
March 11, 2005

TO: Mr. Grant Willis
Utah Geological Survey
1594 West N. Temple, Suite 3110
P. O. Box 146100
Salt Lake City, Utah 84114-6100

RE: Palynology Analysis of 10 Jurassic Outcrop samples: ES21505-1, -2, -3, -4, -5, -6, BF21605-1, -2, 3, and BF21705-1.

PALYNOLOGY REPORT

Ten samples were processed and analyzed for palynomorphs. The samples were all barren of palynomorphs. An estimate of the total organic recovery, kerogen content and age is provided below.

1. ES21505-1, Romana Sandstone, 2.5' from top of Entrada.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction:	None
Total Organic Recovery:	Trace
Kerogen Content:	Indeterminate
T.A.I:	Indeterminate
AGE:	Indeterminate
ENVIRONMENT:	Indeterminate

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2. ES21505-2, Romana Sandstone, 25.5' from top of Entrada

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction:	None
Total Organic Recovery:	Trace
Kerogen Content:	Indeterminate
T.A.I:	Indeterminate
AGE:	Indeterminate
ENVIRONMENT:	Indeterminate

3. ES21505-3, Romana Sandstone, 45.5' from top of Entrada.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction:	Strong
Total Organic Recovery:	Trace
Kerogen Content:	Indeterminate
T.A.I:	Indeterminate
AGE:	Indeterminate
ENVIRONMENT:	Indeterminate

4. ES21505-4, Romana Sandstone, 0.5" below top of Romana.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction:	Strong
Total Organic Recovery:	Trace
Kerogen Content:	Indeterminate
T.A.I:	Indeterminate

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AGE: Indeterminate

ENVIRONMENT: Indeterminate

5. ES21505-5, Romana Sandstone, lower of two green bands near base.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction: None

Total Organic Recovery: Trace

Kerogen Content: Indeterminate

T.A.I: Indeterminate

AGE: Indeterminate

ENVIRONMENT: Indeterminate

6. ES21505-6, Romana Sandstone, upper of two green bands near base.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction: None

Total Organic Recovery: Trace

Kerogen Content: Indeterminate

T.A.I: Indeterminate

AGE: Indeterminate

ENVIRONMENT: Indeterminate

7. BF21605-1, Tidwell Fm, 1.5' below Salt Wash Member of the Morrison.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction: Weak

Total Organic Recovery: Trace

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Kerogen Content:	Indeterminate
T.A.I:	Indeterminate
AGE:	Indeterminate
ENVIRONMENT:	Indeterminate

8. BF21605-2, Tidwell Fm, 30' below Salt Wash Member of the Morrison.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction:	Weak
Total Organic Recovery:	Trace
Kerogen Content:	Indeterminate
T.A.I:	Indeterminate
AGE:	Indeterminate
ENVIRONMENT:	Indeterminate

9. BF21605-3, Tidwell Fm, 23.5' below Salt Wash Member of the Morrison.

Barren of Palynomorphs, weathered sample, Mostly extant soil organics

HCl Reaction:	Very Strong
Total Organic Recovery:	Trace
Kerogen Content:	20% Cuticular and 80% Woody
T.A.I:	2.5 (0.4-0.5% Estimated R_0)
AGE:	Indeterminate
ENVIRONMENT:	Indeterminate


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10. BF21705-2, Late Jurassic?, 37° 48.65'N 110° 37.90'W elevation 5280.

Barren of Palynomorphs.

HCl Reaction:	None
Total Organic Recovery:	Good
Kerogen Content:	1% Cuticular and 99% Woody
T.A.I:	2.5 (0.4-0.5% Estimated R_0)
AGE:	Indeterminate
ENVIRONMENT:	Nonmarine, Fluvial/Deltaic

Analysis By:


Gerald Waanders

Wanders report of March 11, 05
all barren

P.O. number 309546

1. **Sample ES21505-1**, 2.5 feet from the top of the Entrada Sandstone in the Romana Mesa Sandstone, Upper Middle Jurassic, no exact GPS location, but SW of Cat Pasture off of hole in the Rock Road approximately $37^{\circ} 27' 30''$ N. and $111^{\circ} 15' 10''$ W, sampled from unit 2 of the measured section south of Cat Pasture.

2. **Sample ES21505-2**, 25.5 feet from the top of the Entrada Sandstone in the Romana Mesa Sandstone, Upper Middle Jurassic, no exact GPS location, but SW of Cat Pasture off of hole in the Rock Road approximately $37^{\circ} 27' 30''$ N. and $111^{\circ} 15' 10''$ W, sampled from unit 6 of the measured section south of Cat Pasture..

3. **Sample ES21505-3**, approximately 40.5 feet from the top of the Entrada Sandstone in the Romana Mesa Sandstone, Upper Middle Jurassic, no exact GPS location but SW of Cat Pasture off of hole in the Rock Road approximately $37^{\circ} 27' 30''$ N. and $111^{\circ} 15' 10''$ W, sampled from unit 7 of the measured section south of Cat Pasture.

4. **Sample ES21505-4**, 0.5 inch below the top of the Romana Mesa Upper Middle Jurassic at Redwell Road turnoff, approximately $37^{\circ} 23' 35''$ N $111^{\circ} 11' 42''$ W.

5. **Sample ES21505-5**, Upper middle Jurassic, lower of two green bands at the base of Romana Mesa approximately 100 yards south of ES21505-4.

6. **Sample ES21505-6**, middle Jurassic, upper of two green bands at the base of Romana Mesa approximately 100 yards south of ES21505-4.

7. **Sample BF21605-1**, 1.5 feet below the base of the Salt Wash Member of the Morrison Formation in the Tidwell, Late Jurassic, near bullfrog creek. Sampled from unit 35 of the Bullfrog Creek measured section.

8. **Sample BF21605-2**, 30 feet below the base of the Salt Wash Member of the Morrison Formation in the Tidwell, Late Jurassic, near bullfrog creek. Sampled from unit 28 of the Bullfrog Creek measured section.

9. **Sample BF21605-3**, 23.5 feet below the base of the Salt Wash Member of the Morrison Formation in the Tidwell, Late Jurassic, near bullfrog creek. Sampled from unit 32 of the Bullfrog Creek measured section.

10. **Sample BF21705-1**, $37^{\circ} 48.65'$ N $110^{\circ} 37.90'$ W elevation 5280 Late Jurassic?