

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	Docket No. 72-22-ISFSI
PRIVATE FUEL STORAGE, LLC	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel Storage Installation)	)	May 12, 1999

**STATE OF UTAH'S SECOND AMENDED RESPONSES AND
SUPPLEMENTAL RESPONSES TO APPLICANT'S
FIRST SET OF FORMAL DISCOVERY REQUESTS**

The State of Utah amends and supplements its April 14, 1999 and April 29, 1999 response to the Applicant's First Set of Formal Discovery Requests ("Applicant's Discovery Requests"). This response supplements the State's responses to General Interrogatories Nos. 3 and 4, and Document Requests for Utah Contention K (Inadequate Consideration of Credible Accidents) and Utah Contention M (Probable Maximum Flood); and amends Request for Admissions Nos. 14, 15, and 16 for Utah K; Request for Admissions Nos. 1 and 4 and Interrogatories 1-6 for Utah M; and corrects pages 37 and 53 in the State's April 14, 1999 Response to Applicant's Discovery Requests.

**I. STATE'S SUPPLEMENTAL RESPONSES TO GENERAL
INTERROGATORIES**

GENERAL INTERROGATORY NO. 1. State the name, business address, and job title of each person who was consulted and/or who supplied

information for responding to interrogatories, requests for admissions and requests for the production of documents. Specifically note for which interrogatories, requests for admissions and requests for production each such person was consulted and/or supplied information.

If the information or opinions of anyone who was consulted in connection with your response to an interrogatory or request for admission differs from your written answer to the discovery request, please describe in detail the differing information or opinions, and indicate why such differing information or opinions are not your official position as expressed in your written answer to the request.

STATE'S AMENDED RESPONSE TO GENERAL INTERROGATORY NO. 1.

The State, pursuant to agreement with PFS, files declarations (included hereto as Exhibit 1) for each person who assisted in answering specific interrogatories and requests for admissions, specifically Denise Chancellor, Esq. (General Interrogatories), David B. Cole (Utah Contention M), and David Larsen (Utah Contention K).

GENERAL INTERROGATORY NO. 3. For each admitted Utah contention, give the name, address, profession, employer, area of professional expertise, and educational and scientific experience of each person whom the State expects to call as a witness at the hearing. For purposes of answering this interrogatory, the educational and scientific experience of expected witnesses may be provided by a resume of the person attached to the response.

STATE'S SUPPLEMENTAL RESPONSE TO GENERAL INTERROGATORY NO. 3.

Attached as Exhibit 2 is Dane Finerfrock's resume. The State anticipates it will call Mr. Finerfrock as a witness for Contention K.

GENERAL INTERROGATORY NO. 4. For each admitted Utah contention, identify the qualifications of each expert witness whom the State expects to call at the hearing, including but not limited to a list of all publications authored by the witness within the preceding ten years and a listing of any other cases in which the witness has testified as an expert at a trial, hearing or by deposition within the

preceding four years.

STATE'S SUPPLEMENTAL RESPONSE TO GENERAL INTERROGATORY NO. 4.

Attached as Exhibit 3 are lists of publications for Contention K witnesses John L. Matthews, Major General USAF (Ret), and Bronson Hawley.

II. STATE'S SUPPLEMENTAL RESPONSES TO DOCUMENT PRODUCTION REQUESTS

Additional documents in support of State's Contentions K and M have been assembled and are now available to the Applicant for inspection and copying at Ms. Nakahara's office at the Department of Environmental Quality. With respect to Utah Contention K, the State recently obtained information relating to F-16 air crashes, the cruise missile mishap at Dugway and flight operations at Hill Air Force Base. For Contention M, calculations were recently prepared by David B. Cole, State's expert for Contention M.

III. STATE'S AMENDED RESPONSES

A. Amended Responses to Requests for Admissions for Utah Contention K - Inadequate Consideration of Credible Accidents

In its April 14 response, the State qualified its responses to Contention K. Response at 19-20. The State also filed a general objection to the Applicant's requests for Admissions. Response at 20-21. The State hereby incorporates the qualifications

and general objection into this amended response. Notwithstanding the qualifications and general objection, the State hereby amends its April 14, 1999 response as follows:

REQUEST FOR ADMISSION NO. 14 - UTAH K: Do you admit that - as set forth at page 4-100 of the FEIS for the X-33 space plane - the planned flight paths for the X-33 do not cross over Skull Valley?

STATE'S AMENDED RESPONSE TO REQUEST FOR ADMISSION NO. 14 - UTAH K:

The State admits that the planned flight paths for the X-33 do not cross over Skull Valley.

REQUEST FOR ADMISSION NO. 15 - UTAH K: Do you admit that - as set forth at page 4-87 of the FEIS for the X-33 space plane - the X-33 will make no more than approximately seven landings at Michael Army Airfield over the course of the program?

STATE'S AMENDED RESPONSE TO REQUEST FOR ADMISSION NO. 15 - UTAH K:

The State objects to this request for admission on the basis that the phrase "no more than approximately" is contradictory and thus, vague. Notwithstanding this objection, the State admits that the X-33 plans to make approximately seven landings at Michael Army Airfield over the course of the program.

REQUEST FOR ADMISSION NO. 16 - UTAH K: Do you admit that - as set forth at page 4-101 of the FEIS for the X-33 space plane - the seven flights for the X-33 to Michael Army Airfield are scheduled to be completed by mid-1999.

STATE'S AMENDED RESPONSE TO REQUEST FOR ADMISSION NO. 16 - UTAH K:

The State admits that the seven flights for the X-33 to Michael Army Airfield

were originally scheduled to be completed by mid-1999. However, it is almost mid-1999 and no space plan flights have occurred to date.

**B. Amended Responses to Requests for Admissions for Utah
Contention M - Probable Maximum Flood**

REQUEST FOR ADMISSION NO. 1 - UTAH M. Do you admit that the 270 square mile drainage area used to calculate flooding in PFS's response to RAI Question 2-3 is an appropriate drainage area for calculating the potential for flooding at the PFS ISFSI?

**STATE'S AMENDED RESPONSE TO REQUEST FOR ADMISSION NO.
1 - UTAH M:**

The State admits that the 270 square mile drainage area is an appropriate drainage area for calculating the potential for flooding at the PFS ISFSI.

REQUEST FOR ADMISSION NO. 4 - UTAH M. Do you admit that the lowest elevation of the PFS site as identified in the PFS Environmental Report at 2.5-3 and Response to RAI Question 2-3 at 3 is 4460 ft.?

**STATE'S AMENDED RESPONSE TO REQUEST FOR ADMISSION NO.
4 - UTAH M:**

Admit in part and deny in part. Admit that the PFS Environmental Report at 2.5-3 and Response to RAI Question 2-3 at 3 identify an "approximate" ISFSI site elevation low of 4460 feet. Deny that 4460 feet is the lowest elevation at the PFS site. Other RAI responses by the Applicant use different lowest site elevation figures for the ISFSI site. See e.g., Enclosure to Commitment Resolution Information, PFS Response to RAI 2-3 (second round), Flooding Analysis, at 1 ("[t]he lowest corner of the PFSF site (elevation 4462 ft)", submitted by PFS to NRC under cover letter dated March 25,

1999. Further, the State does not have access to the ISFSI site and, thus, has not conducted a ground survey to verify PFS's claim that 4460 ft. is in fact the lowest elevation at the PFS site. In addition, the ER and the RAI responses do not contain the basis for PFS's estimation that the lowest elevation at the PFS site is 4460 ft.

C. Amended Responses to Interrogatories - Utah Contention M

INTERROGATORY NO. 1 - UTAH M. Identify and fully explain each respect in which the State claims that PFS failed "to accurately estimate the Probable Maximum Flood (PMF) as required by 10 CFR § 72.98" or the 100 Year Flood for the PFS ISFSI, taking into account PFS's response to RAI Question 2-3 as supplemented.

STATE'S AMENDED RESPONSE TO INTERROGATORY NO. 1 - UTAH M:

The State has reviewed PFS's responses to RAI Question 2-3, as last supplemented on March 25, 1999¹, and has now re-calculated the Probable Maximum Flood based on the following parameters and a computer program developed by the State based on Soil Conservation Service (now called Natural Resources Conservation Service) methods to generate a storm hydrograph, including peak flow rate. The inputs into this program include drainage area: 270 square miles area (see Admission No. 1 above); time of concentration (T_c) (based on the Army Corps of Engineers formula): 8.1 hours; infiltration rate (curve number): 0.15 inch per hour (State's

¹ PFS's Interrogatory asks that the State take into account PFS's response to RAI Question 2-3 as supplemented. Since PFS's supplementation of this RAI question was sent to NRC under cover letter dated March 25, 1999, it is inappropriate for PFS to complain that the State has had the supplemented answer "since mid-February." See Applicant's Motion to Compel dated April 22, 1999 at 7.

original parameter based on the soil and vegetation in the drainage area). The storm hydrograph generated a peak flow rate of 64,500 cfs. After the State generated the storm hydrograph, it used the Corps of Engineers HEC-RAS program and the cross sections describing the geometry of the flood channel from PFS recent calculations² (p. 17) to compute the probable maximum flood elevation at and near the PFS site.

INTERROGATORY NO. 2 - UTAH M. Identify and fully explain each respect in which the State claims that the facility's design does not adequately protect the access road or the site against adverse consequences from potential flooding as calculated by the State.

STATE'S AMENDED RESPONSE TO INTERROGATORY NO. 2 - UTAH M:

In PFS's cross sections describing the geometry of the access road, PFS appears to assume that a vertical berm is in place to prevent the PMF flood discharge from spreading west along the access road and possibly flooding the site. There is not enough information shown to describe the geometry of the berm³ and how the access road gets past the berm. It appears that without this berm or with an inadequate berm the PFS site would be flooded by water backed up by the access road during the PMF

² Zeng, V.N. and Liang, G.H.C. (Stone & Webster Engineering Corp.), March 22, 1999, *PFSF Flood Analysis with Larger Drainage Basin*, Calculation No. 0599602G(B)-12, Rev. 1, submitted by PFS to NRC under cover letter dated March 25, 1999, from John L. Donnell to Mark Delligatti, NRC.

³ See e.g., Figure 1, Hydraulic Model at Access Road Crossing (p. 6), Zeng, V.N. and Liang, G.H.C. (Stone & Webster Engineering Corp.), March 10, 1999, *PFSF Flood Analysis with Proposed Access Road and Rail Road*, Calculation No. 0599602G(B)-17, Rev. 0, submitted by PFS to NRC under cover letter dated March 25, 1999, from John L. Donnell to Mark Delligatti, NRC.

flood. Additionally, the access road may be flooded or washed out, preventing necessary operations, personnel or emergency service providers access to the site. Hence the Applicant would not be able to cope with emergencies as required by 10 CFR 72.24(k).

INTERROGATORY NO. 3 - UTAH M. Identify and fully explain each respect in which the State claims that the access road may be adversely impacted by potential flooding as calculated by the State and any resulting adverse safety consequences to the PFS ISFSI.

STATE'S AMENDED RESPONSE TO INTERROGATORY NO. 3 - UTAH M:

See State's amended response to Interrogatory 2 - Utah M. Additionally, the State's present calculation shows that flooding would be approximately 3.5 feet deep where it crosses the access road. As stated in Response to Interrogatory No. 2, this would result in preventing necessary operations, personnel or emergency service providers access to the site.

INTERROGATORY NO. 4 - UTAH M. Identify and fully explain each respect in which the State claims that "consequences important to safety may occur because of flooding or an inadequate berm construction and location," based on potential flooding as calculated by the State.

STATE'S AMENDED RESPONSE TO INTERROGATORY NO. 4 - UTAH M:

See State's amended response to Interrogatory 2 - Utah M.

INTERROGATORY NO. 5 - UTAH M. Identify and fully explain each other respect in which the State claims that the PFS ISFSI site may be adversely impacted by potential flooding as calculated by the State and the resulting adverse safety

consequences of such impacts.

STATE'S AMENDED RESPONSE TO INTERROGATORY NO. 5 - UTAH M:

See State's amended response to Interrogatory 2 - Utah M.

INTERROGATORY NO. 6 - UTAH M. If the State continues to claim an adverse impact from potential flooding as calculated by the State on the "operation, maintenance of the ISFSI," the "washing out" of the access road, the "translation motion of the storage pad and building foundations," and the "transport [of] onsite chemical and radiological contaminants to offsite soils and ground and surface waters," identify and fully explain the scientific, technical, engineering and/or other bases on which the State bases these claims and any other claims of adverse impact and/or safety consequences identified in response to interrogatories 3 through 5 above.

STATE'S AMENDED RESPONSE TO INTERROGATORY NO. 6 - UTAH M:

See State's amended response to Interrogatory 2 - Utah M. Furthermore, until the State can accurately ascertain the lowest elevation at the ISFSI site, it cannot fully respond to this interrogatory.

IV. CORRECTIONS TO STATE'S RESPONSES DATED APRIL 14, 1999, TO UTAH CONTENTIONS K AND N.

A. State's Correction to Contention K, Response to Interrogatory No. 2:

Correction to page 37, fourth line of the response: Change the word "confine" to "confound."

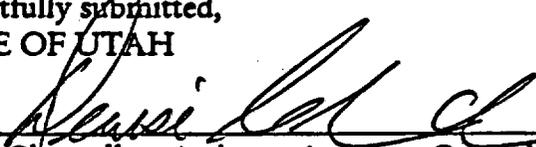
B. State's Correction to Contention N, Response to Request for Admission No. 1:

Correction to the property description on page 53, ¶ (b), which has three

references, instead of two, to "the SE 1/4 of" and should read as follows: "within the N1/2 of the SE1/4 of the SE1/4 of Section 12, Township T1S, Range R8W."

DATED this 12th day of May, 1999.

Respectfully submitted,
STATE OF UTAH



Denise Chancellor, Assistant Attorney General
Fred G Nelson, Assistant Attorney General
Diane Curran, Special Assistant Attorney General
Connie Nakahara, Special Assistant Attorney General
Daniel G. Moquin, Assistant Attorney General
Attorneys for State of Utah
Utah Attorney General's Office
160 East 300 South, 5th Floor, P.O. Box 140873
Salt Lake City, UT 84114-0873
Telephone: (801) 366-0286, Fax: (801) 366-0292

CERTIFICATE OF SERVICE

I hereby certify that a copy of STATE OF UTAH'S SECOND AMENDED RESPONSES AND SUPPLEMENTAL RESPONSES TO APPLICANT'S FIRST SET OF FORMAL DISCOVERY REQUESTS was served on the persons listed below by electronic mail (unless otherwise noted) with conforming copies by United States mail first class, this 12th day of May, 1999:

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Washington, DC 20555
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Denise Chancellor
Assistant Attorney General
State of Utah

EXHIBIT 1

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

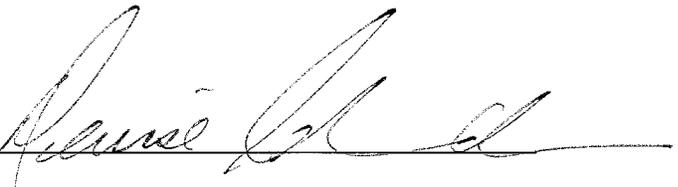
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	Docket No. 72-22-ISFSI
)	
PRIVATE FUEL STORAGE, LLC	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel)	
Storage Installation)	)	May 12, 1999

DECLARATION OF DENISE CHANCELLOR, ESQ.

I, Denise Chancellor, hereby declare under penalty of perjury and pursuant to 28 U.S.C. § 1746, that the statements contained in State of Utah's Second Amended Responses and Supplemental Responses to Applicant's First Set of Formal Discovery Requests dated May 12, 1999, as well as the State's April 29, 1999 response to the Applicant's First Set of Formal Discovery Requests, with respect to General Interrogatories, are true and correct to the best of my knowledge, information and belief.

Executed this 12th day of May, 1999.

By: 
Denise Chancellor, Esq.
Assistant Attorney General
State of Utah

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

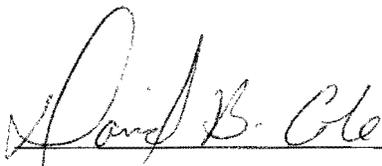
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	Docket No. 72-22-ISFSI
)	
PRIVATE FUEL STORAGE, LLC	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel)	
Storage Installation)	)	May 12, 1999

DECLARATION OF DAVID B. COLE

I, David B. Cole, hereby declare under penalty of perjury and pursuant to 28 U.S.C. § 1746, that the statements contained in State of Utah's Second Amended Responses and Supplemental Responses to Applicant's First Set of Formal Discovery Requests dated May 12, 1999, with respect to Utah Contention M (probable maximum flood), are true and correct to the best of my knowledge, information and belief.

Executed this 12th day of May, 1999.

By:  _____

David B. Cole
Senior Engineer
Utah Division of Water Resources
Utah Department of Natural Resources

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of:	)	Docket No. 72-22-ISFSI
)	
PRIVATE FUEL STORAGE, LLC	)	ASLBP No. 97-732-02-ISFSI
(Independent Spent Fuel)	
Storage Installation)	)	May 10, 1999

DECLARATION OF DAVID C. LARSEN

I, David C. Larsen hereby declare under penalty of perjury and pursuant to 28 U.S.C. § 1746, that the statements contained in State of Utah's Second Amend Responses to the Applicant's First Set of Formal Discovery Requests, with respect to Utah Contention K, are true and correct to the best of my knowledge, information and belief.

Executed this 10th day of May, 1999.

By: 

David C. Larsen
Geologist
Division of Solid and Hazardous Waste
Department of Environmental Quality
State of Utah

EXHIBIT 2

Resume

Dane L. Finerfrock
1732 East 1700 South
Salt Lake City, UT 84108

EDUCATION

B.S. in Meteorology 1970
B.S. in Biology 1974
University of Utah
Salt Lake City, Utah

EXPERIENCE

Environmental Program Manager

Division of Radiation Control, Utah Department of Environmental Quality
April 1988 to present *

Administrative responsibility for seven staff scientists/engineers. Duties include determining staff assignments; conducting performance evaluations; project budgeting and progress evaluations; preparing grant proposals; and management of other bureau contracts.

Technical responsibilities include statewide environmental radiation monitoring program; coordinator for State involvement for the inactive uranium mill tailings remedial action program; administration of the EPA State Indoor Radon Grant and Utah radon program; licensing and compliance activities involved with the low level radioactive waste disposal facility and other radioactive waste issues; the purchasing, maintenance and calibration of State radiation detection instrumentation.

* Rogers & Associates Eng.
Salt Lake City, Utah
June/July 1993
Staff Scientist

Health Physicist

Bureau of Radiation Control, Utah Department of Health
May 1984 to April 1988

Duties included radioactive material license application review; compliance inspections of various radioactive materials licensees; sampling and radiologic analysis of environmental samples; development and implementation of a statewide radon program; quality assurance audits of the health physics program for Salt Lake UMTRA project; development and implementation of the health physics and radiation safety plan for the UMTRA Salt Lake City

project.

Health Physics Section Leader

Ford, Bacon, and Davis, Inc., Salt Lake City, Utah

October 1981 to April 1984

Administrative responsibility for the management of three scientists and three technicians in support of government and industry contracts. Duties included marketing of Nuclear, Environmental and Geotechnical group services; participation in proposal preparation; direct projects in accordance with contract requirements; determine staff assignments; prepare and/or review staff reports.

Duties included responsibility for all health physics activities such as maintenance and calibration of radiation detection instrumentation; personnel dosimetry and bioassay programs for staff and subcontractors; environmental monitoring sampling and analysis for remedial action site characterizations; performed dose assessment and risk analysis for potential remedial sites; developed a radiologic control plan, health physics and safety plan and instrument use protocols for uranium mill tailings remedial action project.

Radiation Analyst

University of Utah, Radiological Health Department

Salt Lake City, Utah

1977-September 1979

Duties included radiation surveys of laboratories throughout the University; performed analytical tests on personnel dosimeters; maintenance and calibration of instrumentation; assisted in the assessment of radiation doses received by personnel; advised laboratories on proper radiation safety. Other responsibilities included liquid scintillation counting, and air sampling and analysis. Also, radiation safety assessments and quality control analysis of diagnostic radiology equipment; radiation safety assessment of x-ray defraction units commercial and research microwave units.

Responsible for the University low-level radioactive waste disposal program, including collection, classification, packaging and shipment of wastes. Supervisor of one employee.

ADDITIONAL EXPERIENCE

Research Technician

University of Utah, Department of Anatomy

Internal Irradiation Research Project

1976-1977

Military Service

United States Army

2nd Lt. Fort Jackson, South Carolina

1st Lt. U.S. Army Viet Nam

August 1970-February 1972

Meteorologist

Stone and Webster Engineering Co.

Boston, Massachusetts

Summer 1969

Prepared climatic and meteorologic sections of environmental impact statement for clients.

EXHIBIT 3

**PUBLICATIONS OF
JOHN L. MATTHEWS MAJOR GENERAL USAF (RET)**

Matthews, John L., *Assessing Reserve Component Training*, MILITARY REVIEW, US Army Command and General Staff College, (November 1989)

Responsible for a Presidents Message monthly from September 1992 to September 1994 in the National Guard Magazine, a publication of the National Guard Association of the United States.

Bronson W. Hawley

PUBLICATIONS

1. 1979, Qamar, A. and B. W. Hawley; Seismic Activity Near the Three Forks Basin, Montana; Bull. Seis. Soc. Amer., Vol. 69, pp. 1917-1929.
2. 1980, Hawley, B.W., and R. B. Smith; Lateral Velocity Variations Within a Layered Model from Inversion of Local Earthquake Data; Seismo. Soc. Amer., Abstract.
3. 1981, Hawley, B.W., G. Zandt, and R.B. Smith; Simultaneous Inversion for Hypocenters and Lateral Velocity Variations: An Iterative Solution with a Layered Model; Jour. Geophys. Res., pp. 7073-7086.
4. 1983, Hawley, B.W., and R.L. Bruhn; A Structural Model for the Evolution of the Southwest Kenai Peninsula, Alaska; Geol. Soc. Amer., Abstract.
5. 1984, Hawley, B.W., R.L. Bruhn and S.H. Evans, Jr.; Vertical Tectonics in a Forearc Region, Southern Alaska, Using Fission Track Dating of Apatite Grains and Flexural Beam Modeling; Geol. Soc. Amer., Abstract.
6. 1987, Hawley, B.W., The Application of Fission Track Dating to Uplift Ages of Mountains; Yearbook of Science and Technology, McGraw-Hill.
7. 1988, Gay, S.P. Jr., and B.W. Hawley, Field Examples from Utah, Wyoming and Nebraska of Two Causes of Non-controversial Intrasedimentary Magnetic Anomalies; Symposium on Intrasedimentary Magnetic Anomalies; Colorado School of Mines; April, 1988.
8. 1991, Gay, S. P. Jr., and B.W. Hawley, Syngenetic Magnetic Anomaly Sources: Three examples, Geophysics, Vol. 56, No. 7, July 1991.
9. 1991, Thompson, T.L., B.W. Hawley, S.P. Gay, Jr. and J.R. Howe; Utility of High Resolution Residual Aeromagnetics in the Structural Interpretation of the Ouachita Region of Southeast Oklahoma and Western Arkansas; Petroleum Reservoir Geology in the Southern Midcontinent; Oklahoma Geol. Surv., March 1991.
10. 1992, Thompson, T.L., B.W. Hawley, J. Howe, and S.P. Gay, Jr.; Basement Influence on the Structural Geology of Southern Oklahoma Inferred from Residual-Aeromagnetic maps; Structural Styles in the Southern Midcontinent; Oklahoma Geological Survey; March 1992.
11. 1992, Hawley, B.W. Structural, Metamorphic and Geochemical Study of the Seldovia Bay Fault, Alaska: A Relict Cretaceous Subduction Zone; Ph.D. Dissertation, University of Utah, June 1992.