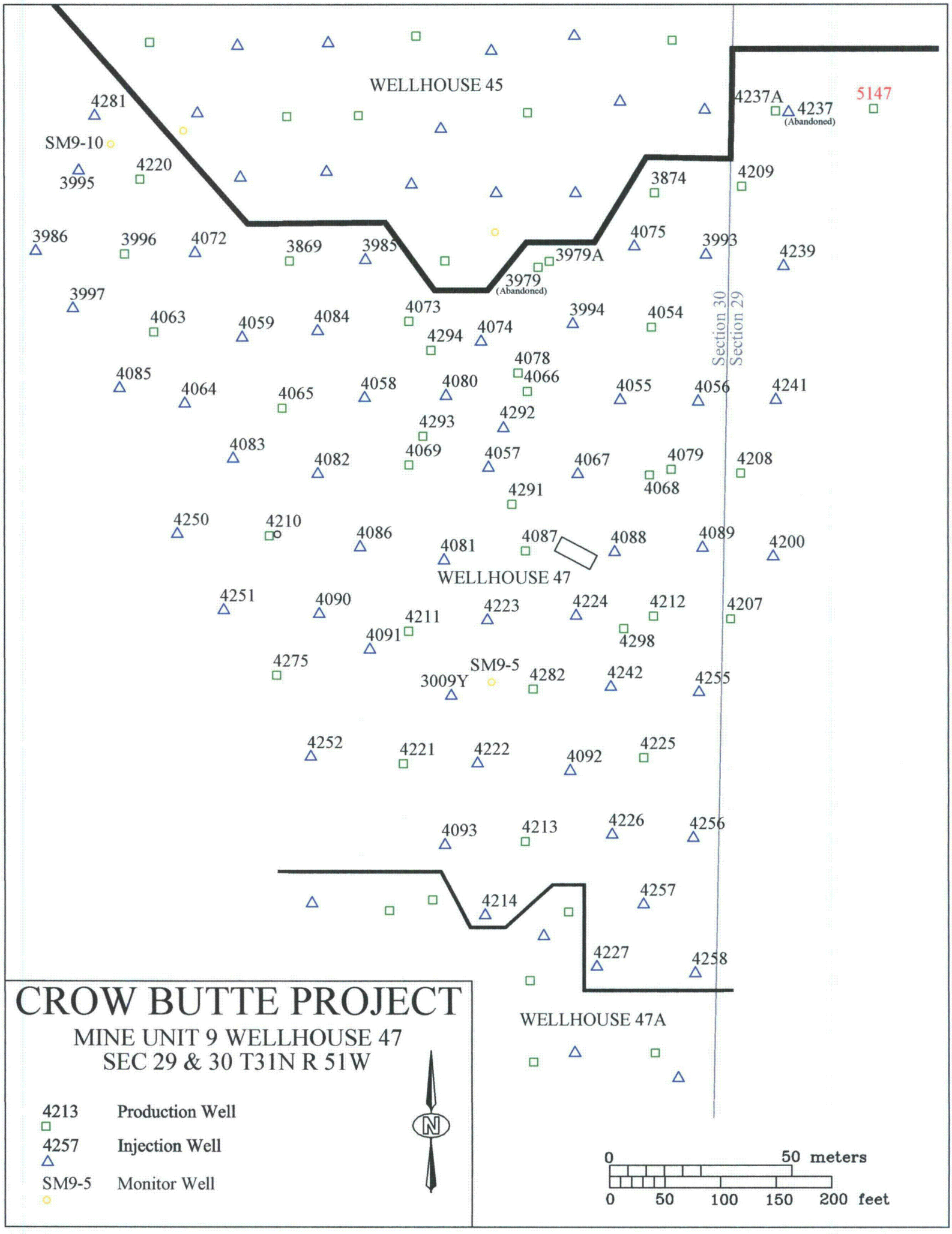
If you have any questions concerning this matter, please contact Jennifer Abrahamson of my staff at (402) 471-4290.

Sincerely,

Michael J. Linder
Director

ML/jla
word/CBR/letter/NOI_MU9_WH47_5147.doc

Cc: Dave Carlson, NDEQ
Jim Stokey, CBR


WELLHOUSE 45
4281
SM9-10
3995
4220
4237A
4237
(Abandoned)
5147
3874
4209
3986
3996
4072
3869
3985
3979A
4075
3993
4239
3979
(Abandoned)
3997
4063
4059
4084
4073
4294
4074
3994
4054
Section 30
Section 29
4078
4066
4085
4064
4065
4058
4080
4055
4056
4241
4292
4293
4083
4082
4069
4057
4067
4079
4208
4068
4291
4250
4210
4086
4081
4087
4088
4089
4200
WELLHOUSE 47
4251
4090
4211
4223
4224
4212
4207
4091
4298
4275
SM9-5
3009Y
4282
4242
4255
4252
4221
4222
4092
4225
4093
4213
4226
4256
4214
4257
4227
4258
WELLHOUSE 47A
CROW BUTTE PROJECT
MINE UNIT 9 WELLHOUSE 47
SEC 29 & 30 T31N R 51W
4213 Production Well
4257 Injection Well
SM9-5 Monitor Well
N
0 50 meters
0 50 100 150 200 feet

Crow Butte Resources

Final Inspection of Piping Wellhead to Plant

Wellhouse: 47

Review of Pressure Test Data Complete: [signature]

Date: 3-25-10

Mine Manager: [signature]

W.F.C. Foreman: [signature] - WPR SUPERVISOR

Non-Service Lines Locked-Out: N/A

Item #	Well #	Initialed by	Comments
1	5147	[signature]	O/C
2	P		
3	P		
4	P		
5	P		
6	P		
7	P		
8	P		
9	P		
10	P		
11	P		
12	P		
13	P		
14	P		
15	P		
16	P		
17	P		
18	P		
19	P		

Item #	Well #	Initialed by	Comments
20	P		
21	P		
22	P		
23	P		
24	P		
25	P		
26	P		
27	P		
28	P		
29	P		
30	P		

Crow Butte Resources

Pump Continuity

Wellhouse 47

Date: 3/25

Technician: Bob Tiensvold (BT)

Non-Service Lines Locked-Out: Yes No

Item #	Well #	Initial	Meter Reading		Comments
1	P5147	Pd	.48	Ohms	800' #10 347' #12
2	P 0			Ohms	Leads 2 Box 1.3
3	P			Ohms	Loop 2.4
4	P			Ohms	
5	P			Ohms	
6	P 0			Ohms	
7	P			Ohms	
8	P 0			Ohms	
9	P			Ohms	
10	P 0			Ohms	
11	P			Ohms	
12	P			Ohms	
13	P			Ohms	
14	P			Ohms	
15	P			Ohms	
16	P			Ohms	
17	P			Ohms	
18	P			Ohms	
19	P			Ohms	

Item #	Well #	Initial	Meter Reading		Comments
20	P			Ohms	
21	P			Ohms	
22	P			Ohms	
23	P			Ohms	
24	P			Ohms	
25	P			Ohms	
26	P			Ohms	
27	P			Ohms	
28	P			Ohms	
29	P			Ohms	
30	P			Ohms	
				Ohms	
				Ohms	
				Ohms	
				Ohms	
				Ohms	
				Ohms	
				Ohms	
				Ohms	

Well House Pressure Check Verification

Pressure check for Well House 47.   Date: 3/25/10

Injection ☐ Production ☒
On 5S147P the 2" laterals were pressured to 96 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 96 psi at 9:41 AM/PM
Stop: 95 psi at 9:56 AM/PM

Daniel Hruby   3/25/10
Wellfield Operator performing test   Date

Injection ☐ Production ☐
On ______________ the 2" laterals were pressured to __________psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: __________ psi at ______________ AM/PM
Stop: __________ psi at ______________ AM/PM

Wellfield Operator performing test   Date

Injection ☐ Production ☐
On ______________ the 2" laterals were pressured to __________psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: __________ psi at ______________ AM/PM
Stop: __________ psi at ______________ AM/PM

Wellfield Operator performing test   Date

Injection ☐ Production ☐
On ______________ the 2" laterals were pressured to __________psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: __________ psi at ______________ AM/PM
Stop: __________ psi at ______________ AM/PM

Wellfield Operator performing test   Date

Cameco

Task Complete [X]

Ready for Service [X]

Crow Butte Operation

Pulling Unit Work Order

WH # 47 Date: 3/24/10 Work Order # 2010-780

Well # I-5147P Operator(s): DH FH Work Completed: 3/24/2010

Wet End # 16-30-24 New [X] Used [ ] Top of Screen: ____ Ft.

Motor Hp: 3hp Hp New [X] Used [ ] Sleeve Location / Length: ____ Ft.

Volts: 480 v Phase: 3 ø Stinger / Motor Depth: 660' Pulled

Ground Continuity: To House 2.4 Ohms Wire Reel 1.3 Ohms Meter Leads .2 Ohms

Pull for MIT:	[ ]	Pull for Swab:	[ ]	Upgrade/Restart:	[ ]
Install after MIT:	[ ]	Swab:	[ ]	New Installation:	[ ]
Maintenance:	[X]	Install after Swab:	[ ]	Pressure Check:	[ ]

Wellhead Inspected:	[X]	Lateral Inspected:	[X]	Control Room Notified:	[X]
Bleed Valve Checked:	[X]	Tagged Out:	[ ]	Limits Are Set:	[X]
Splines:	[ ]	Lock Out Installed:	[X]	Added to Night List:	[X]
Meter Run Inspected:	[X]	Lock Out Removed:	[X]		

Description of Work Needed: Install well, Run New Lateral from P4209. hook up Both ends New 1" Parker hoses. Pressur check Lateral burried

Additional Information: ____

This Work is Complete:

Signed: DH

SERP 10-05 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-05

Commercial Pond Water Treatment Circuit

April 30, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve the start-up and operation of the Commercial Pond Water Treatment Circuit

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	General Manager	Management
Larry Teahon	SHEQ Manager	SHEQ Systems
Doug Pavlick	Operations Manager	Operations
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Tate Hagman	Administrative Supervisor	Instrumentation
Eric Brunk	Construction Manager	Engineering
Dave Bradfield	Project Engineer	Engineering

Mr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

Purpose of SERP Evaluation

The purpose of this evaluation by the CBR SERP was to review and approve the start up of the pond water treatment circuit. The circuit is being added to give the plant the

ability to treat and dispose of the water contained in the commercial evaporation ponds. The goal of treating the pond water is to empty the ponds. Also the circuit will be able to treat and dispose of the waste water from the yellowcake (YC) thickner overflow, which now flows into the evaporation ponds, should evaporation pond usage be minimized in the future.

The pond water treatment circuit utilizes filtration, pH adjustment using HCl, ion exchange (IX) with resin, elution of the resin with an HCl solution, followed by uranium recovery in the existing plant precipitation and yellowcake thickening circuit. The circuit effluent is an IX discharge stream with reduced U_3O_8 and vanadium (meeting the deep well disposal criteria), and a strong eluate stream rich in U_3O_8 that is processed through the existing plant precipitation circuit for U_3O_8 recovery. The pond water is filtered in a multimedia filter, with the captured sediment and algae being backwashed into the existing evaporation ponds.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Environmental, Health, and Safety Management System (EHSMS) Volume II, *Management Procedures*, EHS-6, *Managing Change*. The SERP reviewed the licensing requirements, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 25 dated April 20, 2010;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;
- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 25 to SUA-1534 dated April 20, 2010 was reviewed for specific requirements related to the addition of pumps, tanks, and associated piping.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. The pond water treatment circuit is a scaled down version of the existing main processing plant as described in section 3.5. Figure 3-7 was revised in the License Renewal Application dated November 2007, to include removal of the CO_2 tank, relocation of the H_2O_2 tank and the extension of the central processing plant over this area. The restricted area boundary has been moved to include this area.

Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Final Inspection of Piping to the Plant and Pressure Testing sheets. These checklists were developed by the Construction Manager to document completion of all required actions before initiating operation of this circuit. Some of these actions are required by regulatory and licensing requirements, while some were

developed over the course of mining experience at Crow Butte. Construction activities are governed by EHSMS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place. A copy of the testing sheets is attached to this SERP Evaluation.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by the NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with the pond water treatment circuit and found that it met the intent of the EA.

Section 3.6.1 discusses the gaseous effluents and air emissions. In the pond water treatment circuit, radon-222 is vented from the IX columns and process tanks into a manifold connected to the central processing plant exhaust system and emitted to the atmosphere outside the plant via an induced draft fan.

Section 3.6.2.3 discusses deep well disposal of fluids generated during operations via a Class I non-hazardous waste injection well installed to a total depth of about 1200 m (3925 ft). Currently, CBR is required, by license condition to operate its deep injection well in accordance with a Hydrogeologic Review and Engineering Design Report, submitted to the NRC on August 24, 1993, and subsequently modified. Fluids disposed of via the pond water treatment circuit are process fluids as described in section 3.6.2 and are currently being stored in the commercial evaporation ponds.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 25 to SUA-1534 in the amount of $28,902,051.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety. Section 5.0 requires that restricted areas be marked and access controlled to these areas. The SERP reviewed the addition to the building and found that the appropriate markings and controls were in place.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. The SERP reviewed the most recent dose modeling contained in Amendment #22 dated October 23, 2007, which discusses public and occupational health from increasing the throughput of the Plant from 5,000 GPM to 9,000 GPM. CBR used MILDOS-AREA, a dispersion model approved by the NRC, to estimate the dose commitments received by individuals and the general population from the proposed flow increase. A review of the MILDOS-AREA results indicated that all nearby residents would receive a dose of 25 millirem/year (mrem/yr) or less from the increased flow. The results indicated that the estimated dose to the nearest residence and members of the public is significantly below the 100-mrem/yr public dose limit specified in 10 CFR 20.1301.

The calculated release of Radon-222 from the pond water treatment circuit is .002 mrem/yr. The calculation was based on the following assumptions: Radon-222 is in secular equilibrium with Radium-226, a Radium-226 concentration of 750 pCi/l, and a flow of 45 GPM (170 lpm) operating 24 hours a day, 7 days a week for 365 days a year.

750 pCi/l x 170 lpm x 60 min/hr x 24 hr/d x 365 d/y x 1 e-12 Ci/pCi = 0.07 Ci/yr

Assuming that the release versus dose relationship is scalable, the dose resulting from an additional 0.07 Ci/yr release would be 0.002 mrem/yr, which is inconsequential.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application.

The SERP determined that safety commitments made in the LRA and discussed in the EA have been met and that startup of this circuit will not degrade the safety and environmental commitments.

CAMECO RESOURCES
CROW BUTTE OPERATION

SERP 10-05

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of the Commercial Pond Water Uranium Removal System.

Approved this 30th day of April, 2010.

Jim Stokey, General Manager
SERP Chairman

Larry Teahon, SHEQ Manager
SERP Secretary

Doug Pavlick, Operations Manager

Rhonda Grantham, Radiation Safety Officer

Bob Tiensvold, Maintenance Superintendent

Tate Hagman, Administrative Supervisor

Eric Brunk, Construction Manager

Dave Bradfield, Project Manager

SERP 10-06 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-06

Approval to Operate Additional Well in Wellhouse 47

May 17, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve in Mine Unit 9 the addition of one new well to Wellhouse 47.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	General Manager	Management
Larry Teahon	SHEQ Manager	Environmental
Doug Pavlick	Operations Manager	Operations
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Wade Beins	Senior Geologist	Well Construction
Dave Moody	Wellfield Superintendent	Wellfield Ops
Steven Boeselager	Restoration Foreman	Restoration Ops
Tate Hagman	Administrative Supervisor	Instrumentation

Mr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

Purpose of SERP Evaluation

The purpose of this evaluation by the CBR SERP was to review and approve the addition of one new well (4237A) in Wellhouse 47.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Environmental, Health, and Safety Management System (EHSMS) Volume II, *Management Procedures*, EHS-6, *Managing Change*. The SERP reviewed the licensing requirements, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 25 dated April 20, 2010
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;
- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;

- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 25 to SUA-1534 dated April 20, 2010 was reviewed for specific requirements related to approval and operation of additional wells.

Mine Unit 9 was previously approved by SERP 03-05 dated October 22, 2003. Therefore, no review of monitor well location, installation or baseline sampling and Upper Control Limit determination is required for this approval. The start up of Wellhouse 47 was approved by SERP 06-06 dated December 1, 2006.

License Condition 10.2: This License Condition requires that CBR construct all wells in accordance with the methods contained in the Section 3.1.2 of the approved License Renewal Application (LRA). License Condition 10.2 also requires that CBR perform mechanical integrity tests (MIT) for all injection and production wells.

The well construction methods in use for Wellhouse 47 are the same as those described in the LRA and contained in EHSMS Volume III, *Operations Manual*, Procedure P-25, *Well Installation.* MIT's were performed in accordance with EHSMS Volume III, *Operations Manual*, Procedure P-23, *Mechanical Integrity Test (MIT).* The MIT data sheet was provided by the Senior Geologist and reviewed by the SERP. The records indicate that the MIT performed in Wellhouse 47 met the requirements.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 3.3 also discusses instrumentation, including wellhouse injection and production instrumentation and wet building alarms for wellhouses. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Final Inspection of Piping Wellhead to Plant and Pressure Testing sheets. These checklists were developed by the Wellfield Construction staff to document completion of all required actions before initiating operation of this well. Some of these actions are required by regulatory and licensing requirements, while some

were developed over the course of mining experience at Crow Butte. Construction activities are governed by EHSMS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place. A copy of the testing sheets is attached to this SERP Evaluation.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Well construction and testing as described in the EA has been completed for the wells associated with Wellhouse 47.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with Wellhouse 47 and found that it met the intent of the EA.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 25 to SUA-1534 in the amount of $28,902,051.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety at Crow Butte and does not specifically address the issues related to approval of startup of new wells.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs prepared since license renewal directly address issues related to approval of new wells for operation.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined

that safety commitments made in the LRA and discussed in the EA have been met and that startup of these wells will not degrade the safety and environmental commitments.

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of the new well in Wellhouse 47.

Approved this 17th day of May, 2010.

Jim Stokey, General Manager
SERP Chairman

Larry Teahon, SHEQ Manager
SERP Secretary

Doug Pavlick, Operations Manager

Rhonda Grantham, Radiation Safety Officer

Bob Tiensvold, Maintenance Superintendent

Wade Beins, Senior Geologist

Dave Moody, Wellfield Superintendent

Steven Boeselager, Restoration Foremen

Tate Hagman, Administrative Supervisor

STATE OF NEBRASKA

Dave Heineman
Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

APR 0 5 2010

Mr. Tom Young
Crow Butte Resources, Inc.
141 Union Boulevard, Suite 330
Lakewood, Colorado 80228

Dear Mr. Young:

On March 24, 2010 the Nebraska Department of Environmental Quality received a submittal of information from Crow Butte Resources, Inc. The submittal serves as a Notice of Intent to Operate and contains a Well Completion Report and a Casing Integrity Test Report for the recently installed replacement well (4237A) in Mine Unit 9, Well House 47. This well replaces well number 4237, which has been abandoned.

The Department has reviewed the information submitted for well number 4237A and determined that it is adequate and complete. Upper Control Limits and Restoration Values established for Mine Unit 9 have already been submitted and approved. Approval of the replacement well in Well House 47 of Mine Unit 9 will not alter those values. The Department hereby approves the Notice of Intent to Operate the additional well in Mine Unit 9.

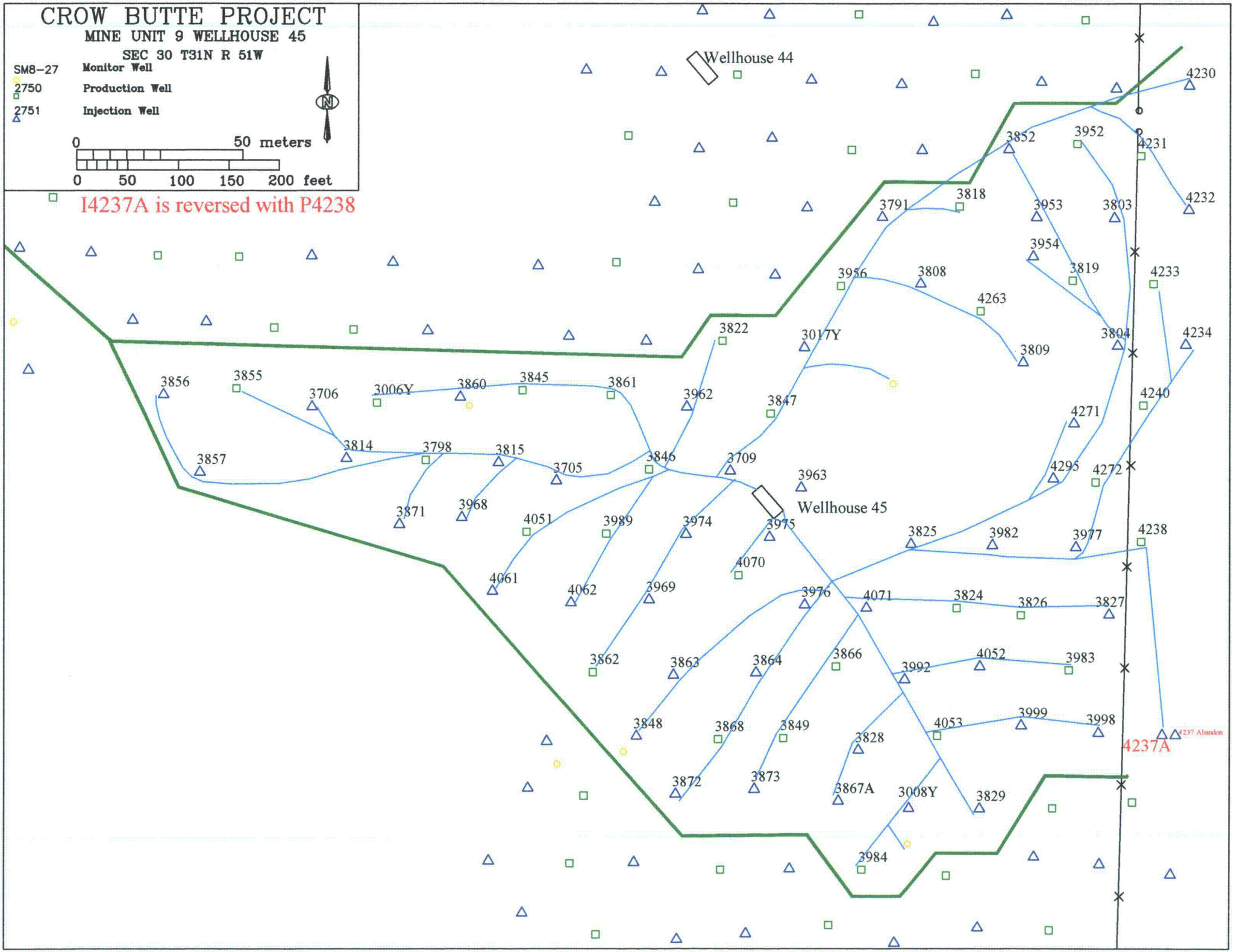
If you have any questions concerning this matter, please contact Jennifer Abrahamson of my staff at (402) 471-4290.

Sincerely,

Michael J. Linder
Director

ML/jla
word/CBR/letter/NOI_MU9_WH47_4237A.doc

Cc: Dave Carlson, NDEQ
Jim Stokey, CBR


CROW BUTTE PROJECT
MINE UNIT 9 WELLHOUSE 45
SEC 30 T31N R 51W
SM8-27 Monitor Well
2750 Production Well
2751 Injection Well
0 50 meters
0 50 100 150 200 feet
I4237A is reversed with P4238
Wellhouse 44
Wellhouse 45
4237A
4237 Abandon

Well House Start-Up Checklist

Well House # 45

P4237A via

Item	Description	Person	Comments	Date Completed	Initial
1	Permit To Operate	Beins / Stokey	Completed	4/5/10	DAM WB
2	Complete Pressure Testing (Trunkline and House)	McDowell / Tiensvold / Stokey	Completed	5/4/10	DH / DAM
3	Pipelines checked for leaks	McDowell / Tiensvold / Stokey	Completed	5/4/10	DAM
4	Pipelines buried from 4238	McDowell / Tiensvold / Stokey	Completed	4/23/2010	DAM
5	Pressure gauges manifolds	McDowell / Tiensvold / Stokey	OK	5/5/10	DAM
6	Injection lines equipped with totalizing flow meters	McDowell / Tiensvold / Stokey	NA Completed	NA	NA
7	Injection and Production total flows can be measured	McDowell / Tiensvold / Stokey	Completed	5/5/10	DAM(PD)
8	Unused trunkline locked out by two separate means	McDowell / Tiensvold / Stokey	NA	NA	NA
9	Isolation valves are closed and chained	McDowell / Tiensvold / Stokey	NA	NA	NA
10	Map of 2" lines in house 45 & 47	McDowell / Beins / Tiensvold / Stokey	OK	5/7/10	TJ
11	Well-field Layout map in house 45 & 47	McDowell / Beins / Tiensvold / Stokey	OK	5/7/10	TJ
12	Check berms	Teahon / Tiensvold / Stokey	OK	5/5/10	DAM
13	Pressure check oxygen lines	Roberts / Tiensvold / Stokey	NA	NA	NA
14	Continuity check on producers	Scoggan / Tiensvold / Stokey	1.9Ω	5/4/10	GS DA / DAM
15	Ground fault check	Scoggan / Tiensvold / Stokey	NA	NA	NA
16	Communications wire check	Hagman / Tiensvold / Stokey	NA	NA	NA
17	Heater size check 3HP Hi HD. LA	Scoggan / Tiensvold / Stokey	Done-Reset	5/5/10	RD
18	Processor installed well house	Hagman / Tiensvold / Stokey	NA	NA	NA
19	UPS installed and operational	Scoggan / Tiensvold / Stokey	NA	NA	NA
20	Wet house alarm installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
21	Wet house alarm checked	Scoggan / Tiensvold / Stokey	NA	NA	NA
22	Oxygen solenoid checked	Hagman / Tiensvold / Stokey	NA	NA	NA
23	Check fuses in control panel	Scoggan / Tiensvold / Stokey	NA	NA	NA
24	Program MMI	Hagman / Tiensvold / Stokey	NA	NA	NA
25	Program PLC IN AS "I4237"	Hagman / Tiensvold / Stokey	NA	NA	NA
26	Set Scalar Card 'K' Factors	K. Forbes/P. Dunn / Tiensvold / Stokey	N.C	N.C	N.C
27	Off tags and lockouts	K. Forbes/P. Dunn / Tiensvold / Stokey	OK IN PLACE	5/5/10	DAM
28	Contaminated and uncontaminated cans	K. Forbes/P. Dunn / Tiensvold / Stokey	NA	NA	NA
29	Complete 2nd lateral inspection	McDowell / Tiensvold / Stokey	OK	5/5/10	DAM
30	Visually inspect entire system to plant	McDowell / Tiensvold / Stokey	OK	5/5/10	DAM
31	Labels on Monitor Wells	McDowell / Tiensvold / Stokey	Completed-well	4/30/10	DAM
32	Valve Station Covers and Stairs Built	Roberts / Tiensvold / Stokey	NA	NA	NA
33	Manifold Pressure Switches Installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
34	Injection Filter Installed	McDowell / Tiensvold / Stokey	NA	NA	NA
35	Filter instrumentation and gauges installed	McDowell / Tiensvold / Stokey	NA	NA	NA
36	Electric door lock installed	Scoggan / Tiensvold / Stokey	NA	NA	NA
37	Update Daily Walk Through Inspection form EHS 4-1	Teahon / Tiensvold / Stokey	NA	NA	NA

Crow Butte Resources

Date: 5-17-2010

Final Inspection of Piping Wellhead to Plant

Mine Manager: _____

Wellhouse: 45

W.F.C. Foreman: [signature]

Review of Pressure Test Data Complete: 1/06

Non-Service Lines Locked-Out: _____

Item #	Well #	Initialed by	Comments
1	P P4237A	[signature]	LINE OPERATIONAL
2	P #REF!		
3	P #REF!		
4	P #REF!		
5	P #REF!		
6	P #REF!		
7	P #REF!		
8	P #REF!		
9	P #REF!		
10	P #REF!		
11	P #REF!		
12	P #REF!		
13	P #REF!		
14	P #REF!		
15	P #REF!		
16	P #REF!		
17	P #REF!		
18	P #REF!		
19	P #REF!		

Item #	Well #	Initialed by	Comments
20	P #REF!		
21	P #REF!		
22	P #REF!		
23	P #REF!		
24	P #REF!		
25	P #REF!		
26	P #REF!		
27	P #REF!		
28	P #REF!		
29	P #REF!		
30	P #REF!		

Crow Butte Resources

Pump Continuity

Wellhouse 0

Date: _____

Technician: Bob Tiensvold

Non-Service Lines Locked-Out: Yes No

Item #	Well #	Initial	Meter Reading		Comments
1	P P4237A		Ohms		
2	P #REF!		Ohms		
3	P #REF!		Ohms		
4	P #REF!		Ohms		
5	P #REF!		Ohms		
6	P #REF!		Ohms		
7	P #REF!		Ohms		
8	P #REF!		Ohms		
9	P #REF!		Ohms		
10	P #REF!		Ohms		
11	P #REF!		Ohms		
12	P #REF!		Ohms		
13	P #REF!		Ohms		
14	P #REF!		Ohms		
15	P #REF!		Ohms		
16	P #REF!		Ohms		
17	P #REF!		Ohms		
18	P #REF!		Ohms		
19	P #REF!		Ohms		

Item #	Well #	Initial	Meter Reading		Comments
20	P #REF!		Ohms		
21	P #REF!		Ohms		
22	P #REF!		Ohms		
23	P #REF!		Ohms		
24	P #REF!		Ohms		
25	P #REF!		Ohms		
26	P #REF!		Ohms		
27	P #REF!		Ohms		
28	P #REF!		Ohms		
29	P #REF!		Ohms		
30	P #REF!		Ohms		
			Ohms		
			Ohms		
			Ohms		
			Ohms		
			Ohms		
			Ohms		
			Ohms		

Well House Pressure Check Verification

Pressure check for Well House 45

Date: 5/4/10

Injection ☐ Production ☒

On 14237PA the 2" laterals were pressured to 98 psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: 98 psi at 1302 AM/PM

Stop: 94 psi at 1318 AM/PM

Daniel Hruby — Wellfield Operator performing test

5/4/10 — Date

Injection ☐ Production ☐

On ______________ the 2" laterals were pressured to __________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: __________ psi at ______________ AM/PM

Stop: __________ psi at ______________ AM/PM

______________________ Wellfield Operator performing test

______________ Date

Injection ☐ Production ☐

On ______________ the 2" laterals were pressured to __________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: __________ psi at ______________ AM/PM

Stop: __________ psi at ______________ AM/PM

______________________ Wellfield Operator performing test

______________ Date

Injection ☐ Production ☐

On ______________ the 2" laterals were pressured to __________ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: __________ psi at ______________ AM/PM

Stop: __________ psi at ______________ AM/PM

______________________ Wellfield Operator performing test

______________ Date

P1189 I 94 10:40
wh 20 92 1057

I 4237 PA 5/4/10
98 1302
94 1318

This was done was as follows:

5/4/2010
1.9 ground

This was done was as follows:

This was done was as follows:

_____ AM/PM

_____ _____
Wellfield Operator performing test Date

Injection □ Production □
On _____ the 2" laterals were pressured to _____ psi. This was done using injection manifold pressure and injection water. The time interval was as follows:

Start: _____ psi at _____ AM/PM
Stop: _____ psi at _____ AM/PM

_____ _____
Wellfield Operator performing test Date

Nebraska Department of Environmental Quality

Casing Integrity Test Report

Company: CBR Permit No: NE0122611

Project: Crowbutte Well No: 4237A

Casing Type: White Certalok Diameter: 4½"

Hole Depth: 770' Casing Depth: 749'

Screened Interval(s): 707-733

Depth to K-Packer: 698 Depth to Test Packer(s) Top - Ground Level

Comments: New Well Bottom - 688

Well replaces 4237

TIME	ELAPSED TIME (Min)	PRESSURE (PSIG)
12:20	0	125
12:25	5	122
12:30	10	119
12:35	15	115
12:40	20	113

Test Performed By: Rich Dunn

Date: 3-22-10

Calibration Performed By: RJ

Date: 3-22-10

CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this application and all attachments and that, based on inquiry of those individuals immediately responsible for obtaining information, I believe that the information is true, accurate, and complete. Further, I certify awareness that there are significant penalties for submitting false information, including the possibility of a fine and imprisonment.

By Wade Beins — Senior Geologist
PRINTED NAME OF PERSON SIGNING — TITLE

By Wade Beins — 3-22-2010
SIGNATURE — DATE

Serp JAN 6 2006

Well House Start-Up Checklist

Well House # 45

Item	Description	Person	Comments	Date Completed	Initial
1	**Permit To Operate**	Brost / Stokey	Stokey	12/29	
2	Complete Pressure Testing (Trunkline and House)	McDowell / Stokey		11-15	
3	Pipelines checked for leaks	McDowell / Stokey		11-15	
4	Pipelines buried	McDowell / Stokey		11-15	
5	Pressure gauge on injection manifold	R. Roberts / Stokey		11-15	
6	Injection lines equipped with totalizing flow meters	R. Roberts / Stokey		12-22	JD
7	Injection and Production total flows can be measured	B. Pile/H. Douthit / Stokey		12/22	
8	Unused trunkline locked out by two separate means	McDowell / Stokey		11-15	
9	Isolation valves are closed and chained	McDowell / Stokey		11-15	
10	Map of 2" lines	McDowell/Beins / Stokey		12.22	
11	Well-field Layout map in house	McDowell/Beins / Stokey		12-22	
12	Check berms	Griffin / Stokey		1/4/06	
13	Pressure check oxygen lines	McDowell / Stokey		~~11/4/05~~	
14	Continuity check on producers	B. Tiensvold / Stokey		11/4/05	
15	Ground fault check	REA/B. Tiensvold / Stokey		11/11/05	
16	Communications wire check	B. Tiensvold / Stokey		12/22/05	
17	Heater size check	B. Tiensvold / Stokey		11/11/05	
18	Processor installed well house	B. Pile/H. Douthit / Stokey		11/11/05	
19	UPS installed and operational	B. Pile/H. Douthit / Stokey		11/11/05	
20	Wet house alarm installed	B. Tiensvold / Stokey		11/11/05	
21	Wet house alarm checked	P. Dunn/J. Douthit / Stokey		12/27/05	
22	Oxygen solenoid checked	P. Dunn/J. Douthit / Stokey		12/29/05	
23	Check fuses in control panel	B. Tiensvold / Stokey		11/11/05	
24	Program MMI	B. Pile / Stokey		12/22/05	
25	Program PLC	B. Pile / Stokey		12/22/05	
26	Switch on for alarming	P. Dunn/J. Douthit / Stokey		12-22-05	JD
27	Set Scalar Card 'K' Factors	P. Dunn/J. Douthit / Stokey		1-3-06	JD
28	Fire extinguisher w/placard	McDowell / Stokey	N/A	11-15-05	
29	Off tags and lockouts	B. Tiensvold/Dunn/Douthit / Stokey	REMOVED LOCKOUTS	1-3-06 11/10/05	BT JD
30	Contaminated and uncontaminated cans	P. Dunn/J. Douthit / Stokey		11-2-05	JD
31	Complete 2" lateral inspection	McDowell / Stokey	14	~~12-28~~	
32	Visually inspect entire system to plant	McDowell / Stokey		12.22	
33	Labels on Monitor Wells	McDowell / Stokey		12.22	
34	O2 Pressure Check			12-27	R.R.
35	Backfill House			12-22	R.R.
36	Pit Lid			12-27	R.R.
37					

SERP 10-07 Evaluation

CROW BUTTE RESOURCES, INC.

SAFETY AND ENVIRONMENTAL REVIEW PANEL

Evaluation Report – SERP 10-07

Proposed Revisions to the Approved License Renewal Application

May 20, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met in accordance with USNRC Source Materials License SUA-1534 to review proposed changes to the License Renewal Application. This change is recommended to reflect a recent organizational change that indirectly affects the radiation safety department.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	Mine Manager	Management
Larry Teahon	Manager of SHEQ	Environmental
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Doug Pavlick	Operations Manager	Operations

Dr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

PURPOSE OF SERP EVALUATION

The purpose of the SERP evaluation was to review a change made to the corporate organizational structure. Specifically, to remove the position of Director, Compliance and Licensing, and add the position of Director, Safety, Health, Environment and Quality and to re-name the Manager of Safety, Health and Environmental Affairs position to Manager of Safety, Health, Environment and Quality.

An organizational change has been made that indirectly affects the reporting responsibilities of the radiation safety staff. The reporting for the Manager of Safety, Health, Environment and Quality has been changed as shown in the revised Figure 5.1-1 from the approved application. The SHEQ Manager now reports directly to the Director, Safety, Health, Environment and Quality who reports directly to the President. The new position of Director, Safety, Health, Environment and Quality has been added to the organizational structure. This position reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety and environmental protection programs as stated in the EHS Management System. Since the RSO reports to the Manager of Safety, Health, Environment and Quality who in turn reports to the Director, Safety, Health, Environment and Quality, a change in the reporting for the Manager of Safety, Health, Environment and Quality and the removal of the Director, Compliance and Licensing position, will indirectly affect the radiation safety staff reporting.

AUTHORITY OF SERP

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

SERP EVALUATION

The SERP evaluation was conducted in accordance with EHSMS Volume II, *Management Procedures Manual;* Chapter 6, *Managing Change.* The SERP reviewed the proposed change and evaluated this information as compared with the requirements of the licensing basis, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 25 dated April 20, 2010;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;
- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed changes to the LRA will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

The SERP reviewed the requirements contained in Source Materials License SUA-1534, Amendment 25, dated April 20, 2010. The proposed changes will have no impact on CBR's ability to meet NRC License Conditions.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change caused substantive safety or environmental impacts. The proposed changes to the LRA do not conflict with the EA.

Financial Surety

The proposed changes to the LRA will have no effect on the level of financial surety maintained by CBR.

Safety Evaluation Report

The Safety Evaluation Report (SER) prepared by NRC in 1998 principally provides the basis for worker safety at Crow Butte. The proposed change applies to the following sections of the SER:

Section 3.1, Organization, discusses the relationships of the organizational components responsible for operations, radiation safety, and environmental protection at the Crow Butte site. The proposed change does not alter the organizational position of the RSO, in accordance with organizational changes previously approved by the CBR SERP. Therefore, there is no change to the intent of Section 3.1 of the SER.

Based on this review, the proposed changes to the LRA will have no impact on CBR's ability to continue to meet the commitments cited in the SER.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs prepared since license renewal directly address the issues related to the proposed revisions to the LRA.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined that safety commitments made in the LRA and discussed in the EA and the SER are not affected by the proposed changes to the LRA and will not degrade the safety and environmental commitments.

Conclusion

It was the conclusion of the SERP that the proposed change is allowed by License SUA-1534 and should be approved. The revised pages of the license application required in accordance with License Condition 9.4 were reviewed and approved and are attached to this evaluation.

Approved this 20th day of May 2010:

CROW BUTTE RESOURCES, INC.

SERP #10-07

Jim Stokey, General Manager
SERP Chairman

Larry Teahon, Manager of Safety, Health, Environment and Quality
SERP Secretary

Rhonda Grantham, Radiation Safety Officer

Doug Pavlick, Operations Manager

Proposed License Renewal Application
Page Changes

(Edited Version)

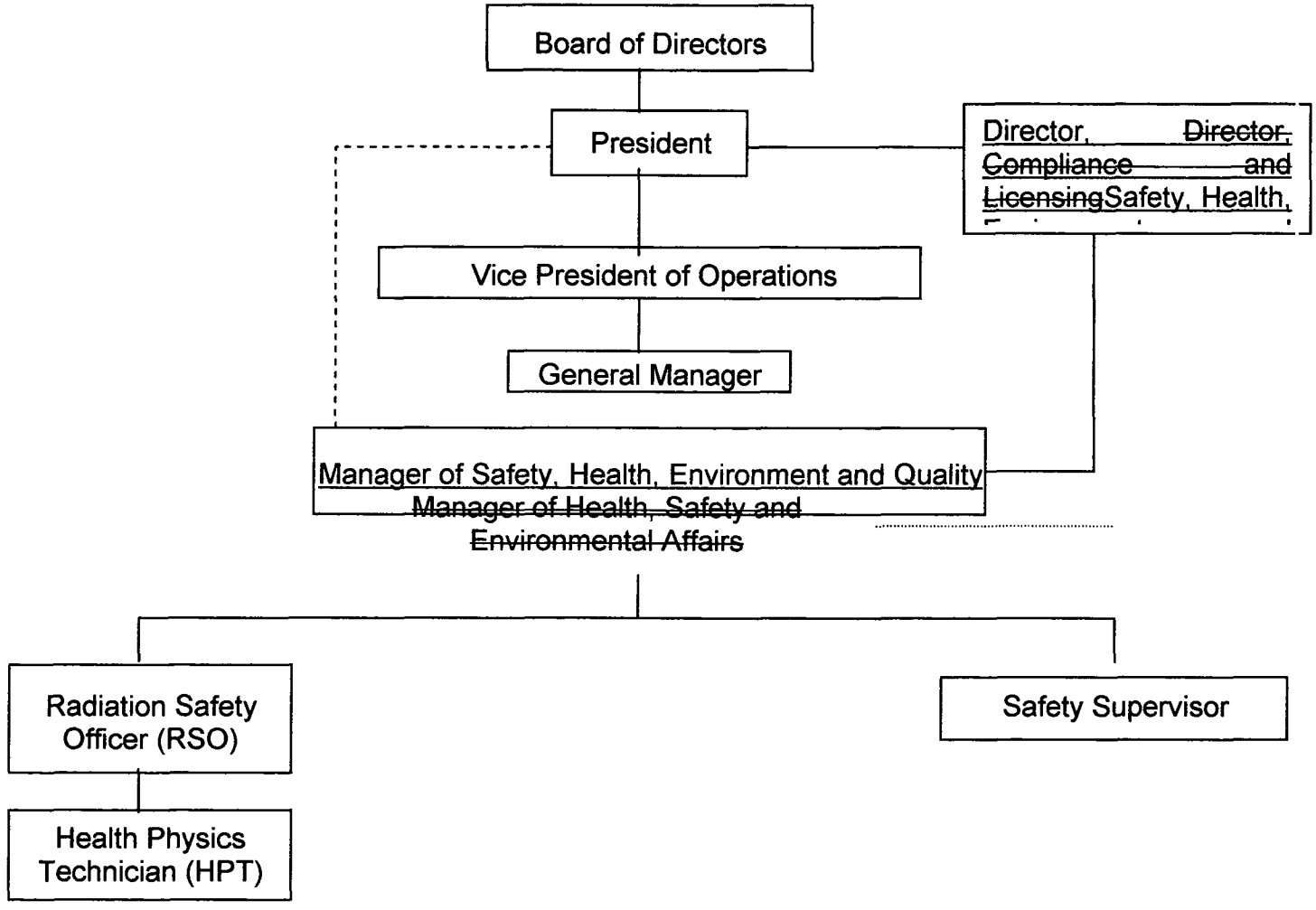
5.1.2. PRESIDENT

The President is responsible for interpreting and acting upon the Board of Directors policy and procedural decisions. The President directly supervises the~~—~~ Vice President of Operations~~—and~~ and Director, ~~—~~Safety, Health, Environment and Quality.~~Director, Compliance and Licensing.~~ The President is empowered by the Board of Directors to have the responsibility and authority for the radiation safety and environmental compliance programs. The President is responsible for ensuring that the operations staff is complying with all applicable regulations and permit/license conditions through direct supervision of the Vice President of Operations~~—and~~ and Director, Safety, Health, Environment and Quality.~~.~~

5.1.3. VICE PRESIDENT OF OPERATIONS

The Vice President of Operations reports to the President and is directly responsible for ensuring that CBR personnel comply with industrial safety, radiation safety, and environmental protection programs as established in the EMS Program. The Vice President of Operations is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Vice President of Operations has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of ~~Manager Safety, Health, and Environmental Affairs~~Safety, Health, Environment and Quality ~~or the RSO~~or the RSO~~.~~. The Vice President of Operations directly supervises the General Manager of Operations.

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality~~Compliance and Licensing,~~ the Manager of Safety, Health, Environment~~Health, Safety and Environmental~~ and Affairs~~Quality~~, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR, ~~COMPLIANCE AND LICENSING~~SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director, ~~Compliance and Licensing~~Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director, ~~Compliance and Licensing~~Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director, ~~Compliance and Licensing~~Safety, Health, Environment and Quality has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of ~~Health, Safety and Environmental Affairs~~Safety, Health, Environment and Quality or the RSO. ~~The Director, Compliance and Licensing may also serve as Corporate Radiation Safety Officer (CRSO) and if doing so, shall meet the qualifications described in Regulator Guide 8.31.~~

5.1.6. MANAGER OF ~~HEALTH, SAFETY, AND ENVIRONMENTAL AFFAIRS~~SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality is responsible for all radiation protection, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. The

Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality reports directly to the ~~General Manager~~Director, Safety, Health, Environment and Quality and supervises the RSO to ensure that the radiation safety and environmental monitoring and protection programs are conducted in a manner consistent with regulatory requirements. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality has a secondary reporting requirement to the ~~Director, Compliance and Licensing~~ President.

5.1.7. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to the Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality.

5.1.8. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

5.1.9. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of ~~Health, Safety and Environmental Affairs.~~Safety, Health, Environment, and Quality

5.2. ALARA POLICY

The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

5.2.1. MANAGEMENT RESPONSIBILITIES

Consistent with Regulatory Guide 8.31 *Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Reasonably Achievable* (Revision 1, May 2002), the licensee management is responsible for the development, implementation, and enforcement of applicable rules, policies, and procedures as directed by regulatory agencies and company policies. These shall include the following:

Proposed License Renewal Application
Page Changes

(Replacement Pages Version)

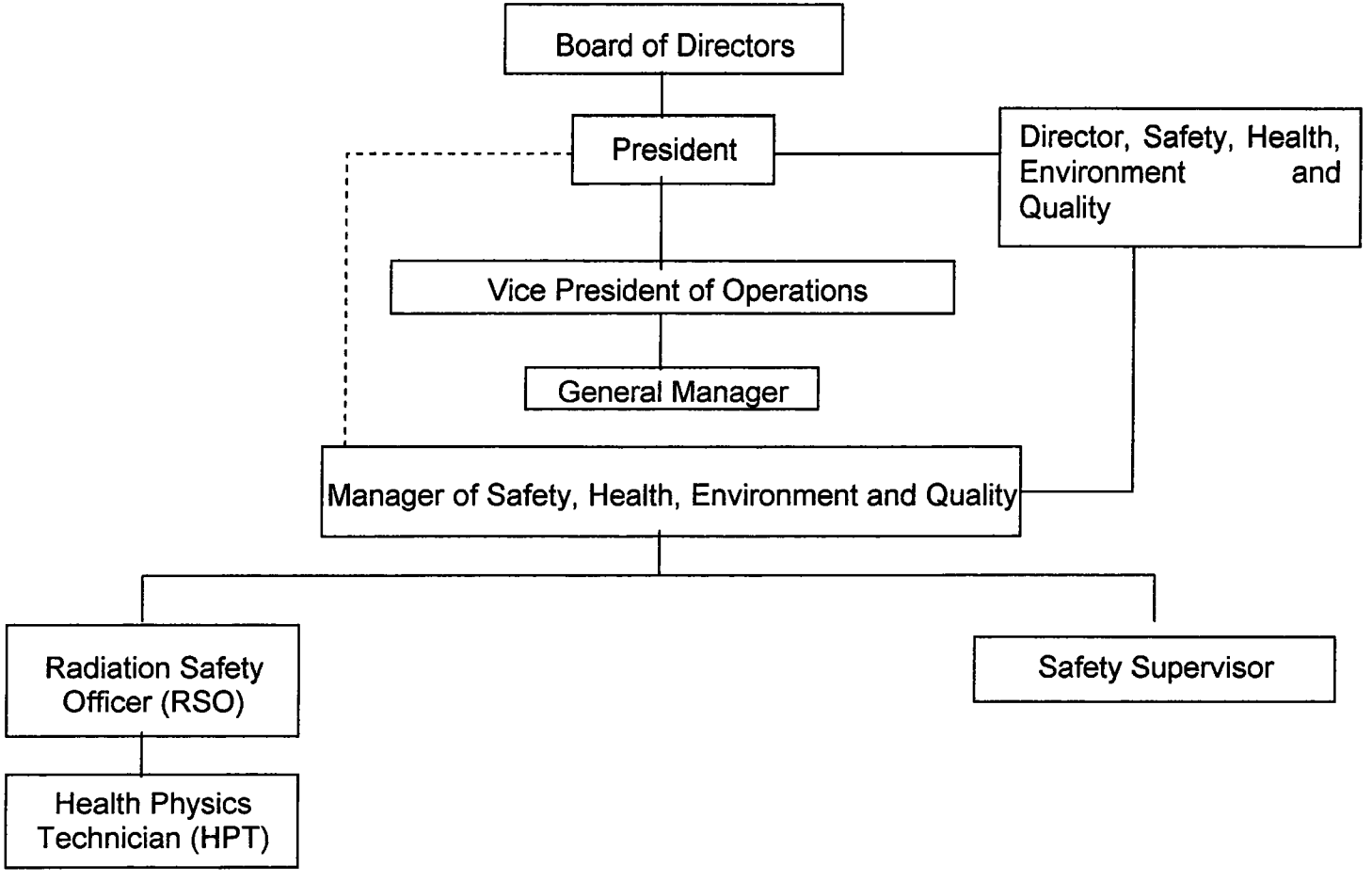
5.1.2. PRESIDENT

The President is responsible for interpreting and acting upon the Board of Directors policy and procedural decisions. The President directly supervises the Vice President of Operations and Director, Safety, Health, Environment and Quality. The President is empowered by the Board of Directors to have the responsibility and authority for the radiation safety and environmental compliance programs. The President is responsible for ensuring that the operations staff is complying with all applicable regulations and permit/license conditions through direct supervision of the Vice President of Operations and Director, Safety, Health, Environment and Quality.

5.1.3. VICE PRESIDENT OF OPERATIONS

The Vice President of Operations reports to the President and is directly responsible for ensuring that CBR personnel comply with industrial safety, radiation safety, and environmental protection programs as established in the EMS Program. The Vice President of Operations is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Vice President of Operations has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO. The Vice President of Operations directly supervises the General Manager of Operations.

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality the Manager of Safety, Health, Environment and Quality, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR, SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director, Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director, Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director, Safety, Health, Environment and Quality has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

5.1.6. MANAGER OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of Safety, Health, Environment and Quality is responsible for all radiation protection, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. The Manager of Safety, Health, Environment and Quality reports directly to the Director, Safety, Health, Environment and Quality and supervises the RSO to ensure that the radiation safety and environmental monitoring and protection programs are conducted in a manner consistent with regulatory requirements. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs.

The Manager of Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of Safety, Health, Environment and Quality has a secondary reporting requirement to the President.

5.1.7. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to the Manager of Safety, Health, Environment and Quality.

5.1.8. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

5.1.9. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the

RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of Safety, Health, Environment, and Quality

5.2. ALARA POLICY

The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

5.2.1. MANAGEMENT RESPONSIBILITIES

Consistent with Regulatory Guide 8.31 *Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Reasonably Achievable* (Revision 1, May 2002), the licensee management is responsible for the development, implementation, and enforcement of applicable rules, policies, and procedures as directed by regulatory agencies and company policies. These shall include the following:

1 The development of a strong commitment to and continuing support of the implementation and operations of the ALARA program;
2 An Annual Audit Program which reviews radiation monitoring results, procedural, and operational methods;
3 A continuing evaluation of the Health Physics Program including adequate staffing and support; and
4 Proper training and discussions that address the ALARA program and its function to all facility employees and, when appropriate, to contractors and visitors.

SERP 10-08 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-08

Wellhouse 54 Approval to Operate

July 9, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve operation of Wellhouse 54 in Mine Unit 10 at the Crow Butte Uranium Project.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	Mine Manager	Management
Larry Teahon	Manager of Health, Safety and Environmental Affairs	Environment
Doug Pavlick	Operations Manager	Operations
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Wade Beins	Senior Geologist	Well Construction
Dave Moody	Wellfield Superintendent	Wellfield Operations
Tate Hagman	Administrative Supervisor	Instrumentation

Dr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

Purpose of SERP Evaluation

The purpose of this evaluation by the CBR SERP was to review and approve Wellhouse 54 for operation.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Environmental, Health, and Safety Management System (EHSMS) Volume II, *Management Procedures*, EHS-6, *Managing Change*. The SERP reviewed the Wellhouse startup checklists and supporting documentation and evaluated this information as compared with the requirements of the licensing basis, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 25 dated April 20, 2010;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;

- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 25 to SUA-1534 dated April 20, 2010 was reviewed for specific requirements related to approval and operation of a wellhouse.

Mine Unit 10 was previously approved by a CBR SERP (see SERP 07-01 dated April 10, 2007). Therefore, no review of monitor well location, installation or baseline sampling and Upper Control Limit determination is required for approval of Wellhouse 54.

License Condition 10.2: This License Condition requires that CBR construct all wells in accordance with the methods contained in the Section 3.1.2 of the approved License Renewal Application (LRA). License Condition 10.2 also requires that CBR perform mechanical integrity tests (MIT) for all injection and production wells.

The well construction methods in use for Wellhouse 54 are the same as those described in the LRA and contained in EHSMS Volume III, *Operations Manual*, Procedure P-25, *Well Installation*. MITs were performed in accordance with EHSMS Volume III, *Operations Manual*, Procedure P-23, *Mechanical Integrity Test (MIT)*. All MIT data sheets were contained in the Notice of Intent to Operate Wellhouse 54 (or in the original Mine Unit 10 Notice of Intent) that was submitted to the NDEQ. These MIT data sheets were provided by the Senior Geologist and reviewed by the SERP. The records indicate that the MITs performed in Wellhouse 54 met the requirements.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 3.3 also discusses instrumentation, including wellhouse injection and production instrumentation and wet building alarms for wellhouses. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Wellhouse Start-up Checklist for Wellhouse 54. This checklist was developed by the Wellfield Construction staff to document completion of all required actions before initiating operations in a wellhouse. Some of these actions are required by regulatory and licensing requirements, while some were developed over the course of mining experience at Crow Butte. Construction activities are governed by EHSMS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place.
A copy of the Wellhouse Start-Up Checklist is attached to this SERP Evaluation. Supporting documentation in the form of pressure tests and ground continuity checks are also attached.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Well construction and testing as described in the EA has been completed for the wells associated with Wellhouse 54.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with Wellhouse 54 and found that they meet the intent of the EA.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 25 to SUA-1534 in the amount of $28,902,051.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety at Crow Butte and does not specifically address the issues related to approval of Wellhouse 54.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs

prepared since license renewal directly address issues related to approval of a new Wellhouse for operation.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined that safety commitments made in the LRA and discussed in the EA have been met and that startup of Wellhouse 54 in Mine Unit 10 will not degrade the safety and environmental commitments.

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of Wellhouse 54 in Mine Unit 10.

Approved this 9th day of July, 2010.

Jim Stokey, Mine Manager
SERP Chairman

Doug Pavlick, Operations Manager

Larry Teahon, Manager of Safety, Health, Environment and Quality
SERP Secretary

Rhonda Grantham, Radiation Safety Officer

Bob Tiensvold, Maintenance Superintendent

Dave Moody, Wellfield Superintendent

Wade Beins, Senior Geologist

Tate Hagman, Administrative Supervisor

STATE OF NEBRASKA

Dave Heineman
Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

JUN 18 2010

Mr. Paul Goranson
Crow Butte Resources, Inc.
2020 Carey Ave. Ste. 600
Cheyenne, Wyoming 82001

Dear Mr. Goranson:

On May 25, 2010 the Nebraska Department of Environmental Quality received a submittal of information from Crow Butte Resources, Inc. The submittal serves as a Notice of Intent to Operate and contains Well Completion Reports and Casing Integrity Test Reports for the wells in Mine Unit 10, Well House 54.

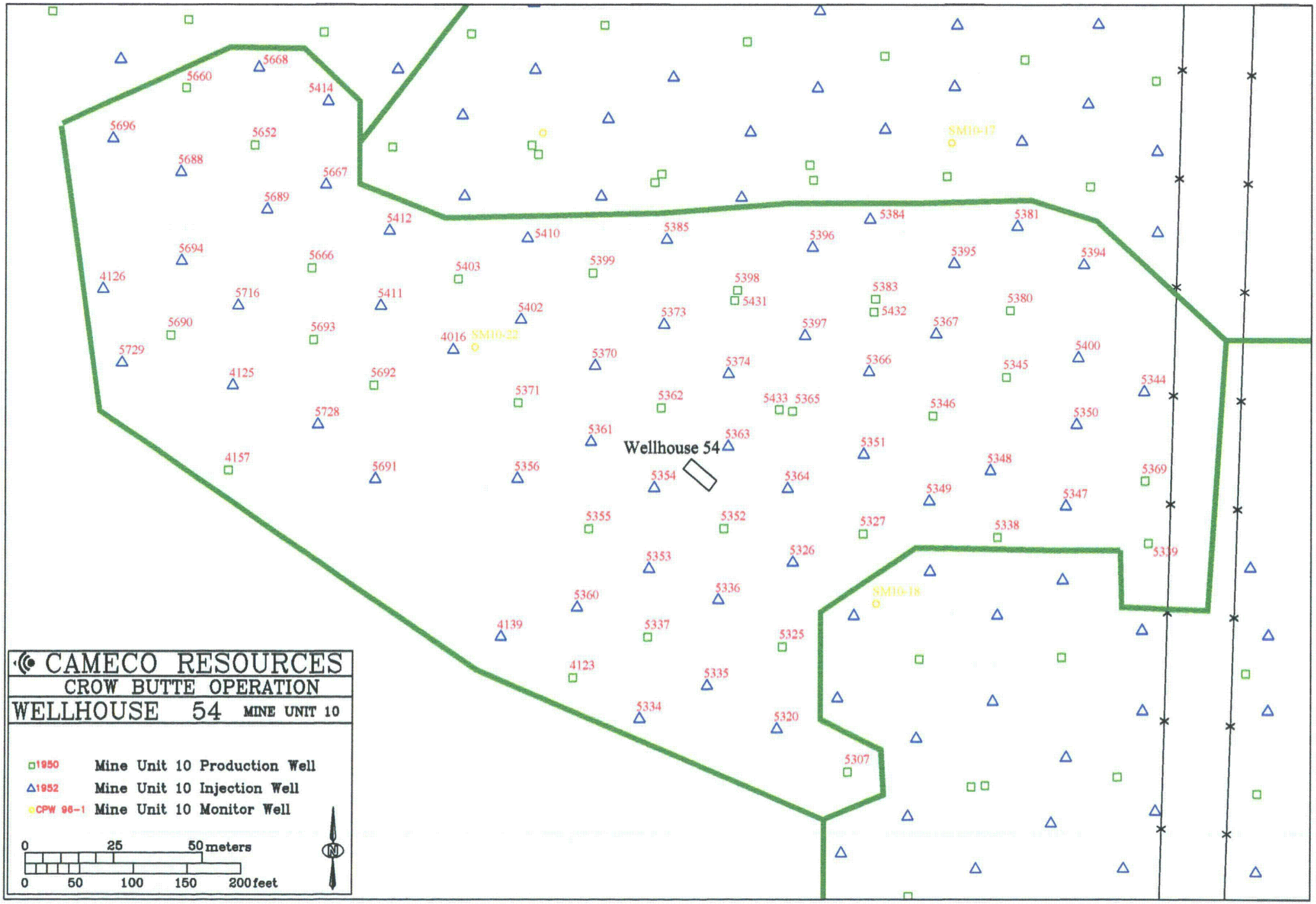
The Department has reviewed the information submitted and determined that it is adequate and complete. Upper Control Limits and Restoration Values established for Mine Unit 10 have already been submitted and approved. Approval of the wells for Well House 54 of Mine Unit 10 will not alter those values. The Department hereby approves the Notice of Intent to Operate the wells in Well House 54 in Mine Unit 10.

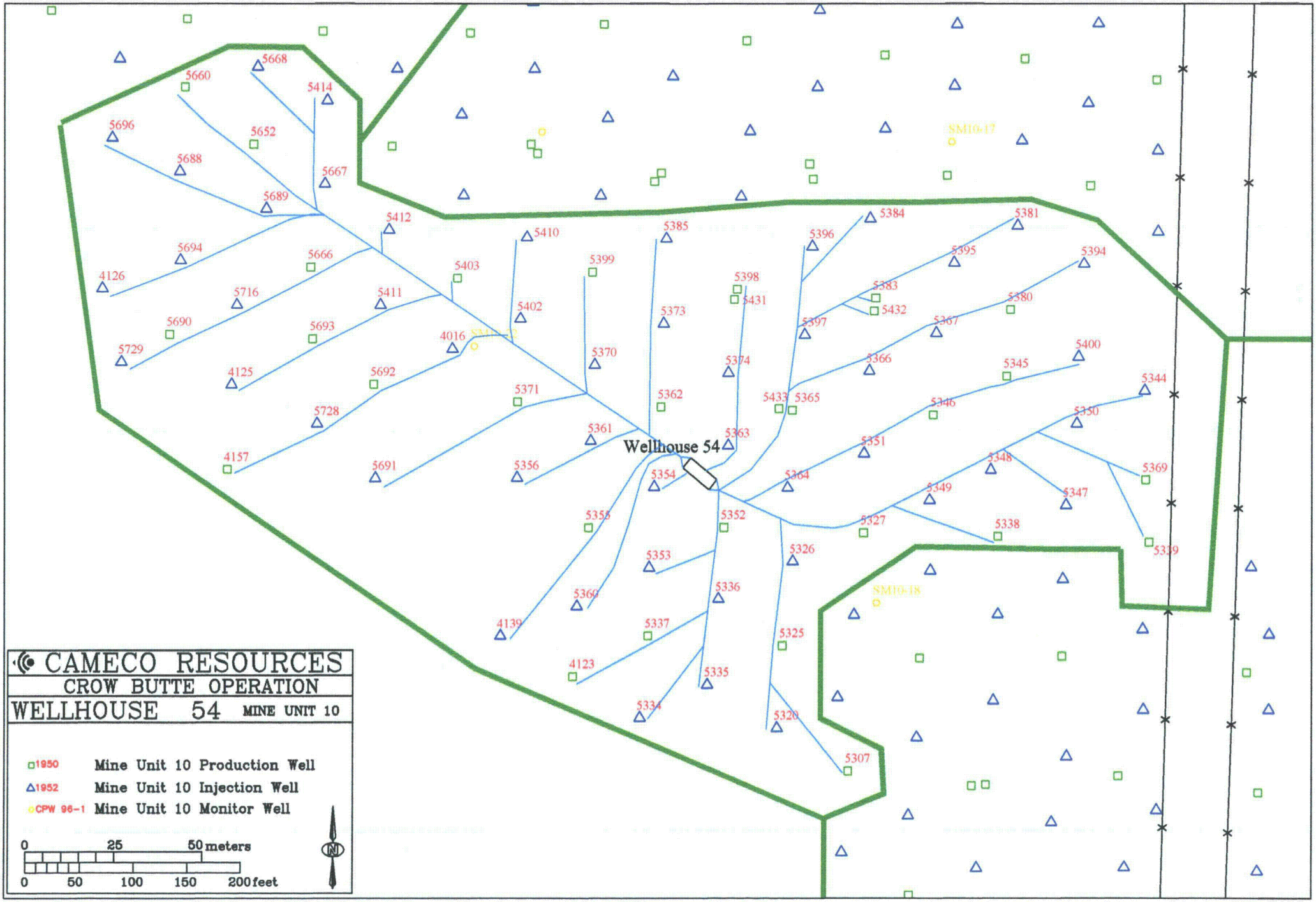
If you have any questions concerning this matter, please contact Jennifer Abrahamson of my staff at (402) 471-4290.

Sincerely,

Michael J. Linder
Director

ML/jla
word/CBR/letter/NOI_MU10_WH54.doc
Cc: Dave Carlson, NDEQ
Jim Stokey, CBR


5668
5660
5414
5696
5652
5688
5667
5689
5412
5410
5385
5384
5381
5396
5694
5666
5403
5399
5395
5394
4126
5716
5411
5398
5431
5383
5432
5380
5690
5693
5402
5373
5397
5367
4016
SM10-22
5729
5370
5374
5366
5400
5345
4125
5692
5371
5362
5433
5365
5344
5346
5728
5361
5363
Wellhouse 54
5351
5350
4157
5691
5356
5354
5364
5348
5369
5349
5347
5355
5352
5327
5338
5353
5326
5339
5360
5336
SM10-18
4139
5337
5325
4123
5335
5334
5320
5307
SM10-17
CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 54 MINE UNIT 10
1950 Mine Unit 10 Production Well
1952 Mine Unit 10 Injection Well
CPW 96-1 Mine Unit 10 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
N


5668
5660
5414
5696
5652
5688
5667
5689
5412
5410
5385
5384
5381
5396
5694
5666
5403
5399
5395
5394
4126
5716
5411
5398
5431
5383
5432
5380
5690
5693
5402
5373
5397
5367
5729
4016
5370
5374
5366
5400
4125
5692
5345
5344
5371
5433
5365
5346
5728
5362
5361
5363
5350
Wellhouse 54
4157
5691
5356
5354
5364
5351
5348
5369
5349
5347
5355
5352
5327
5338
5339
5353
5326
5369
5336
SM16-18
4139
5337
5325
4123
5335
5334
5329
5307
CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 54 MINE UNIT 10
1950 Mine Unit 10 Production Well
1952 Mine Unit 10 Injection Well
CPW 96-1 Mine Unit 10 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
N

Well House Start-Up Checklist

Well House # 54

Item	Description	Person	Comments	Date Completed	Initial
1	Permit To Operate	Beins / Stokey			WB
2	Complete Pressure Testing (Trunkline and House)	McDowell / Tiensvold / Stokey		7-1	
3	Pipelines checked for leaks	McDowell / Tiensvold / Stokey		7-1	
4	Pipelines buried	McDowell / Tiensvold / Stokey		7-7	
5	Pressure gauges manifolds	McDowell / Tiensvold / Stokey		7-1	
6	Injection lines equipped with totalizing flow meters	McDowell / Tiensvold / Stokey		7-1	
7	Injection and Production total flows can be measured	McDowell / Tiensvold / Stokey		7-1	
8	Unused trunkline locked out by two separate means	McDowell / Tiensvold / Stokey		7-1	
9	Isolation valves are closed and chained	McDowell / Tiensvold / Stokey		7-1	
10	Map of 2" lines in house	McDowell / Beins / Tiensvold / Stokey		7-7	
11	Well-field Layout map in house	McDowell / Beins / Tiensvold / Stokey		7-7	
12	Check berms	Teahon / Tiensvold / Stokey		7/8	BT
13	Pressure check oxygen lines	Roberts / Tiensvold / Stokey	125 psi for 30 min	7-2	
14	Continuity check on producers	Scoggan / Tiensvold / Stokey		7-7	
15	Ground fault check	Scoggan / Tiensvold / Stokey		7-7	
16	Communications wire check	Hagman / Tiensvold / Stokey		7/1	BT
	'eater size check	Scoggan / Tiensvold / Stokey		7-7	
18	Processor installed well house	Hagman / Tiensvold / Stokey		7/1	BT
19	UPS installed and operational	Scoggan / Tiensvold / Stokey		7/1	BT
20	Wet house alarm installed	Scoggan / Tiensvold / Stokey		7-7	
21	Wet house alarm checked	Scoggan / Tiensvold / Stokey		7-7	
22	Oxygen solenoid checked	Hagman / Tiensvold / Stokey		7/1	BT
23	Check fuses in control panel	Scoggan / Tiensvold / Stokey		7-7	
24	Program MMI	Hagman / Tiensvold / Stokey		7-1	TH
25	Program PLC	Hagman / Tiensvold / Stokey		7-1	TH
26	Set Scalar Card 'K' Factors	K. Forbes/P. Dunn / Tiensvold / Stokey		7-2	KF
27	Off tags and lockouts	K. Forbes/P. Dunn / Tiensvold / Stokey		7-7	KF
28	Contaminated and uncontaminated cans	K. Forbes/P. Dunn / Tiensvold / Stokey		7-7	KF
29	Complete 2" lateral inspection	McDowell / Tiensvold / Stokey		7-6	
30	Visually inspect entire system to plant	McDowell / Tiensvold / Stokey		7-6	
31	Labels on Monitor Wells	McDowell / Tiensvold / Stokey		7-7	
32	Valve Station Covers and Stairs Built	Roberts / Tiensvold / Stokey		7/8	BT
33	Manifold Pressure Switches Installed	Scoggan / Tiensvold / Stokey		7-7	
34	Injection Filter Installed	McDowell / Tiensvold / Stokey		7-1	
35	Filter instrumentation and gauges installed	McDowell / Tiensvold / Stokey		7-1	
	lectric door lock installed	Scoggan / Tiensvold / Stokey		7/7	BT
37	Update Daily Walk Through Inspection form EHS 4-1	Teahon / Tiensvold / Stokey		7/8	

Crow Butte Resources

Final Inspection of Piping Wellhead to Plant

Wellhouse: 54

Review of Pressure Test Data Complete: Bob [signature]

short Nipple SN

Date: 7-1-10

Mine Manager:

W.F.C. Foreman: [signature]

Non-Service Lines Locked-Out:

Item #	Well #	Initialed by	Comments
1	P 4123	7B	SN Good
2	P 4157	7B	Good
3	P 5307	7B	Good
4	P 5325	7B	SN Good
5	P 5327	7B	SN Good
6	P 5337	7B	SN Good
7	P 5338	7B	Good
8	P 5339	7B	SN Good
9	P 5345	7B	SN Good
10	P 5346	7B	SN Good
11	P 5352	7B	Good
12	P 5355	7B	Good
13	P 5362	7B	Good
14	P 5365	7B	SN Good
15	P 5369	7B	SN Good
16	P 5371	7B	Good
17	P 5380	7B	SN Good
18	P 5383	7B	Good
19	P 5398	7B	SN Good

Item #	Well #	Initialed by	Comments
20	P 5399	7B	Good
21	P 5403	7B	SN Good
22	P 5431	7B	Good
23	P 5432	7B	SN Good
24	P 5433	7B	SN Good
25	P 5652	7B	Good
26	P 5660	7B	Good
27	P 5666	7B	Good
28	P 5690	7B	Good
29	P 5692	7B	Good
30	P 5693	7B	Good

Item #	Well #	Initialed by	Comments
1	I 4016	TB	Good
2	I 4125	TB	Good
3	I 4126	TB	Good
4	I 4139	TB	Good
5	I 5320	TB	Good
6	I 5326	TB	Good
7	I 5334	TB	Good SN
8	I 5335	TB	Good
9	I 5336	TB	Good
10	I 5344	TB	Good
11	I 5347	TB	SN Good
12	I 5348	TB	Good
13	I 5349	TB	Good
14	I 5350	TB	Good
15	I 5351	TB	Good
16	I 5353	TB	Good
17	I 5354	TB	Good
18	I 5356	TB	Good
19	I 5360	TB	Good

Item #	Well #	Initialed by	Comments
20	I 5361	TB	Good
21	I 5363	TB	Good
22	I 5364	TB	Broken Guage SN FIXED
23	I 5366	TB	Broken Glass on Guage FIXED
24	I 5367	TB	Good
25	I 5370	TB	Good
26	I 5373	TB	Good
27	I 5374	TB	Good
28	I 5381	TB	Good
29	I 5384	TB	Good
30	I 5385	TB	Good
31	I 5394	TB	Good
32	I 5395	TB	Good
33	I 5396	TB	Good
34	I 5397	TB	Good
35	I 5400	TB	Good
36	I 5402	TB	Good
37	I 5410	TB	Good
38	I 5411	TB	Good

Item #	Well #	Initialed by	Comments
39	I 5412	TB	Good
40	I 5414	TB	Good
41	I 5667	TB	Good
42	I 5668	TB	Good
43	I 5688	TB	Good
44	I 5689	TB	Good
45	I 5691	TB	Good
46	I 5694	TB	Good
47	I 5696	TB	Good
48	I 5716	TB	Good
49	I 5728	TB	Good
50	I 5729	TB	Good

Crow Butte Resources

Pump Continuity

Wellhouse 54

Date: 7-7-10

Technician: Gabe Scoggan

Non-Service Lines Locked-Out: Yes No

Item #	Well #	Initial	Meter Reading		Comments
1	P 4123		1.3	Ohms	
2	P 4157		1.4	Ohms	
3	P 5307		1.0	Ohms	
4	P 5325		1.0	Ohms	
5	P 5327		.9	Ohms	
6	P 5337		1.1	Ohms	
7	P 5338		.9	Ohms	
8	P 5339		1.4	Ohms	
9	P 5345		.9	Ohms	
10	P 5346		1.1	Ohms	
11	P 5352		.5	Ohms	
12	P 5355		.9	Ohms	
13	P 5362		.7	Ohms	
14	P 5365		.6	Ohms	
15	P 5369		1.3	Ohms	
16	P 5371		1.0	Ohms	
17	P 5380		1.1	Ohms	
18	P 5383		1.3	Ohms	
19	P 5398		.9	Ohms	

Item #	Well #	Initial	Meter Reading		Comments
20	P 5399		1.2	Ohms	
21	P 5403		1.4	Ohms	
22	P 5431		.9	Ohms	
23	P 5432		1.3	Ohms	
24	P 5433		.6	Ohms	
25	P 5652		1.4	Ohms	
26	P 5660		1.5	Ohms	
27	P 5666		1.2	Ohms	
28	P 5690		1.5	Ohms	
29	P 5692		1.5	Ohms	
30	P 5693		1.7	Ohms	
	SM10-22		.5	Ohms	
				Ohms	
	Ground rods		12	Ohms	
			14	Ohms	
			20	Ohms	
				Ohms	
				Ohms	
				Ohms	

CROW BUTTE RESOURCES, INC.
86 Crow Butte Road
P. O. Box 169 **(308) 665-2215**
Crawford, Nebraska 69339-0169 **(308) 665-2341 - FAX**

GROUND RESISTANCE TEST RECORD

TEST SET USED: AEMC Model 3711 Ground Resistance Tester

GROUND TEST RESULTS: Wellhouse 54
OHMS: Resistance Total (Rt) = 4.88 OHMS

R1 is NRPPD pole ground rod, R2 and R3 are the ground rods installed at the header house

$$Rt = \frac{1}{(1/R1 + 1/R2 + 1/R3)}$$

$$Rt = \frac{1}{(1/12 + 1/14 + 1/20)}$$

Rt = 4.88 Ohms

CONCLUSIONS:

THE TEST RESULTS ARE SATISFACTORY

TEST PERFORMED BY:

CROW BUTTE RESOURCES, INC.

Bob Tiensvold

Date: July 7, 2010

Well House Pressure Check Verification

Pressure check for Well House 54. Date: 6.28.2010

Injection:
On 6-23-2010 the injection lines and 2" laterals were pressured to 125 psi. This was done using a centrifugal pump and potable water. The time interval was as follows:

Start: 125 psi at ~~_____ AM / PM~~
Stop: 123 psi at ~~_____ AM / PM~~ 30 minutes

The section of trunk line checked was from valve station 11-1 to the well field in WH54. KM

Production:
On 6-24-2010 the production trunk lines and 2" laterals were pressured to 125 psi. This was done using a centrifugal pump and potable water. The pressure and time interval was as follows:

Start: 125 psi at ~~_____ AM / PM~~ 30 minutes
Stop: 125 psi at ~~_____ AM / PM~~

The section of trunk line was from valve station 11-1 to the well field in WH54. KM

Oxygen:
On 7-2-10 the oxygen line was pressured to 125 psi. The pressure and time interval was as follows:

Start: 125 psi at 10:30 (AM) / PM
Stop: 125 psi at 11:00 (AM) / PM R.R.

The section of trunk line checked was from valve station _____ to the well field in _____

Kirk McDowell
Well Field Construction Foreman

SERP 10-09 Evaluation

Crow Butte Resources, Inc.

Safety and Environmental Review Panel

Evaluation Report – SERP 10-09

Mine Unit 11 and Wellhouse 61
Approval to Operate

November 8, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met to review and approve operation of Wellhouse 61 in Mine Unit 11 at the Crow Butte Uranium Project.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	General Manager	Management
Larry Teahon	SHEQ Manager	Environmental
Doug Pavlick	Operations Manager	Operations
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Bob Tiensvold	Maintenance Superintendent	Construction
Wade Beins	Senior Geologist	Well Construction
Dave Moody	Wellfield Superintendent	Wellfield Operations
Tate Hagman	Administrative Supervisor	Instrumentation

Dr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

Purpose of SERP Evaluation

The purpose of this evaluation by the CBR SERP was to review Mine Unit 11 and approve Wellhouse 61 for operation.

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

The SERP evaluation was conducted in accordance with the instructions contained in the Safety, Health, Environmental, and Quality Management System (SHEQ MS) Volume II, *Management Procedures*, SHEQ-6, *Managing Change*. The SERP reviewed the Mine Unit 11 Notice of Intent to Operate and preoperational monitoring data and evaluated this information as compared with the requirements of the licensing basis. The SERP also reviewed the Wellhouse 61 startup checklists and supporting documentation and evaluated this information as compared with the requirements of the licensing basis, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 25 dated April 20, 2010;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534*, Crow Butte Resources, Inc. December 1995;

- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534*, USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed change will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

Amendment 25 to SUA-1534 dated April 20, 2010 was reviewed for specific requirements related to approval and operation of a new Mine Unit and a wellhouse.

License Condition 9.3: This License Condition requires that CBR conduct operations in accordance with the representations contained in the LRA. Section 3.1.3 of the LRA discusses construction materials, instrumentation, and monitoring requirements. Section 3.3 also discusses instrumentation, including wellhouse injection and production instrumentation and wet building alarms for wellhouses. Section 7.2.3 of the LRA requires that leak tests be performed on all wellfield piping before placing the system into production operations.

The SERP reviewed the Wellhouse Start-up Checklist for Wellhouse 61. This checklist was developed by the Wellfield Construction staff to document completion of all required actions before initiating operations in a wellhouse. Some of these actions are required by regulatory and licensing requirements, while some were developed over the course of mining experience at Crow Butte. Construction activities are governed by SHEQ MS Volume III, *Operations Manual*, Procedure P-15, *Installation of Wellfield Pipelines*. The Maintenance Superintendent reviewed these items and stated that all had been completed and the appropriate controls were in place.

A copy of the Wellhouse Start-Up Checklist is attached to this SERP Evaluation. Supporting documentation in the form of pressure tests and ground continuity checks are also attached.

License Condition 9.5: This License Condition requires that CBR maintain an NRC-approved financial surety arrangement to cover reclamation of all existing operations and planned expansions for the upcoming year. If such expansion is not covered in the annual update to the existing surety arrangement, an updated surety must be provided to NRC at least 90 days before beginning construction.

The current surety arrangement approved by NRC and NDEQ includes the operation of three wellhouses in Mine Unit 11 during 2010.

License Condition 9.10: This License Condition requires that CBR conduct operations within the permit area boundaries shown in the License Renewal Application (LRA), as amended. The SERP confirmed that Mine Unit 11 falls within this permit area boundary.

License Condition 10.2: This License Condition requires that CBR construct all wells in accordance with the methods contained in the Section 3.1.2 of the approved License Renewal Application (LRA). License Condition 10.2 also requires that CBR perform mechanical integrity tests (MIT) for all injection and production wells.

The well construction methods in use for Mine Unit 11 are the same as those described in the LRA and contained in SHEQ MS Volume III, *Operations Manual*, Procedure P-25, *Well Installation*. MITs were performed in accordance with SHEQ MS Volume III, *Operations Manual*, Procedure P-23, *Mechanical Integrity Test (MIT)*. The SERP reviewed the MIT information contained in the Notice of Intent to Mine (NOI) submitted to the NDEQ. The package in the NOI included the MITs for required monitoring wells. MITs for future wellhouses in Mine Unit 11 cannot be reviewed since these wells have not been installed. Therefore, the SERP can only review baseline restoration wells and the monitoring wells of Mine Unit 11 and the injection/production wells for Wellhouse 61 for compliance with this License Condition. All MIT data sheets were contained in the Notice of Intent to Operate Wellhouse 61 (or in the original Mine Unit 11 Notice of Intent) that was submitted to the NDEQ. These MIT data sheets were provided by the Senior Geologist and reviewed by the SERP. The records indicate that all MITs performed met the requirements.

License Condition 10.3: This License Conditions contain requirements for establishing pre-operational baseline groundwater quality including well density, sampling frequency and parameters, and determination of groundwater restoration goals.

10.3(A): A total of 24 injection or production wells are identified as baseline restoration wells for Mine Unit 11, which comprises 75 acres. The SERP reviewed the well placement. The wells meet the density requirement of this License Condition (i.e., 1 per every 5 acres) and are evenly spaced in the Mine Unit. Samples were collected at least 14 days apart.

10.3(B): The baseline samples were analyzed for all parameters listed in this portion of the License Condition.

10.3(C) Groundwater restoration goals were proposed for Mine Unit 11 that was based upon the mine unit average of all baseline restoration (BLR) wells. The goals are an arithmetic mean of the averages for the three samples taken for each of the 24 baseline restoration wells.

The SERP determined to insert a restoration goal table for Mine Unit 11 into the approved LRA to include all parameters required by License Condition 10.3(B). A copy of the approved Table is attached to this evaluation.

License Condition 10.4: This License Condition contains requirements for determining Upper Control Limits (UCLs) for shallow and perimeter monitor wells including well density, sampling schedule, analytes, and UCL calculation method.

10.4(A) A total of 24 shallow monitor and 19 perimeter monitor wells are identified for Mine Unit 11, which comprises 75 acres. The SERP reviewed the well placement. The wells meet the density requirement of this License Condition (i.e., 1 per every 5 acres for shallow monitor wells) and are evenly spaced in the Mine Unit. Samples were collected at least 14 days apart.

10.4(B) The samples were analyzed for all parameters listed in this portion of the License Condition.

10.4(C) The proposed UCLs for each shallow and perimeter monitor well were calculated as required in this License Condition.

License Condition 10.16: This License Condition specifies the spacing for all perimeter monitor wells drilled after April 1999. Perimeter monitor wells may be spaced no greater than 300 feet from a wellfield unit and no greater than 400 feet between the wells. All of the perimeter monitor wells for Mine Unit 11 meet the spacing requirements of the License.

License Condition 11.3: This License Condition requires that CBR implement the effluent and environmental monitoring program in accordance with the program submitted on March 18, 1999. The approved program requires quarterly sampling of all private wells within 1 km of an active wellfield. Addition of Mine Unit 11 will require quarterly monitoring of one additional private well (Well 38). The SERP directed that this well be added to the sample schedule.

The SERP concluded that all specific license requirements would continue to be met if this change is approved.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change could cause substantive safety or environmental impacts.

Well construction and testing as described in the EA has been completed for the wells associated with Wellhouse 61.

Section 3.3.1 discusses leak testing of wellfield piping. The SERP reviewed the completion of pressure testing for piping systems associated with Wellhouse 61 and found that they meet the intent of the EA.

Financial Surety

The proposed change is covered in the NRC-approved financial surety maintained by CBR and approved by Amendment 25 to SUA-1534 in the amount of $28,902,051. The surety estimate was based on the operation of three wellhouses (Wellhouse 60, 61, and 62) in Mine Unit 11 during 2010.

Safety Evaluation Report

The Safety Evaluation Report (SER) principally provides the basis for worker safety at Crow Butte and does not specifically address the issues related to approval of Wellhouse 61.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs prepared since license renewal directly address issues related to approval of a new Wellhouse for operation.

NDEQ UIC Permit

The SERP reviewed the requirements of the NDEQ UIC Permit that relate to startup of Mine Unit 11.

- The NOI was submitted as required on Page 3 of the permit and approved by the NDEQ (see the attached letters).

- Part II A 2 of the permit, *Mine Unit Limitations*, allows no more than five mine units in the mining stage, no more than five mine units in restoration (excluding those in stabilization), and no more than three mine units constructed in advance of active mining. The SERP reviewed the current status on Mine Units 1 through 10 and determined the following:

    1. Mine Units Restored: One (Mine Unit 1)
    2. Mine Units in Restoration: Four (Mine Units 2, 3, 4 and 5)
    3. Mine Units in Operation: Five (Mine Units 6 through 10)

In order to meet the limitations in this section of the permit, one mine unit must be placed in restoration before mining can begin in Mine Unit 11. Part II C 3 of the permit contains the restoration procedure, which requires that CBR notify the NDEQ in writing and establish post-mining water quality in coordination with the NDEQ. These steps must be completed before injection may begin in Mine Unit 11. The notice for cessation of mining in Mine Unit 6 was submitted to NDEQ on October 28, 2010 and is attached as a part of this review.

- Restoration goals were determined for every parameter included in Table 2.6 (Page 11) as required.
- All monitor and restoration wells were installed and baseline monitoring performed as required by permit.
- All monitor wells were shown to be functionally operational as required in Part III B 2 (Page 15).

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined that safety commitments made in the LRA and discussed in the EA have been met and that startup of Wellhouse 61 in Mine Unit 11 will not degrade the safety and environmental commitments.

Based upon this evaluation of the licensing basis, the CBR SERP hereby approves startup and operation of Wellhouse 61 in Mine Unit 11.

Approved this 8th day of November, 2010.

CROW BUTTE RESOURCES, INC.

SERP 10-09

Jim Stokey, General Manager
SERP Chairman

Larry Teahon, SHEQ Manager
SERP Secretary

Doug Pavlick, Operations Manager

Rhonda Grantham, Radiation Safety Officer

Bob Tiensvold, Maintenance Superintendent

Wade Beins, Senior Geologist

Dave Moody, Wellfield Superintendent

Tate Hagman, Administrative Supervisor

STATE OF NEBRASKA

Dave Heineman
Governor

DEPARTMENT OF ENVIRONMENTAL QUALITY
Michael J. Linder
Director
Suite 400, The Atrium
1200 'N' Street
P.O. Box 98922
Lincoln, Nebraska 68509-8922
Phone (402) 471-2186
FAX (402) 471-2909
website: www.deq.state.ne.us

NOV 05 2010

Mr. Thomas Young
Crow Butte Resources, Inc.
141 Union Boulevard, Suite 330
Lakewood, Colorado 80228

Dear Mr. Young:

On January 26, 2010 the Nebraska Department of Environmental Quality received a submittal of information from Crow Butte Resources, Inc. The submittal serves as a Notice of Intent (NOI) to Operate for Mine Unit 11 and contains Well Completion Reports and Casing Integrity Test Reports and baseline sampling and water quality assays for the wells associated with Mine Unit 11, and completion reports and integrity tests Wellhouse 61, the first well house constructed in Mine Unit 11.

On February 22, 2010 NDEQ denied the Notice of Intent for Mine Unit 11 contingent upon placing a mine unit into restoration. On October 28, 2010 Mine Unit 6 was placed into restoration.

The Department has reviewed all information submitted and determined that it is adequate and complete. Based upon the data presented in this NOI , Upper Control Limits and Restoration Values proposed for Mine Unit 11 are approved. Approval of additional portions of Mine Unit 11 will not alter those values. The Department hereby approves the NOI for Mine Unit 11, Wellhouse 61.

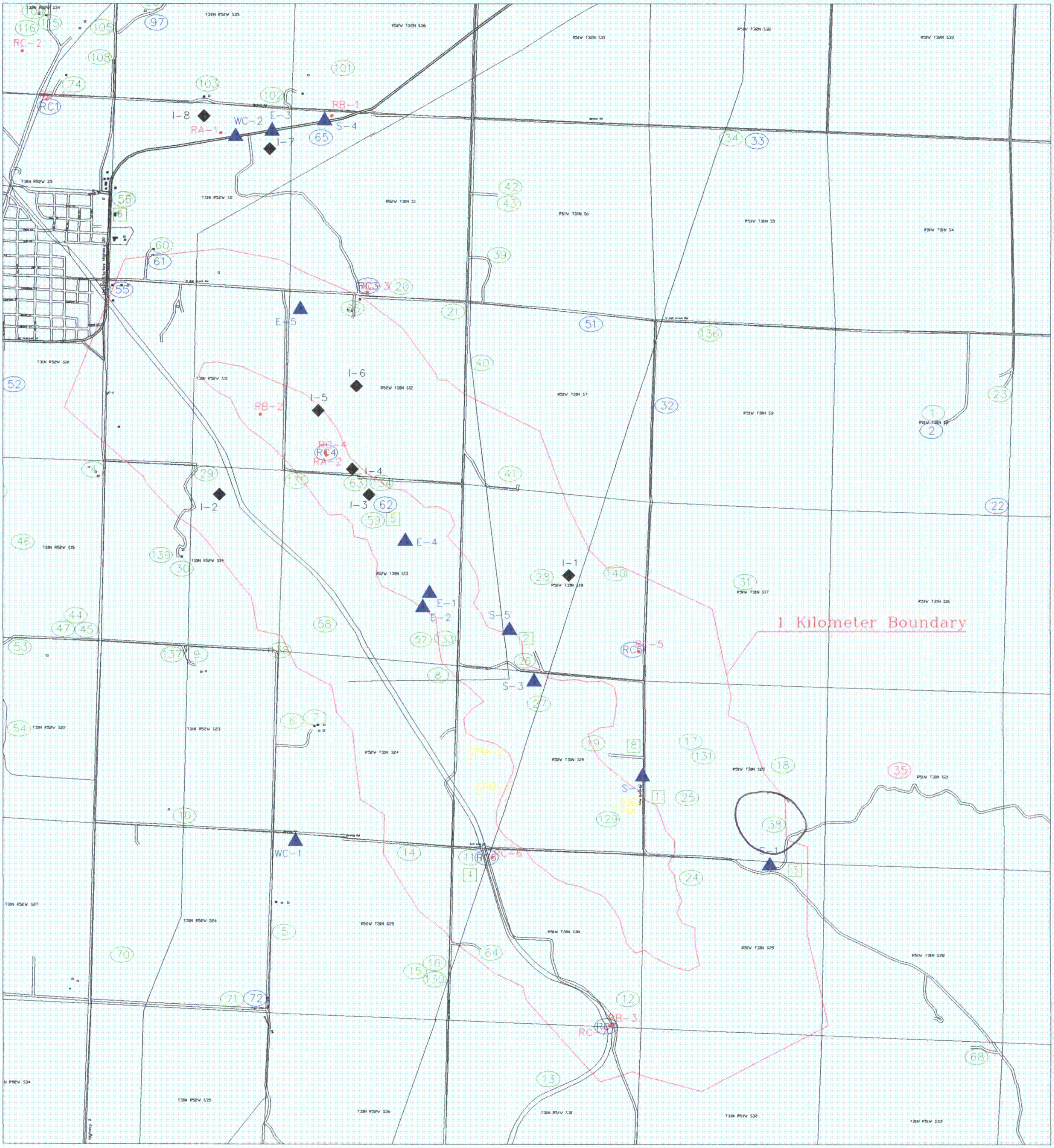
If you have any questions concerning this matter, please contact Jenny Coughlin of my staff at (402) 471-4290.

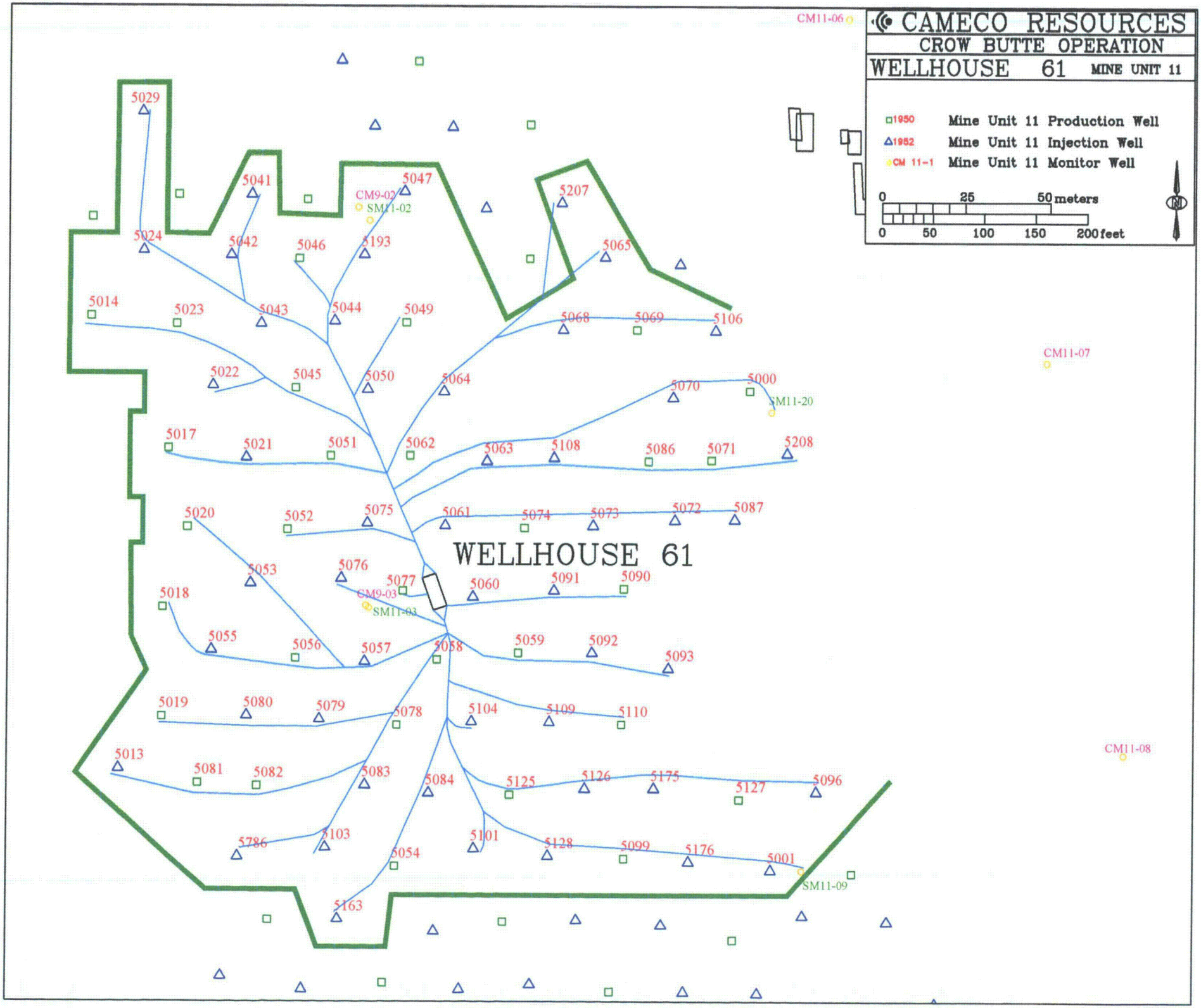
Sincerely,

Michael J. Linder
Director

ML/jlc
word/CBR/letter/NOI_MU11WH61.doc

Cc: Dave Carlson, NDEQ
Jim Stokey, CBR


1 Kilometer Boundary
RC-2
RC1
RA-1
I-8
WC-2
E-3
RB-1
S-4
I-7
E-5
I-6
RB-2
I-5
RC-4
RA-2
I-4
I-2
I-3
E-4
I-1
E-1
E-2
S-5
RC-5
S-3
WC-1
RC-6
RB-3
S-1


CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 61 MINE UNIT 11
1950 Mine Unit 11 Production Well
1952 Mine Unit 11 Injection Well
CM 11-1 Mine Unit 11 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
N
WELLHOUSE 61
CM11-06
CM11-07
CM11-08
CM9-02
SM11-02
CM9-03
SM11-03
SM11-20
SM11-09
5029
5041
5047
5207
5024
5042
5046
5193
5065
5014
5023
5043
5044
5049
5068
5069
5106
5022
5045
5050
5064
5070
5000
5017
5021
5051
5062
5063
5108
5086
5071
5208
5020
5052
5075
5061
5074
5073
5072
5087
5053
5076
5077
5060
5091
5090
5018
5055
5056
5057
5058
5059
5092
5093
5019
5080
5079
5078
5104
5109
5110
5013
5081
5082
5083
5084
5125
5126
5175
5127
5096
5786
5103
5101
5128
5099
5176
5001
5054
5163


CAMECO RESOURCES
CROW BUTTE OPERATION
WELLHOUSE 61 MINE UNIT 11
1950 Mine Unit 11 Production Well
1952 Mine Unit 11 Injection Well
CM 11-1 Mine Unit 11 Monitor Well
0 25 50 meters
0 50 100 150 200 feet
N
WELLHOUSE 61
CM11-06
CM11-07
CM11-08
CM9-02
SM11-02
CM9-03
SM11-03
SM11-20
SM11-09
5029
5041
5047
5207
5024
5042
5046
5193
5065
5014
5023
5043
5044
5049
5068
5069
5106
5022
5045
5050
5064
5070
5000
5017
5021
5051
5062
5063
5108
5086
5071
5208
5020
5052
5075
5061
5074
5073
5072
5087
5053
5076
5077
5060
5091
5090
5018
5055
5056
5057
5058
5059
5092
5093
5019
5080
5079
5078
5104
5109
5110
5013
5081
5082
5083
5084
5125
5126
5175
5127
5096
5786
5103
5101
5128
5099
5176
5001
5054
5163

Well House Start-Up Checklist

Well House # 61

Item	Description	Person		Comments	Date Completed	Initial
	Permit To Operate	Beins/	Stokey		11-8-10	WB
	Complete Pressure Testing (Trunkline and House)	McDowell/Tiensvold/	Stokey		9-26-10	KM
3	Pipelines checked for leaks	McDowell/Tiensvold/	Stokey		9-20-10	KM
4	Pipelines buried	McDowell/Tiensvold/	Stokey		10-19-10	KM
5	~~Pressure gauges manifolds~~	~~McDowell/Tiensvold/~~	~~Stokey~~		9-22-10	KM
6	Injection lines equipped with totalizing flow meters	McDowell/Tiensvold/	Stokey		10-19-10	KM
7	Injection and Production total flows can be measured	McDowell/Tiensvold/	Stokey		10-19-10	KM
8	Unused trunkline locked out by two separate means	McDowell/Tiensvold/	Stokey		9-22-10	KM
9	Isolation valves are closed and chained	McDowell/Tiensvold/	Stokey		9-22-10	KM
10	Map of 2" lines in house	McDowell/Beins/Tiensvold/	Stokey		10-22	KM
11	Well-field Layout map in house	McDowell/Beins/Tiensvold/	Stokey		10-22	KM
12	Check berms	Teahon/Tiensvold/	Stokey		11/3 11/3	WO/BT
13	Pressure check oxygen lines	Roberts/Tiensvold/	Stokey		10-14-10	RR
14	Continuity check on producers	Scoggan/Tiensvold/	Stokey		10-14-10	AA
15	Ground fault check	Scoggan/Tiensvold/	Stokey		10-14-10	AA
16	Communications wire check	Hagman/Tiensvold/	Stokey		10-14-10	TH
17	Heater size check	Scoggan/Tiensvold/	Stokey		10-14-10	AA
18	Processor installed well house	Hagman/Tiensvold/	Stokey		10-14-10	TH
19	UPS installed and operational	Scoggan/Tiensvold/	Stokey		10-14-10	AA
20	Wet house alarm installed	Scoggan/Tiensvold/	Stokey		10-14-10	AA
	Wet house alarm checked	Scoggan/Tiensvold/	Stokey		10-14-10	AA
	Oxygen solenoid checked	Hagman/Tiensvold/	Stokey		10-14-10	TH
23	Check fuses in control panel	Scoggan/Tiensvold/	Stokey		10-14-10	AA
24	~~Program MMI~~	~~Hagman/Tiensvold/~~	~~Stokey~~		10-14-10	TH
25	Program PLC	Hagman/Tiensvold/	Stokey		10-14-10	TH
26	Set Scalar Card 'K' Factors	K. Forbes/P. Dunn/Tiensvold/	Stokey		10-19-10	KF
27	Off tags and lockouts	K. Forbes/P. Dunn/Tiensvold/	Stokey		10-19-10	KF
28	Contaminated and uncontaminated cans	K. Forbes/P. Dunn/Tiensvold/	Stokey		10-19-10	KF
29	Complete 2" lateral inspection	McDowell/Tiensvold/	Stokey		10-21-10	KM
30	Visually inspect entire system to plant	McDowell/Tiensvold/	Stokey		10-19-10	KM
31	Labels on Monitor Wells	McDowell/Tiensvold/	Stokey		10-19-10	KM
32	Valve Station Covers and Stairs Built	Roberts/Tiensvold/	Stokey		11-3-10	RR
33	Manifold Pressure Switches Installed	Scoggan/Tiensvold/	Stokey		10-14-10	AA
34	Injection Filter Installed	McDowell/Tiensvold/	Stokey		9-22-10	KM
35	Filter instrumentation and gauges installed	McDowell/Tiensvold/	Stokey		9-22-10	KM
36	Electric door lock installed	Scoggan/Tiensvold/	Stokey		10-14-10	AA
37	Update Daily Walk Through Inspection form EHS 4-1	Teahon/Tiensvold/	Stokey		10/25/10	TH

SHIFT WELLFIELD INSPECTION SHEET

Date_____ Shift N / D Responsible Operator_____ Shift Lead Operator _____

Corrected By Symbols: K=New Kit, B=Bleed, C=Control Well, P=Run Plugged, S=Submersible Pump/Motor Problem, A=Adjust Valve

WH	Inj. Press	Prod. Press	O2 Set	Inj. Outside Flow Parameters (Corrected By)	Prod. Outside Flow Parameters (Corrected By)	Heat	Fan	Booster Pump	Filter DP	House-keeping Comments (Prod./Safety/Env.)
3										
4										
5										
6										
7										
8										
9Bio										
10										
11										
12										
13										
14										
15										
16										
17										
18										
19										
20										
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										

SHIFT WELLFIELD INSPECTION SHEET

WH	Inj. Press	Prod. Press	O2 Set	Inj. Outside Flow Parameters (Corrected By)	Prod. Outside Flow Parameters (Corrected By)	Heat	Fan	Booster Pump	Filter DP	House-keeping Comments (Prod./Safety/Env.)
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
46A										
47										
47A										
48										
49										
50										
51										
52										
53										
54										
61										

Deep Well	Time:	Annulus Press.:	Injection Press.:	Totalizer:			Flow Rate:	Filter DP
Upflow Production Booster Station	Pump #1 VFD	Pump #2 VFD	Pump #3 VFD	Pump #4 VFD			TL Suct. Press:	TL Disch. Press:
Downflow Injection Booster Station	Pump #1 VFD	Pump #2 VFD	Pump #3 VFD	Pump #4 VFD			TL Suct. Press:	TL Disch. Press:
R.O Building Wall Fans	North	South	Unrestricted	R.O. Building General			Prism Color	Temp:
IX Column Pressure	A	B	C	D	Waste	Flow		Total
	FSA	MU10 Berm						

Corrected By Symbols: K=New Kit, B=Bled, C=Control Well, P=Run Plugged, S=Submersible Pump/Motor Problem, A=Adjust Valve

indicates house is a radiation area

Well House Pressure Check Verification

Pressure check for Well House 61. Date: 9-22-10

Injection:
On 9-20-10 the injection lines and 2" laterals were pressured to 120 psi. This was done using a centrifugal pump and potable water. The time interval was as follows:

Start: 120 psi at _____ ~~AM / PM~~ 30 minutes
Stop: 118 psi at _____ ~~AM / PM~~

The section of trunk line checked was from valve station 30.8 to the well field in ~~WH 30-8~~ WH 61.

Production:
On 9-17-10 the production trunk lines and 2" laterals were pressured to 120 psi. This was done using a centrifugal pump and potable water. The pressure and time interval was as follows:

Start: 120 psi at _____ ~~AM / PM~~ 30 minutes
Stop: 117 psi at _____ ~~AM / PM~~

The section of trunk line was from valve station 30.8 to the well field in WH 61.

Oxygen:
On 10-14-10 the oxygen line was pressured to 125 psi. The pressure and time interval was as follows:

Start: 125 psi at 10:00 (AM) / PM
Stop: 125 psi at 10:30 (AM) / PM

The section of trunk line checked was from valve station _____ to the well field in _____

Kirk McDaniel
Well Field Construction Foreman

CROW BUTTE RESOURCES, INC.
86 Crow Butte Road
P. O. Box 169 **(308) 665-2215**
Crawford, Nebraska 69339-0169 **(308) 665-2341 - FAX**

GROUND RESISTANCE TEST RECORD

TEST SET USED: AEMC Model 3711 Ground Resistance Tester

GROUND TEST RESULTS: Wellhouse 61
OHMS: Resistance Total (Rt) = 10.4 OHMS

R1 is NRPPD pole ground rod, R2 and R3 are the ground rods installed at the header house

$$Rt = \frac{1}{(1/R1 + 1/R2 + 1/R3)}$$

$$Rt = \frac{1}{(1/32.8 + 1/31.4 + 1/29.6)}$$

Rt = 10.4 Ohms

CONCLUSIONS:

THE TEST RESULTS ARE SATISFACTORY

TEST PERFORMED BY:

CROW BUTTE RESOURCES, INC.

Gabe Scoggan Date: Oct. 14, 2010

Crow Butte Resources

Pump Continuity

Wellhouse 61

Date: 9-27-18

Technician: Gabe Scoggan

Non-Service Lines Locked-Out: (Yes) No

Item #	Well #	Initial	Meter Reading		Comments
1	P 5000		1.3	Ohms	
2	P 5014		1.2	Ohms	
3	P 5017		1.5	Ohms	
4	P 5018		1.5	Ohms	
5	P 5019		1.6	Ohms	
6	P 5020		1.5	Ohms	
7	P 5023		1.1	Ohms	
8	P 5045		1.3	Ohms	
9	P 5046		1.3	Ohms	
10	P 5049		1.0	Ohms	
11	P 5051		1.0	Ohms	
12	P 5052		1.2	Ohms	
13	P 5054		1.3	Ohms	
14	P 5056		1.1	Ohms	
15	P 5058		.6	Ohms	
16	P 5059		.8	Ohms	
17	P 5062		.9	Ohms	
18	P 5069		1.9	Ohms	
19	P 5071		1.2	Ohms	

Item #	Well #	Initial	Meter Reading		Comments
20	P 5074		1.0	Ohms	
21	P 5077		.5	Ohms	
22	P 5078		.9	Ohms	
23	P 5081		1.5	Ohms	
24	P 5082		1.0	Ohms	
25	P 5086		1.5	Ohms	
26	P 5090		1.0	Ohms	
27	P 5099		1.6	Ohms	
28	P 5110		1.0	Ohms	
29	P 5125		1.1	Ohms	
30	P 5127		1.8	Ohms	
				Ohms	
	SM 11-2		1.2	Ohms	
	SM 11-3		.6	Ohms	
	SM 11-9		1.4	Ohms	
	SM 11-20		1.4	Ohms	
				Ohms	
				Ohms	
				Ohms	

ground rods 32.8
31.4
29.6

Item #	Well #	Initialed by	Comments
39	I 5106		
40	I 5108		
41	I 5109		
42	I 5126		
43	I 5128		Replaced Weeks New Garage
44	I 5163		
45	I 5175		
46	I 5176		
47	I 5193		
48	I 5207		
49	I 5208		
50	I 5786		

27Sep10
M.

Item #	Well #	Initialed by	Comments
1	I 5001		Needs New Gauge Replaced
2	I 5013		
3	I 5021		
4	I 5022		
5	I 5024		
6	I 5029		
7	I 5041		
8	I 5042		
9	I 5043		
10	I 5044		
11	I 5047		
12	I 5050		Needs New Gauge Replaced
13	I 5053		
14	I 5055		
15	I 5057		
16	I 5060		
17	I 5061		
18	I 5063		
19	I 5064		

Item #	Well #	Initialed by	Comments
20	I 5065		Need New Guage Replaced
21	I 5068		
22	I 5070		
23	I 5072		
24	I 5073		
25	I 5075		
26	I 5076		
27	I 5079		
28	I 5080		
29	I 5083		
30	I 5084		
31	I 5087		
32	I 5091		
33	I 5092		
34	I 5093		
35	I 5096		Needs replaced wellhead FH New Guage
36	I 5101		
37	I 5103		
38	I 5104		

27 Sep 10

Crow Butte Resources

Final Inspection of Piping Wellhead to Plant

Wellhouse: 61

Review of Pressure Test Data Complete: Bob [signature]

Date: 11/8/2010

Mine Manager:

W.F.C. Foreman: [signature] McDowell

Non-Service Lines Locked-Out: BD - N/A

Item #	Well #	Initialed by	Comments
1	P 5000	[initials]	
2	P 5014	[initials]	
3	P 5017	[initials]	
4	P 5018	[initials]	
5	P 5019	[initials]	
6	P 5020	[initials]	
7	P 5023	[initials]	
8	P 5045	[initials]	
9	P 5046	[initials]	
10	P 5049	[initials]	
11	P 5051	[initials]	
12	P 5052	[initials]	
13	P 5054	[initials]	
14	P 5056	[initials]	
15	P 5058	[initials]	
16	P 5059	[initials]	
17	P 5062	[initials]	
18	P 5069	[initials]	
19	P 5071	[initials]	

Item #	Well #	Initialed by	Comments
20	P 5074	[initials]	
21	P 5077	[initials]	
22	P 5078	[initials]	
23	P 5081	[initials]	
24	P 5082	[initials]	
25	P 5086	[initials]	
26	P 5090	[initials]	
27	P 5099	[initials]	
28	P 5110	[initials]	
29	P 5125	[initials]	
30	P 5127	[initials]	

27 Sep 10

[signature]

SERP 10-10 Evaluation

CROW BUTTE RESOURCES, INC.

SAFETY AND ENVIRONMENTAL REVIEW PANEL

Evaluation Report – SERP 10-10

Proposed Revisions to the Approved License Renewal Application

November 8, 2010

The Crow Butte Resources, Inc. (CBR) Safety and Environmental Review Panel (SERP) met in accordance with USNRC Source Materials License SUA-1534 to review proposed changes to the License Renewal Application. This change is recommended to reflect a recent organizational change that indirectly affects the radiation safety department.

The SERP appointed for this evaluation consisted of the following members:

Name	Title	Area of Expertise
Jim Stokey	Mine Manager	Management
Larry Teahon	Manager of SHEQ	Environmental
Rhonda Grantham	Radiation Safety Officer	Radiation Safety
Doug Pavlick	Operations Manager	Operations

Dr. Stokey is the SERP Chairman. Mr. Teahon was appointed SERP Secretary for this evaluation.

PURPOSE OF SERP EVALUATION

The purpose of the SERP evaluation was to review a change made to the corporate organizational structure. The evaluation adds the position of Director of Radiation Safety and Licensing and changes the reporting requirements for the Safety, Health, Environment, and Quality Manager and the Radiation Safety Officer.

An organizational change has been made that directly affects the reporting responsibilities of the radiation safety staff. The reporting for the Manager of Safety, Health, Environment and Quality (SHEQ) and Radiation Safety Officer (RSO) has been changed as shown in the revised Figure 5.1-1 from the approved application. The SHEQ Manager and RSO now report directly to the General Manager who reports directly to the Vice President. The new position of Director of Radiation Safety and Licensing has been added to the organizational structure. This position reports directly to the President and is responsible for submitting permit and license applications to appropriate regulatory agencies and will manage the approval process. This position will also act as a resource for the site SHEQ managers to ensure that permit conditions, agency responses, revisions, and, other Cameco SHEQ requirements are met. Since the RSO reports directly to the General Manager who in turn reports to the Vice President a change in the reporting for the RSO will directly affect the radiation safety staff reporting.

AUTHORITY OF SERP

License Condition 9.4 allows CBR to make changes in the facility or procedures or conduct tests or experiments that are not presented in the approved application if such changes do not:

i. Result in any appreciable increase in the frequency of occurrence of an accident previously evaluated in the license application (as updated);
ii. Result in any appreciable increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the license application (as updated);
iii. Result in any appreciable increase in the consequences of an accident previously evaluated in the license application (as updated);
iv. Result in any appreciable increase in the consequences of a malfunction of an SSC previously evaluated in the license application (as updated);
v. Create a possibility for an accident of a different type that any previously evaluated in the license application (as updated);
vi. Create a possibility for a malfunction of an SSC with a different result than previously evaluated in the license application (as updated);
vii. Result in a departure from the method of evaluation described in the license application (as updated) used in establishing the final safety evaluation report (FSER) or the environmental assessment (EA) or the technical evaluation reports (TERs) or other analysis and evaluations for license amendments.
viii. For the purposes of SERP evaluations, SSC means any SSC which has been referenced in a staff SER, TER, EA, or environmental impact statement (EIS) and supplements and amendments.

SERP EVALUATION

The SERP evaluation was conducted in accordance with SHEQ MS Volume II, *Management Procedures Manual;* Chapter 6, *Managing Change.* The SERP reviewed the proposed change and evaluated this information as compared with the requirements of the licensing basis, including the following documents:

- Title 10, Code of Federal Regulations;
- Source Materials License SUA-1534, Amendment No. 25 dated April 20, 2010;
- *Application for Renewal of USNRC Radioactive Source Materials License SUA-1534,* Crow Butte Resources, Inc. December 1995;
- *Environmental Assessment for Renewal of Source Materials License No. SUA-1534,* USNRC February 1998;
- *Safety Evaluation Report for Renewal of Source Materials License No. SUA-1534,* USNRC February 1998;
- Technical Evaluation Reports issued in support of amendments to SUA-1534.

Title 10 Code of Federal Regulations

The proposed changes to the LRA will have no impact on CBR's ability to meet all applicable NRC regulations.

Source Materials License SUA-1534 Requirements

The SERP reviewed the requirements contained in Source Materials License SUA-1534, Amendment 25, dated April 20, 2010. The proposed changes will have no impact on CBR's ability to meet NRC License Conditions.

Environmental Assessment

The SERP reviewed the contents of the Environmental Assessment (EA) prepared by NRC in February 1998 to determine whether the proposed change caused substantive safety or environmental impacts. The proposed changes to the LRA do not conflict with the EA.

Financial Surety

The proposed changes to the LRA will have no effect on the level of financial surety maintained by CBR.

Safety Evaluation Report

The Safety Evaluation Report (SER) prepared by NRC in 1998 principally provides the basis for worker safety at Crow Butte. The proposed change applies to the following sections of the SER:

Section 3.1, Organization, discusses the relationships of the organizational components responsible for operations, radiation safety, and environmental protection at the Crow Butte site. The proposed change does not alter the organizational position of the RSO, in accordance with organizational changes previously approved by the CBR SERP. Therefore, there is no change to the intent of Section 3.1 of the SER.

Based on this review, the proposed changes to the LRA will have no impact on CBR's ability to continue to meet the commitments cited in the SER.

Technical Evaluation Reports

The SERP reviewed the Technical Evaluation Reports (TERs) prepared by NRC staff to support amendments made to SUA-1534 since renewal in 1998. None of the TERs prepared since license renewal directly address the issues related to the proposed revisions to the LRA.

Degradation of Essential Safety or Environmental Commitment

SUA-1534 allows CBR to make changes as long as they do not degrade the essential safety or environmental commitments made in the application. The SERP determined that safety commitments made in the LRA and discussed in the EA and the SER are not affected by the proposed changes to the LRA and will not degrade the safety and environmental commitments.

Conclusion

It was the conclusion of the SERP that the proposed change is allowed by License SUA-1534 and should be approved. The revised pages of the license application required in accordance with License Condition 9.4 were reviewed and approved and are attached to this evaluation.

Approved this 8th day of November 2010:

CROW BUTTE RESOURCES, INC.

SERP 10-10

Jim Stokey, General Manager
SERP Chairman

Larry Teahon, Manager of Safety, Health, Environment and Quality
SERP Secretary

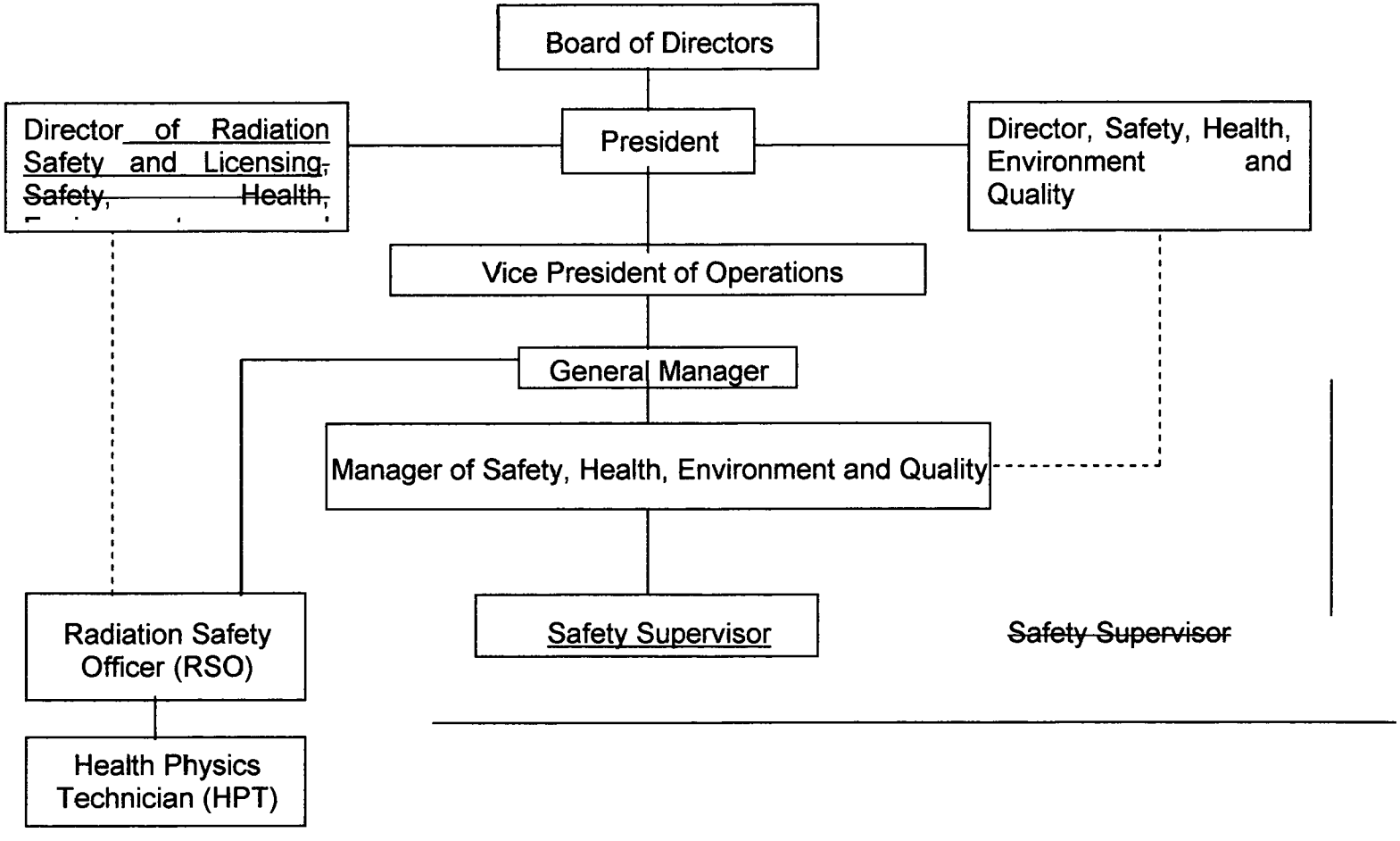
Rhonda Grantham, Radiation Safety Officer

Doug Pavlick, Operations Manager

Proposed License Renewal Application
Page Changes

(Edited Version)

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality, the Director of Radiation Safety and Licensing, the Manager of Safety, Health, Environment and Quality, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR OF RADIATION SAFETY AND LICENSING

The Director of Radiation Safety and Licensing reports directly to the President, is responsible for submitting permit and license applications to appropriate regulatory agencies and will manage the approval process. The position will also act as a resource for the site SHEQ managers to ensure permit conditions, agency responses, revisions, and, other Cameco SHEQ requirements are met. Additionally, this position will act as the Corporate RSO and assists in the development and review of radiological sampling and analysis and health physics programs. The Director of Radiation Safety and Licensing has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment or potentially become a violation of state or federal regulation as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

~~5.1.5.~~5.1.6. DIRECTOR~~,~~ OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director~~,~~ of Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director~~,~~ of Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director~~,~~ of Safety, Health, Environment and Quality has

the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

~~5.1.6.~~5.1.7. MANAGER OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of Safety, Health, Environment and Quality is responsible for all ~~radiation protection~~, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. The Manager of Safety, Health, Environment and Quality reports directly to the ~~Director, Safety, Health, Environment and Quality and supervises the RSO to ensure that the radiation safety and environmental monitoring and protection programs are conducted in a manner consistent with regulatory requirements.~~General Manager. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager of Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of Safety, Health, Environment and Quality has a secondary reporting requirement to the Director of Safety, Health, Environment and Qualtiy.~~General Manager.~~

~~5.1.7.~~5.1.8. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to ~~the~~ the General Manager. ~~of Safety, Health, Environment and Quality.~~

~~5.1.8.~~5.1.9. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

~~5.1.9.~~5.1.10. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of Safety, Health, Environment, and Quality

5.2. ALARA POLICY

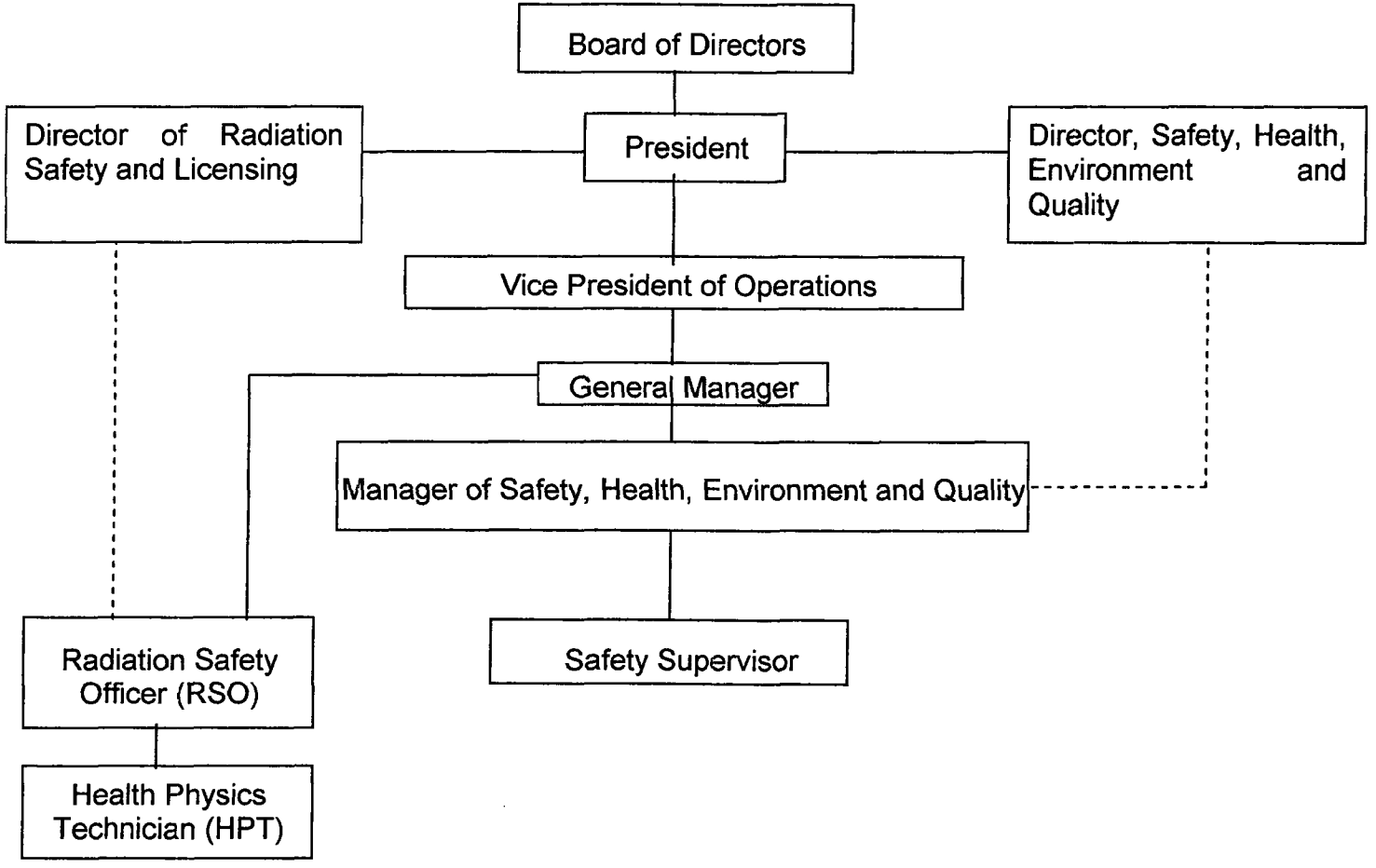
The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

Proposed License Renewal Application
Page Changes

(Replacement Pages Version)

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality, the Director of Radiation Safety and Licensing, the Manager of Safety, Health, Environment and Quality, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR OF RADIATION SAFETY AND LICENSING

The Director of Radiation Safety and Licensing reports directly to the President, is responsible for submitting permit and license applications to appropriate regulatory agencies and will manage the approval process. The position will also act as a resource for the site SHEQ managers to ensure permit conditions, agency responses, revisions, and, other Cameco SHEQ requirements are met. Additionally, this position will act as the Corporate RSO and assists in the development and review of radiological sampling and analysis and health physics programs. The Director of Radiation Safety and Licensing has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment or potentially become a violation of state or federal regulation as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

5.1.6. DIRECTOR OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director of Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director of Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director of Safety, Health, Environment and Quality has

the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

5.1.7. MANAGER OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of Safety, Health, Environment and Quality is responsible for all, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. The Manager of Safety, Health, Environment and Quality reports directly to the General Manager. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager of Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of Safety, Health, Environment and Quality has a secondary reporting requirement to the Director of Safety, Health, Environment and Qualtiy.

5.1.8. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to the General Manager.

5.1.9. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

5.1.10. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of Safety, Health, Environment, and Quality

5.2. ALARA POLICY

The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

5.2.1. MANAGEMENT RESPONSIBILITIES

Consistent with Regulatory Guide 8.31 *Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As*

License Renewal Application

Affected Pages (highlighted version)

2010 SERP Actions

SERP #10-07 and SERP #10-10

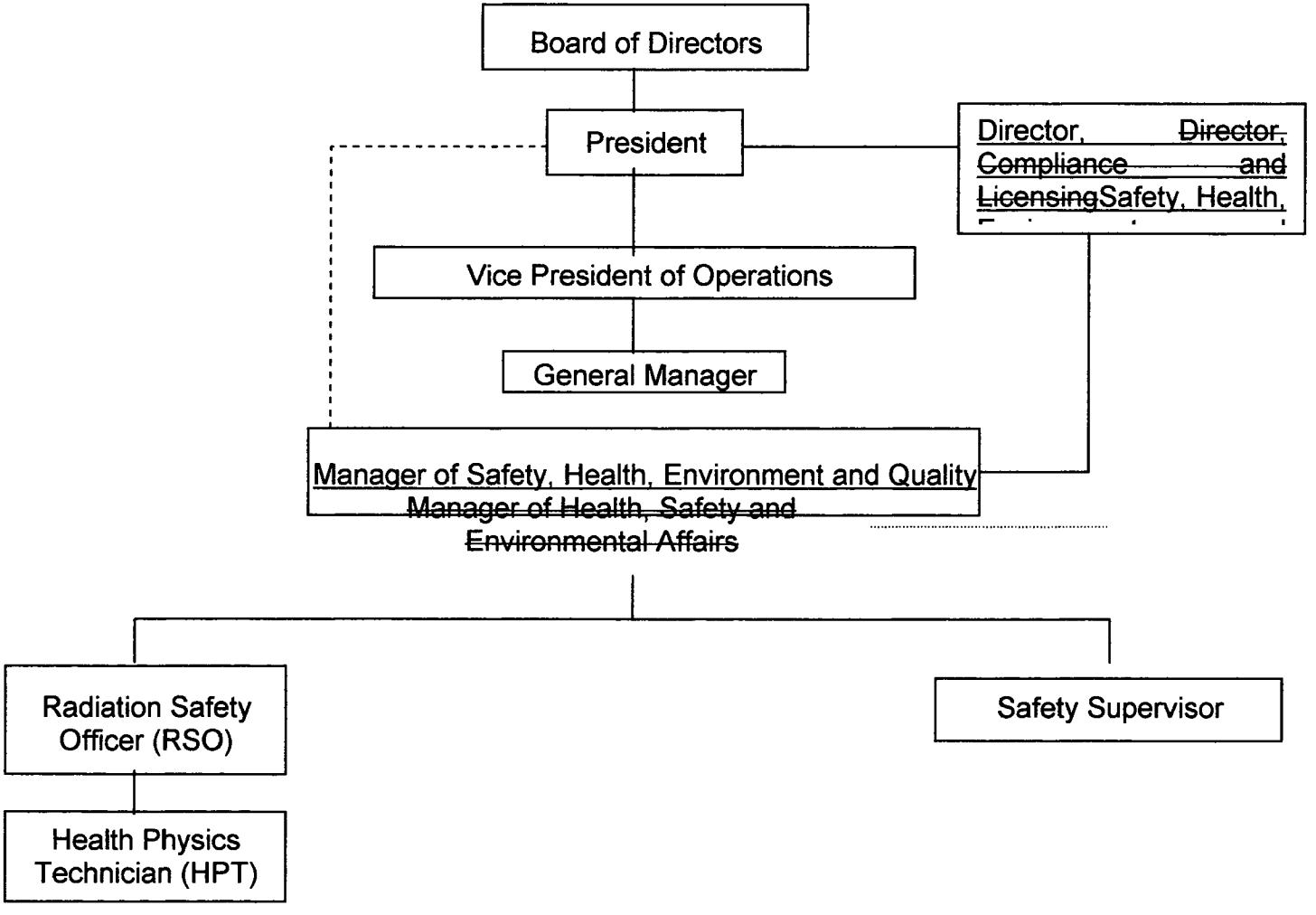
5.1.2. PRESIDENT

The President is responsible for interpreting and acting upon the Board of Directors policy and procedural decisions. The President directly supervises the~~—~~ Vice President of Operations~~—and~~ and Director, ~~—~~Safety, Health, Environment and Quality.~~Director, Compliance and Licensing.~~ The President is empowered by the Board of Directors to have the responsibility and authority for the radiation safety and environmental compliance programs. The President is responsible for ensuring that the operations staff is complying with all applicable regulations and permit/license conditions through direct supervision of the Vice President of Operations~~—and~~ and Director, Safety, Health, Environment and Quality.~~.~~

5.1.3. VICE PRESIDENT OF OPERATIONS

The Vice President of Operations reports to the President and is directly responsible for ensuring that CBR personnel comply with industrial safety, radiation safety, and environmental protection programs as established in the EMS Program. The Vice President of Operations is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Vice President of Operations has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of ~~Manager Safety, Health, and Environmental Affairs~~Safety, Health, Environment and Quality ~~or the RSO~~or the RSO~~.~~. The Vice President of Operations directly supervises the General Manager of Operations.

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality~~Compliance and Licensing,~~ the Manager of Safety, Health, Environment~~Health, Safety and Environmental~~ and ~~Affairs~~Quality, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR, ~~COMPLIANCE AND LICENSING~~SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director, ~~Compliance and Licensing~~Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director, ~~Compliance and Licensing~~Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director, ~~Compliance and Licensing~~Safety, Health, Environment and Quality has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of ~~Health, Safety and Environmental Affairs~~Safety, Health, Environment and Quality or the RSO. ~~The Director, Compliance and Licensing may also serve as Corporate Radiation Safety Officer (CRSO) and if doing so, shall meet the qualifications described in Regulator Guide 8.31.~~

5.1.6. MANAGER OF ~~HEALTH, SAFETY, AND ENVIRONMENTAL AFFAIRS~~SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality is responsible for all radiation protection, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. The

Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality reports directly to the ~~General Manager~~Director, Safety, Health, Environment and Quality and supervises the RSO to ensure that the radiation safety and environmental monitoring and protection programs are conducted in a manner consistent with regulatory requirements. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality has a secondary reporting requirement to the ~~Director, Compliance and Licensing~~ President.

5.1.7. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to the Manager of ~~Health, Safety, and Environmental Affairs~~Safety, Health, Environment and Quality.

5.1.8. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

5.1.9. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of ~~Health, Safety and Environmental Affairs.~~Safety, Health, Environment, and Quality

5.2. ALARA POLICY

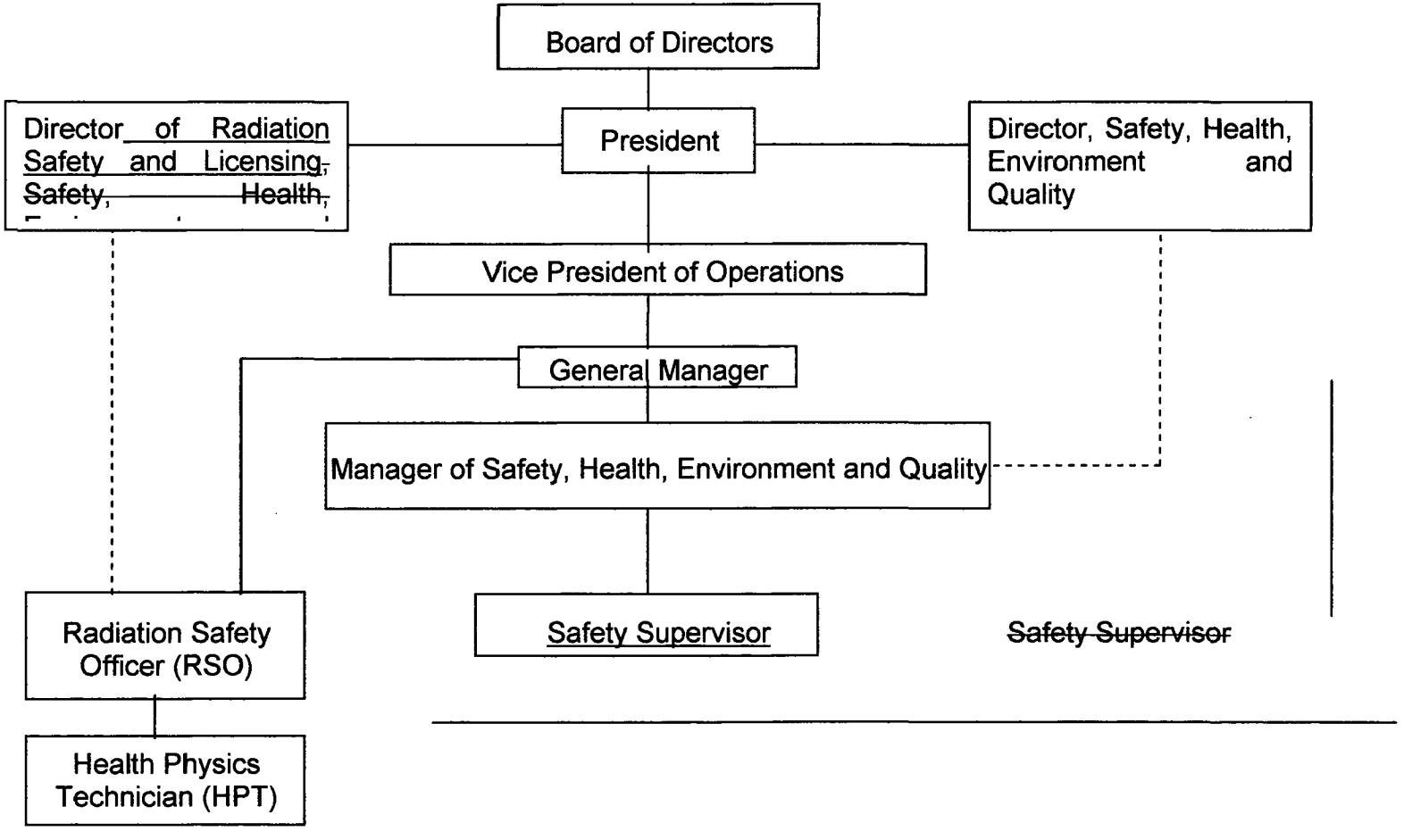
The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

5.2.1. MANAGEMENT RESPONSIBILITIES

Consistent with Regulatory Guide 8.31 *Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Reasonably Achievable* (Revision 1, May 2002), the licensee management is responsible for the development, implementation, and enforcement of applicable rules, policies, and procedures as directed by regulatory agencies and company policies. These shall include the following:

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality, the Director of Radiation Safety and Licensing, the Manager of Safety, Health, Environment and Quality, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR OF RADIATION SAFETY AND LICENSING

The Director of Radiation Safety and Licensing reports directly to the President, is responsible for submitting permit and license applications to appropriate regulatory agencies and will manage the approval process. The position will also act as a resource for the site SHEQ managers to ensure permit conditions, agency responses, revisions, and, other Cameco SHEQ requirements are met. Additionally, this position will act as the Corporate RSO and assists in the development and review of radiological sampling and analysis and health physics programs. The Director of Radiation Safety and Licensing has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment or potentially become a violation of state or federal regulation as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

~~5.1.5.~~5.1.6. DIRECTOR~~,~~ OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director~~,~~ of Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director~~,~~ of Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director~~,~~ of Safety, Health, Environment and Quality has

the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

~~5.1.6.~~5.1.7. MANAGER OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of Safety, Health, Environment and Quality is responsible for all ~~radiation protection~~, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. _The Manager of Safety, Health, Environment and Quality reports directly to the ~~Director, Safety, Health, Environment and Quality and supervises the RSO to ensure that the radiation safety and environmental monitoring and protection programs are conducted in a manner consistent with regulatory requirements.~~General Manager. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager of Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of Safety, Health, Environment and Quality has a secondary reporting requirement to the Director of Safety, Health, Environment and Qualtiy.~~General Manager.~~

~~5.1.7.~~5.1.8. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to ~~the~~ the General Manager. ~~of Safety, Health, Environment and Quality.~~

~~5.1.8.~~5.1.9. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

~~5.1.9.~~5.1.10. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of Safety, Health, Environment, and Quality

5.2. ALARA POLICY

The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

License Renewal Application

Affected Pages (replacement pages)

2010 SERP Actions

SERP #10-07 and SERP #10-10

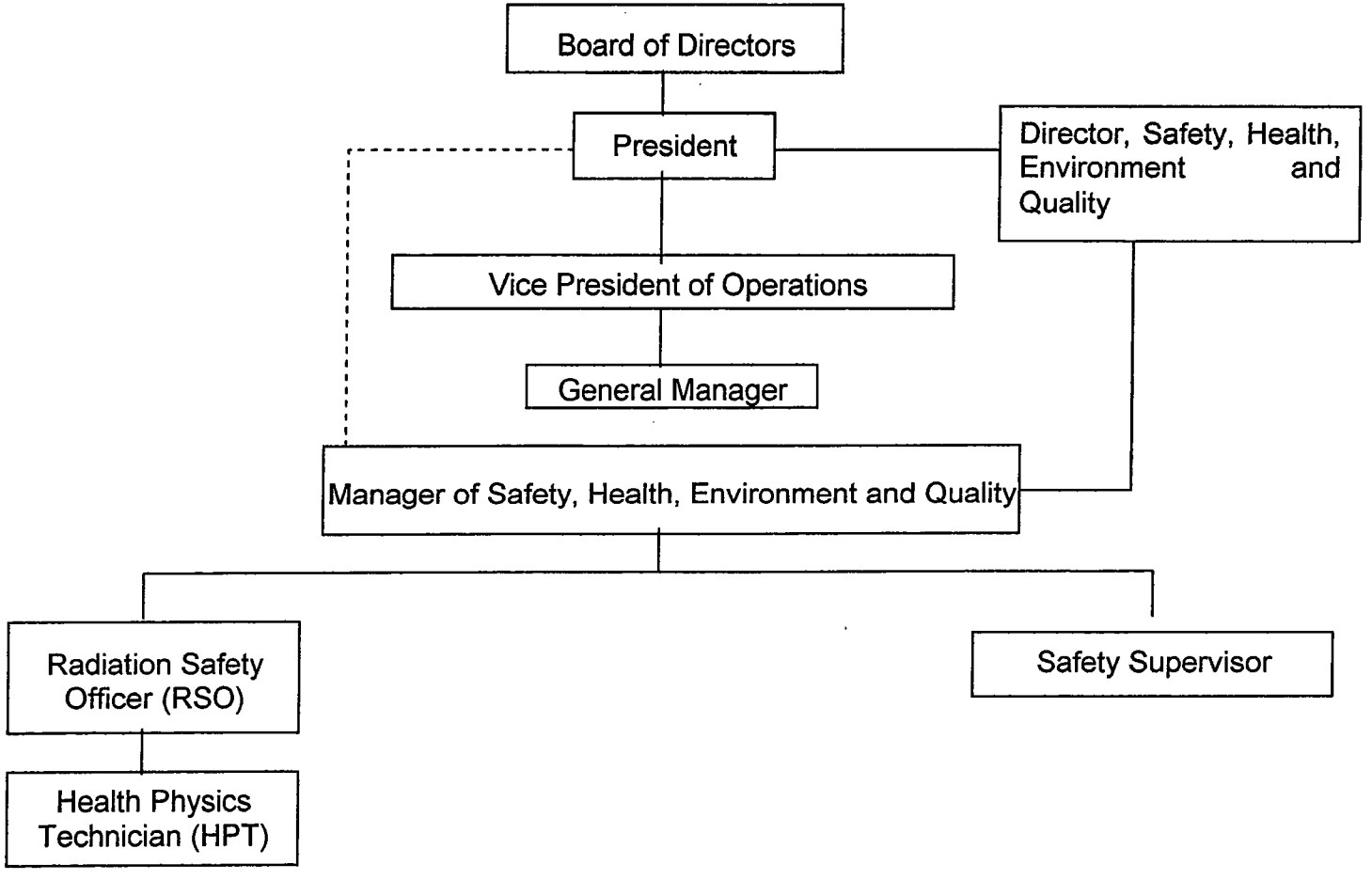
5.1.2. PRESIDENT

The President is responsible for interpreting and acting upon the Board of Directors policy and procedural decisions. The President directly supervises the Vice President of Operations and Director, Safety, Health, Environment and Quality. The President is empowered by the Board of Directors to have the responsibility and authority for the radiation safety and environmental compliance programs. The President is responsible for ensuring that the operations staff is complying with all applicable regulations and permit/license conditions through direct supervision of the Vice President of Operations and Director, Safety, Health, Environment and Quality.

5.1.3. VICE PRESIDENT OF OPERATIONS

The Vice President of Operations reports to the President and is directly responsible for ensuring that CBR personnel comply with industrial safety, radiation safety, and environmental protection programs as established in the EMS Program. The Vice President of Operations is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Vice President of Operations has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO. The Vice President of Operations directly supervises the General Manager of Operations.

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality the Manager of Safety, Health, Environment and Quality, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR, SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director, Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director, Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director, Safety, Health, Environment and Quality has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

5.1.6. MANAGER OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of Safety, Health, Environment and Quality is responsible for all radiation protection, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. The Manager of Safety, Health, Environment and Quality reports directly to the Director, Safety, Health, Environment and Quality and supervises the RSO to ensure that the radiation safety and environmental monitoring and protection programs are conducted in a manner consistent with regulatory requirements. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs.

The Manager of Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of Safety, Health, Environment and Quality has a secondary reporting requirement to the President.

5.1.7. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to the Manager of Safety, Health, Environment and Quality.

5.1.8. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

5.1.9. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the

RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of Safety, Health, Environment, and Quality

5.2. ALARA POLICY

The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

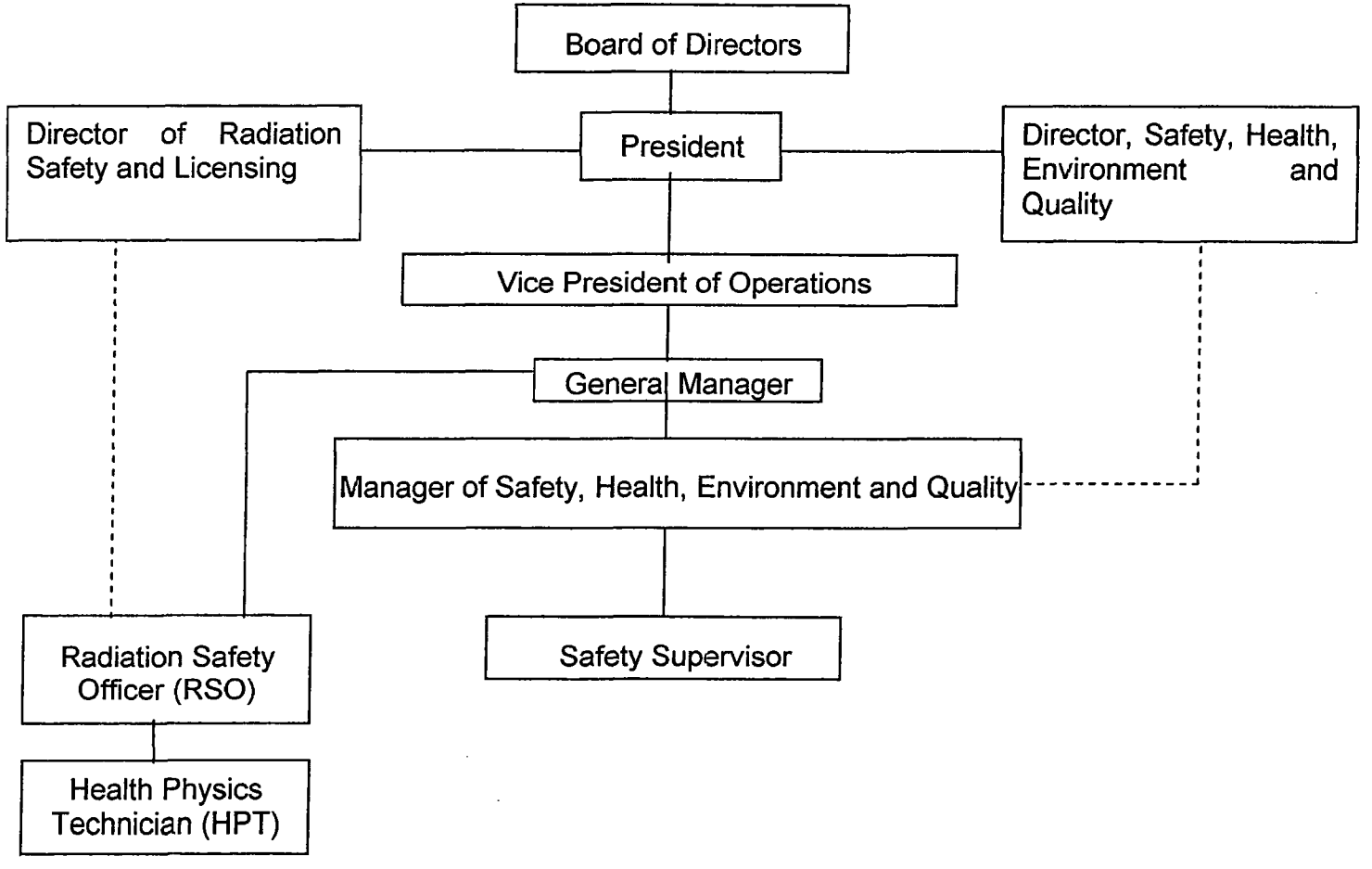
In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

5.2.1. MANAGEMENT RESPONSIBILITIES

Consistent with Regulatory Guide 8.31 *Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As Low As Reasonably Achievable* (Revision 1, May 2002), the licensee management is responsible for the development, implementation, and enforcement of applicable rules, policies, and procedures as directed by regulatory agencies and company policies. These shall include the following:

1 The development of a strong commitment to and continuing support of the implementation and operations of the ALARA program;
2 An Annual Audit Program which reviews radiation monitoring results, procedural, and operational methods;
3 A continuing evaluation of the Health Physics Program including adequate staffing and support; and
4 Proper training and discussions that address the ALARA program and its function to all facility employees and, when appropriate, to contractors and visitors.

Figure 5.1-1: Crow Butte Resources Organizational Chart



5.1.4. GENERAL MANAGER

The General Manager is responsible for all uranium production activity at the project site. The General Manager is also responsible for implementing any industrial and radiation safety and environmental protection programs associated with operations. The General Manager is authorized to immediately implement any action to correct or prevent hazards. The General Manager has the responsibility and the authority to suspend, postpone or modify, immediately if necessary, any activity that is determined to be a threat to employees, public health, the environment, or potentially a violation of state or federal regulations. The General Manager cannot unilaterally override a decision for suspension, postponement or modification if that decision is made by the Vice President of Operations, the Director, Safety, Health, Environment and Quality, the Director of Radiation Safety and Licensing, the Manager of Safety, Health, Environment and Quality, or the RSO. The General Manager reports directly to the Vice President of Operations.

5.1.5. DIRECTOR OF RADIATION SAFETY AND LICENSING

The Director of Radiation Safety and Licensing reports directly to the President, is responsible for submitting permit and license applications to appropriate regulatory agencies and will manage the approval process. The position will also act as a resource for the site SHEQ managers to ensure permit conditions, agency responses, revisions, and, other Cameco SHEQ requirements are met. Additionally, this position will act as the Corporate RSO and assists in the development and review of radiological sampling and analysis and health physics programs. The Director of Radiation Safety and Licensing has the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment or potentially become a violation of state or federal regulation as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

5.1.6. DIRECTOR OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Director of Safety, Health, Environment and Quality reports directly to the President and is responsible for ensuring the corporate personnel comply with industrial safety, radiation safety, and environmental protection programs as stated in the EHS Management System. The Director of Safety, Health, Environment and Quality is also responsible for company compliance with all regulatory license conditions/stipulations, regulations and reporting requirements. The Director of Safety, Health, Environment and Quality has

the responsibility and authority to terminate immediately any activity that is determined to be a threat to employees or public health, the environment, or potentially a violation of state or federal regulations as indicated in reports from the Manager of Safety, Health, Environment and Quality or the RSO.

5.1.7. MANAGER OF SAFETY, HEALTH, ENVIRONMENT AND QUALITY

The Manager of Safety, Health, Environment and Quality is responsible for all, health and safety, and environmental programs as stated in the EMS Program and for ensuring that CBR complies with all applicable regulatory requirements. The Manager of Safety, Health, Environment and Quality reports directly to the General Manager. This position assists in the development and review of radiological and environmental sampling and analysis procedures and is responsible for routine auditing of the programs. The Manager of Safety, Health, Environment and Quality has no production-related responsibilities. The Manager of Safety, Health, Environment and Quality also has the responsibility and authority to suspend, postpone, or modify any activity that is determined to be a threat to employees, public health, the environment or potentially a violation of state of federal regulations. As such, the Manager of Safety, Health, Environment and Quality has a secondary reporting requirement to the Director of Safety, Health, Environment and Qualtiy.

5.1.8. RADIATION SAFETY OFFICER

The RSO is responsible for the development, administration, and enforcement of all radiation safety programs. The RSO is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate radiation safety hazards and/or maintain regulatory compliance. The RSO is responsible for the implementation of all on-site environmental programs, including emergency procedures. The RSO inspects facilities to verify compliance with all applicable requirements in the areas of radiological health and safety. The RSO works closely with all supervisory personnel to insure that established programs are maintained. The RSO is also responsible for the collection and interpretation of employee exposure related monitoring, including data from radiological safety. The RSO makes recommendations to improve any and all radiological safety related controls. The RSO has no production-related responsibilities. The RSO will report to the General Manager.

5.1.9. HEALTH PHYSICS TECHNICIAN

The Health Physics Technician (HPT) assists the RSO with the implementation of the radiological and industrial safety programs. The HPT is responsible for the orderly collection and interpretation of all monitoring data, to include data from radiological safety and environmental programs. The HPT reports directly to the RSO.

5.1.10. SAFETY SUPERVISOR

The Safety Supervisor is responsible for the non-radiation related health and safety programs. The Safety Supervisor is authorized to conduct inspections and to immediately order any change necessary to preclude or eliminate safety hazards and/or maintain regulatory compliance. Responsibilities include the development and implementation of health and safety programs in compliance with Occupational Safety and Health Administration (OSHA) regulations. Responsibilities of the Safety Supervisor include development of industrial safety and health programs and procedures, coordination with the RSO where industrial and radiological safety concerns are interrelated, safety and health training of new and existing employees, and the maintenance of appropriate records to document compliance with regulations. The Safety Supervisor may also be a qualified HPT and may function in that capacity when needed. The Safety Supervisor reports directly to the Manager of Safety, Health, Environment, and Quality

5.2. ALARA POLICY

The purpose of the ALARA (As Low As Reasonably Achievable) Policy is to keep exposures to all radioactive materials and other hazardous material as low as possible and to as few personnel as possible, taking into account the state of technology and the economics of improvements in relation to benefits to the public health and safety, and other societal and socioeconomic considerations, and in relation to the utilization of atomic energy in the public interest.

In order for an ALARA Policy to correctly function, all individuals including management, supervisors, health physics staff, and workers, must take part in and share responsibility for keeping all exposures as low as reasonably achievable. This policy addresses this need and describes the responsibilities of each level in the organization.

5.2.1. MANAGEMENT RESPONSIBILITIES

Consistent with Regulatory Guide 8.31 *Information Relevant to Ensuring That Occupational Radiation Exposures at Uranium Recovery Facilities Will Be As*