WEST RIDGE
RESOURCES, INC.

P.O. Box 910, East Carbon, Utah 84520
Telephone (435) 888-4000 Fax (435) 888-4002

Utah Division of Oil, Gas & Mining
Utah Coal Program
1594 West North Temple, Suite 1210
P.O.Box 145801
Salt Lake City, UT 84114-5801

March 27, 2013

Attn: Daron Haddock
Permit Supervisor

Re: West Ridge Mine C/007/041
2012 Annual Report

Dear Mr. Haddock:

Attached is the 2012 report for the West Ridge Mine.

If you have any questions or need additional information regarding this submittal please contact me at 435-888-4000.

Sincerely,

David Hibbs

David Hibbs
Utah American Energy
President

2012

ANNUAL REPORT

General Information

Print Form | Submit by Email | Reset Form

Annual Report

This Annual Report shows information the Division has for your mine. Submit the completed document and any additional information identified in the Appendices to the Division by the date specified in the cover letter. During a complete inspection an inspector will check and verify the information.

GENERAL INFORMATION

Company Name	West Ridge Resources	Mine Name	West Ridge Mine
Permit Number	C/007/0041	Permit expiration Date	04/01/2014
Operator Name	Utah American Energy	Phone Number	+1 (435) 888-4000
Mailing Address	P.O. Box 910	Email	dhibbs@coalsource.com
City	East Carbon		
State	Utah	Zip Code	84520

		DOGM File Location or Annual Report Location
Excess Spoil Piles	☐ Required ☒ Not Required	
Refuse Piles	☐ Required ☐ Not Required	
Impoundments	☒ Required ☐ Not Required	Sediment Pond Certification included
Other:		

OPERATOR COMMENTS

REVIEWER COMMENTS ☐ Met Requirements ☐ Did Not meet Requirements

COMMITMENTS AND CONDITIONS

The Permittee is responsible for ensuring annual technical commitments in the Mining and Reclamation Plan and conditions accepted with the permit are completed throughout the year. The Division has identified these commitments below and has provided space for you to report what you have done during the past year for each commitment. If additional written response is required, it should be filed as an attachment to this report.

Title: EXPERIMENTAL FIELD TRIALS
Objective: Monitoring to support proposed experimental practice. Provide a comparison of growth on field trials with Douglas/Fir reference area.
Frequency: Annual evaluation in June
Status: Ongoing
Reports: Provide in annual report
Citation: MRP, Volume 1, Appendix 2-6 and Volume A, Map 2-4

Operator Comments

The required report "Vegetation Monitoring at the Experimental Test Plot, 2012", prepared by MT. NEBO SCIENTIFIC, is included.

Reviewer Comments ☐ Met Requirements ☐ Did Not Meet Requirements

Title: SOIL SAMPLING OF FILL AT T1, T2 AND T3
Objective: To protect buried substitute topsoil in the fill. Collect a composite sample from several locations near each site to obtain a more average value.
Frequency: Annual evaluation during field season.
Status: Ongoing beginning in 2010.
Reports: Annual report
Citation: MRP, Volume 1, Appendix 2-6 addendum and Volume A, Map 2-4

Operator Comments

The required report "Soil Monitoring at the West Ridge Mine, 2012", prepared by MT. NEBO SCIENTIFIC, is included.

Reviewer Comments ☐ Met Requirements ☐ Did Not Meet Requirements

Title: SUBSIDENCE MONITORING
Objective: To monitor subsidence from longwall mining practices. Subsidence monitoring of panels until the effects of mining have stabilized and vertical movement is less than six inches per year.
Frequency: annual
Status: Ongoing
Reports: annual report
Citation: MRP, Volume 2, Chapter 5, page 5-23b to 5-23e

Operator Comments

Subsidence information is included.

Reviewer Comments ☐ Met Requirements ☐ Did Not Meet Requirements

FUTURE COMMITMENTS AND CONDITIONS

The following commitments are not required for the current annual report year, but will be required by the permittee in the future as indicated by the "status" field. These commitments are included for information only, and do not currently require action. If you feel that the commitment is no longer relevant or needs to be revised, please contact the Division.

Title: RECLAMATION MONITORING
Objective: Visually assess the revegetation success.
Frequency: Quarterly for the first three years and annually in June of each year thereafter
Status: Implement at reclamation
Reports: Annual Report
Citation: MRP, Volume 1, Chapter 3, page 3-16, paragraph 2

Title: MEXICAN SPOTTED OWL SURVEY
Objective: Conduct appropriate surveys for Mexican spotted owls on the lease tract areas with 40 percent or greater slopes, cliff habitat areas, riparian habitats, and mixed conifer forest habitats, prior to any future surface disturbing activity and/or any mining activity with the potential to interrupt surface spring flows. Inventory work must be conducted by parties approved and permitted for such survey work by the Fish and Wildlife Service and qualified in accordance with R645-301-132. Surveys must follow current protocol established by Fish and wildlife service.
Frequency: As needed
Status: ongoing
Reports: Annual
Citation: Permit condition attachment A, special condition #3.

Title: SOIL SAMPLING OF FINAL GRADED FILL AT CATCHMENTS A, C AND E
Objective: At final reclamation, the reclaimed surface soils of the catchments will be tested for pH, EC and SAR to allow for the evaluation of the salinity and the need for a revision or addition to the final seed mix to enhance germination and establishment.
Frequency: Once after final grading
Status: Future commitment
Reports: Provide information to the Division
Citation: MRP, Volume 2, Appendix 5-15, Attachment 9, page 14

OPERATOR COMMENTS (OPTIONAL)

REVIEWER COMMENTS

REPORTING OF OTHER TECHNICAL DATA

Please list other technical data or information that was not included in the form above, but is required under the approved plan, which must be periodically submitted to the Division.

Please list attachments:

Reviewer Comments

MAPS

Copies of mine maps, current and up-to-date, are to be provided to the Division as an attachment to this report in accordance with the requirements of R645-301-525.240. The map copies shall be made in accordance with 30 CFR 75.1200 as required by MSHA. Mine maps are not considered confidential.

Map Name	Map Number	Included		Confidential	
		Yes	No	Yes	No
Annual subsidence map		☐	☐	☐	☒
Mine Map		☐	☐	☐	☒
		☐	☐	☐	☐
		☐	☐	☐	☐
		☐	☐	☐	☐

Reviewer Comments ☐ Met Requirements ☐ Did Not Meet Requirements

2012

ANNUAL REPORT

Annual Sediment Pond Inspection

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT			Page 1 of
Permit Number	ACT/007/041	**Report Date**	April 04, 2013
Mine Name	West Ridge Mine		
Company Name	UtahAmerican Energy, Inc		
Impoundment Identification	**Impoundment Name**	None	
	Impoundment Number	None	
	UPDES Permit Number	UTG040023	
	MSHA ID Number	42-02233	

IMPOUNDMENT INSPECTION

Inspection Date	September 12, 2012
Inspected By	David Hibbs
Reason for Inspection (Annual, Quarterly or Other Periodic Inspection, Critical Installation, or Completion of Construction)	Periodic Annual

1. Describe any appearance of any instability, structural weakness, or any other hazardous condition.

No appearance of instability, structural weakness, or any other hazardous condition was observed at the time of inspection.

Required for an impoundment which functions as a SEDIMENTATION POND.

2. Sediment storage capacity, including elevation of 60% and 100% sediment storage volumes, and, estimated average elevation of existing sediment.

Sediment Elevations:

Cell A (Upper)		Cell B (Lower)	
60%	6942.8'	60%	6928.8'
100%	6945.4'	100%	6930.0'

Sediment Levels:

Cell A (Upper)	Cell B (Lower)
6941.2'	6928.4'

3. Principle and emergency spillway elevations.

Cell A (Upper)		Cell B (Lower)	
Principle	6952.5'	Principle	6937.0'
Emergency	-	Emergency	6938.0'

4. Field Information. Provide current water elevation, whether pond is discharging, type and number of samples taken, monitoring/instrumentation information, inlet/outlet conditions, or other related activities associated with the pond including but not limited to sediment cleanout, pond decanting, embankment erosion/repairs, monitoring information, vegetation on outslopes of embankments, etc.

Approximately 4" water in the bottom corner of Cell A (Upper)

No Water in the bottom cell, Cell B (Lower)

5. Field Evaluation. Describe any changes in the geometry of the impounding structure, average and maximum depths and elevations of impounded water, estimated sediment or slurry volume and remaining storage capacity, estimated volume of water impounded, and any other aspect of the impounding structure affecting its stability or function which has occurred during the reporting period.

No changes in geometry have occurred.
No observable conditions were apparent that could affect the stability or function of the structures.

The water elevation is approximately 11.5 feet below the spillway in Cell A (Upper) And in Cell B (Lower)

Qualification Statement

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized under the direction of a Registered Professional Engineer to inspect the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability.

Signature: R. Jay Mauhall **Date:** 4/8/13

IMPOUNDMENT INSPECTION AND CERTIFIED REPORT		Page 3 of

CERTIFIED REPORT

IMPOUNDMENT EVALUATION (If NO, explain under Comments)	YES	NO
1. Is impoundment designed and constructed in accordance with the approved plan?	XXXXX	
2. Is impoundment free of instability, structural weakness, or any other hazardous condition?	XXXXX	
3. Has the impoundment met all applicable performance standards and effluent limitations from the previous date of inspection?	XXXXX	

COMMENTS AND OTHER INFORMATION

NONE

Certification Statement:

REGISTERED PROFESSIONAL ENGINEER
#152606
R. JAY
MARSHALL
STATE OF UTAH

(Place Stamp)

I hereby certify that; I am experienced in the construction of impoundments; I am qualified and authorized in the State of Utah to inspect and certify the condition and appearance of impoundments in accordance with the certified and approved designs for this structure; that the impoundment has been maintained in accordance with approved design and meet or exceed the minimum design requirements under all applicable federal, state and local regulations; and, that inspections and inspection reports are made by myself or under my direction and include any appearances of instability, structural weakness or other hazardous conditions of the structure affecting stability in accordance with the Utah R645 Coal Mining Rules.

By: R. Jay Marshall
(Full Name and Title)

Signature: R. Jay Marshall **Date:** 4/8/13

P.E. Number & State: 152606 utah

2012

ANNUAL REPORT

SOIL MONITORING

At the

WEST RIDGE MINE, UTAH

SOIL MONITORING
AT THE
WEST RIDGE MINE, UTAH
2012

Prepared
for
West Ridge Resources, Inc.

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

WEST RIDGE RESOURCES, INC.
West Ridge Mine
P.O. Box 910
East Carbon, Utah 84520

March 2013

TABLE OF CONTENTS

INTRODUCTION 1

METHODS 2

RESULTS 3

SAMPLE LOCATION MAP 7

LABORATORY REPORT ..... Appendix

INTRODUCTION

As described in previous monitoring reports for the West Ridge Mine, an "experimental practice" for the protection of soil resources was designed and implemented at the site. The experimental practice was designed to test the effectiveness of burying soils in-place rather than salvaging (removing) them and returning them at the time of final reclamation. The in-situ topsoil was covered with a geotextile material and layer markers followed by fill material to create working areas for surface operations of the mine.

As a method to monitor the buried soil resources, West Ridge Resources committed to sampling mine pad areas in specific locations to determine whether or not they are being affected by coal and surface operations. In the document called *West Ridge Mine Experimental Practice Annual Evaluation 2000: Addendum to Appendix 2-6*, page 4, it stated that a monitoring program, starting in the year 2000, will be implemented to sample and determine if the mine pad areas affected by the coal are being "acidified". The same document states that the samples will be analyzed for acid/toxic-forming potential per Division Guidelines. In consulting with soils specialist, Priscilla Burton, from the State of Utah, Division of Oil, Gas & Mining (DOGM) prior to sampling in 2001, it was determined that the most appropriate parameters to be analyzed on the mine pad areas were: pH, electrical conductivity (EC), sodium adsorption ratio (SAR) and calcium carbonate ($CaCO_3$). Moreover, it was determined that sampling should be done at the depth of 6-12 inches as opposed to 3 inches as stated in the addendum cited above.

METHODS

Soil samples of the mine **pad areas** were taken by Patrick Collins (*Mt. Nebo Scientific, Inc.*) at the West Ridge Mine site in specified locations on September 11, 2001, November 25, 2008, July 2, 2009, July 22, 2010, September 1, 2011, August 30, 2012. The *approximate* (see below) same locations were sampled all years and are shown in Figure 1. Below are brief descriptions of these locations:

T1 *Located in the right fork, it was originally described to be 64 ft northwest of the jersey barrier in the center of the canyon. Because this location was so close to construction and where equipment was placed at the time, the sample was taken about 25 ft north of that location in 2008 and 2009. In 2010 there was a new building at the previous sample area, so the soil sample pit was re-located very closeby, but 10 ft west of the northwest corner of the new building (2010 GPS name and UTM coordinates: WR T1, NAD 27, 12 S 548475 E, 4385176 N). In 2011, the sample was taken in the same place as 2010.*

T2 *Located in the left fork in the coal storage area, the sample was taken at the base of the dike in the center of the canyon. In 2009, coal covered the previous sample pit location so the sample was taken at the outside base of the dike that encloses the coal storage area. In 2010, the coal pile had been removed from the original sample location, so the soil sample was taken once again at the toe of the inside dike (2010 GPS name and UTM coordinates: WR T2, NAD 27,12 S 548098 E, 4385201 N). In 2011, the coal had again been placed in the 2010 sample location. So, the sample was taken on the inside berm where the pure coal pile ended; nonetheless some coal was mixed with the soil sample because the coal level had been at that elevation previously (new UTM coordinates: WRT2, NAD 27, 12S 548089 E, 4385214 N). In 2012, the coal pile had been removed at this site so I dug to level where surface coal was not visible and took the sample. This was about 30 ft inside and away from the berm (not on the berm).*

T3 *Located in the load-out area, the sample was taken 54 ft uphill from the conveyor belt footing on the north side of the ditch. In 2010, because of the equipment stored in the area, the pit location was slightly different from 2009, or 60 ft from the concrete conveyor belt footing on the north side of the drainage ditch in the area (2010 GPS name and UTM coordinates: WR T3, NAD 27,12 S 548175 E, 4384956 N). In 2011, the sample was taken in the same place as 2010.*

Soil sampling in the **Experimental Test Plots** was also conducted by Gary Gray, *P.E. (West Ridge Resources)* in the fall of 2005 (more information about that is given later in the report).

Soil sample pits were hand-dug with a pick and shovel. A composite sample was taken at depths between 6 and 12 inches at each of the locations described above. Small amounts or soil material were taken at each depth and mixed in the field. Soils were analyzed by the Brigham Young University, Soil and Plant Analysis Laboratory, Provo, Utah. Parameters and laboratory methods used are shown below.

pH	*ASA Mono. No. 9, Part 2, (2 ed), 1982. Method 10-3.2, page 171. Perform pH on saturated paste.*
ECe	*Electrical conductivity reported as mmhos/cm 25°C. ASA Mono. No. 9, Part 2, (2 ed), 1982. Method 10-3.3, page 172-173.*
SAR	*Sodium Adsorption Ratio. Calculated from soluble Ca, Mg and Na.*
$CaCO_3$	*Method S-13.20. Acetic acid dissolution method. Western States Laboratory Proficiency Testing Program. Soil and Plant Analytical Methods. 1998.*

RESULTS

The laboratory results for 2001, 2008, 2009, 2010, 2011 and 2012 for the soils in the pad areas are shown on Table 1. The entire 2012 lab report has been included in the Appendix of this report; original lab reports for the other years were included in the respective sample reports for those years.

In 2008, some sample values exceeded acceptable levels according to DOGM soil guidelines; the parameters that exceeded the standards were EC and SAR in sample T3. The high concentration of salts (EC and SAR) may likely be the result of road salt that is placed in the

travel areas at the mine to treat snow and ice. The road salts can also accumulate in the snow and on the coal trucks while using the haul road to and from the mine. This snow and salt most-likely drops off the trucks while idling at the loadout site. By 2009, however, the salts appear to have leached below the sampling depths. In 2010, the SAR in T3 was high again and would be considered "poor" by Division standards, but again was not in the "unacceptable" range. The mean values for the sample years rendered all parameter values within the acceptable limits according to Division Guidelines. Additionally, "acidification" of the soils will probably not be a problem due to the neutralizing or "buffering" effect caused by the high percentage of calcium carbonates (% $CaCO_3$) present in all samples. By 2011, the values for nearly all parameters were in the "good" range by Division standards (the one exception was the pH value in T1 where 8.4 put it in the "fair" range. All means for each parameter were in the "good" range. In 2012, however, the sodium values (SAR) were again elevated in the T3 sample. This is an area that is constantly undergoing changes due to the onsite operations. Unless there was a laboratory problem, the explanation for the higher SAR and EC may be the same as described above in 2008.

In conclusion, Priscilla Burton (DOGM) made the following request for the 2012 annual report.

> *"As I was reviewing the West Ridge annual report, I wondered if you could provide information on the variability of each parameter at each location T1, T2, T3 over time in the next (2012) annual report. i.e. calculate the mean and standard deviation for each row in Table 1 of the soils report. Thereby providing the range, mean and std dev. of values for pH, EC, SAR and ÊCO2 for each general location T1, T2, & T3."*

These calculations were made and have been shown on Table 1.

Table 1: Laboratory Results for Soil Sampling in Mine Pad Areas at West Ridge Mine (2001, 2008, 2009, 2010, 2011, 2012).

Sample No.	2001	2008	2009	2010	2011	2012	Mean	SDev.**
A. pH								
T1	8.04	7.75	7.81	8.15	8.40	7.35	7.92	0.33
T2	7.52	7.23	7.91	7.63	7.55	7.42	7.54	0.21
T3	7.83	8.42	8.21	7.82	7.35	7.59	7.87	0.36
Mean	7.80	7.80	7.98	7.87	7.77	7.45	7.78	0.16
SDev.	0.26	0.60	0.21	0.21	0.46	0.12	0.34	0.18
B. EC (Salinity or ECe dS/m)								
T1	6.20	4.80	14.20	1.55	3.65	2.75	5.53	4.15
T2	2.70	4.80	0.62	1.90	3.20	3.00	2.70	1.27
T3	4.20	17.50*	3.50	4.80	2.70	5.40	6.35	5.06
Mean	4.37	9.03	6.11	2.75	3.18	3.72	4.86	2.15
SDev.	1.76	7.33	7.16	1.46	0.39	1.46	3.33	2.80
C. SAR (Sodium Adsorption Ration; see Appendix A for lab data and units to calculate the SAR's)								
T1	2.19	5.83	2.53	3.65	1.22	0.83	2.71	1.67
T2	0.74	4.14	0.14	0.74	0.77	1.91	1.41	1.33
T3	1.94	31.31*	7.07	12.26	0.96	21.91*	12.58	10.93
Mean	1.62	13.76	3.25	5.55	0.98	8.22	5.56	4.40
SDev.	0.78	15.22	3.52	4.89	0.18	11.87	6.27	5.57
D. $CaCO_3$ (% Calcium Carbonate)								
T1	19.21	11.85	16.60	7.96	10.82	12.09	13.09	3.74
T2	5.10	11.25	10.77	6.18	12.38	4.80	8.41	3.12
T3	15.00	12.02	12.25	17.67	12.64	11.18	13.46	2.22
Mean	13.10	11.71	13.21	10.60	11.95	9.36	11.65	1.36
SDev.	7.24	0.40	3.03	5.05	0.80	3.97	3.64	2.50

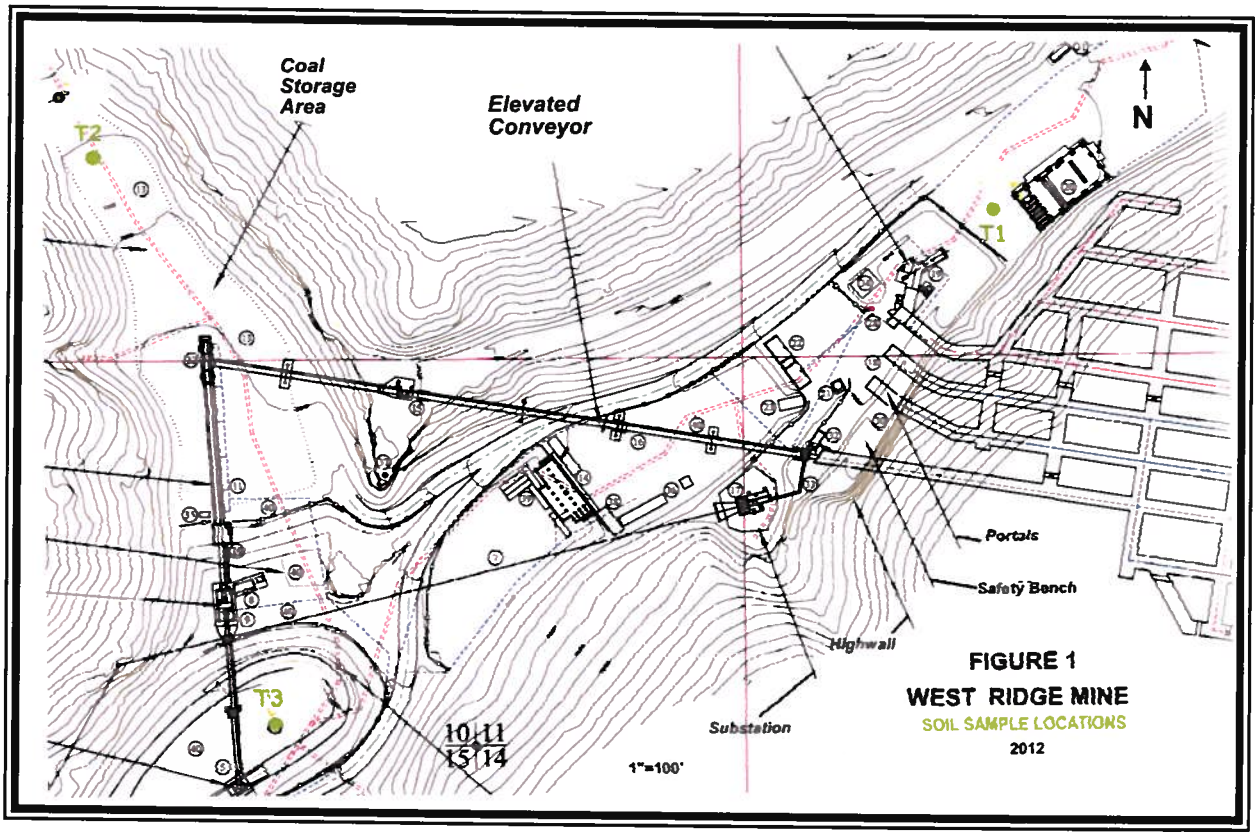
* Value considered "unacceptable" according evaluation in the Division soil guidelines.
** Slightly different formulae were used for standard deviations between years; they have been adjusted to be consistent in this table.

As a means for comparison, Table 2 shows results of soil sampling in *the Experimental Test Plots* at the West Ridge Mine in 2005. These plots were created to simulate final reclamation of those soils that were left in-place, covered by a geotextile layer, marked with strips, then covered with fill material for the life of the mine. At the time of final reclamation the geotextile fabric, markers and fill will be removed thus exposing the native soils enabling revegetation to proceed. A similar process to test this reclamation design was implemented in the Experimental Test Plot area by placing material over existing soils, then later removing it, followed by revegetation techniques.

Table 2: Laboratory Results for Soil Sampling in Experimental Test Plot at West Ridge Mine (2005).*

	pH	EC	SAR	$CaCO_3$
Subplot Name				
Strych Fill	7.31	1.06	0.17	19.47
Strych Stockpile	7.62	0.77	0.34	20.25
Midfork Cut	7.27	0.98	0.13	16.00
Midfork Stockpile	7.39	0.90	0.19	10.83
Mean	7.40	0.93	0.21	16.64
SDev.	0.16	0.12	0.09	4.29

** Results are a subset showing specific parameters from the complete soil laboratory report prepared by Brigham Young University (October 4, 2005). Sampling was conducted by Gary Gray, P.E. from the West Ridge Mine. A complete copy of the lab report has been provided to DOGM.*


Coal
Storage
Area
Elevated
Conveyor
N
T1
T2
T3
Portals
Safety Bench
Highwall
Substation
10 11
15 14
1"=100'
FIGURE 1
WEST RIDGE MINE
SOIL SAMPLE LOCATIONS
2012

APPENDIX

(Laboratory Report)

BRIGHAM YOUNG UNIVERSITY

Environmental Analytical Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Wildlife Sciences Department

Name: Mt. Nebo Scientific
Street: PO Box 337
Springville (City) Utah (State) 84663 (Zip)

SOIL TEST REPORT AND RECOMMENDATIONS

Date: 11-Sep-12
Telephone: 801-489-6937
Fax: 801-489-6779

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
T1	Turf	7.38						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	2.75		X				no salinity problem
SAR-Sodium Absorption Ratio	0.83	X					no sodium hazard
Calcium-SAR ppm Ca	561.15						
Magnesium SAR ppm Mg	149.50						
Sodium SAR ppm Na	86.30						
Ca Carbonate %CaCO3	12.09						

Notes:

BRIGHAM YOUNG UNIVERSITY

Environmental Analytical Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Wildlife Sciences Department

Name: Mt. Nebo Scientific
Street: PO Box 337
Springville (City) Utah (State) 84663 (Zip)

SOIL TEST REPORT AND RECOMMENDATIONS

Date: 11-Sep-12
Telephone: 801-489-6937
Fax: 801-489-6779

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
T2	Turf	7.42						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	3.00			X			no salinity problem
SAR-Sodium Absorption Ratio	1.91	X					no sodium hazard
Calcium-SAR ppm Ca	460.03						
Magnesium SAR ppm Mg	198.91						
Sodium SAR ppm Na	195.33						
Ca Carbonate %CaCO3	4.80						

Notes:

BRIGHAM YOUNG UNIVERSITY

Environmental Analytical Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Wildlife Sciences Department

Name: Mt. Nebo Scientific
Street: PO Box 337
Springville (City) Utah (State) 84663 (Zip)

SOIL TEST REPORT AND RECOMMENDATIONS

Date: 11-Sep-12
Telephone: 801-489-6937
Fax: 801-489-6779

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
T3	Turf	7.59						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	5.40				X		salinity a problem for sensitive crops
SAR-Sodium Absorption Ratio	21.91					X	extreme sodium hazard exists
Calcium-SAR ppm Ca	183.49						
Magnesium SAR ppm Mg	58.75						
Sodium SAR ppm Na	1336.32						
Ca Carbonate %CaCO3	11.18						

Notes:

SOIL MONITORING
AT THE
WEST RIDGE MINE, UTAH

2012

Prepared
for
West Ridge Resources, Inc.

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

WEST RIDGE RESOURCES, INC.
West Ridge Mine
P.O. Box 910
East Carbon, Utah 84520

March 2013

TABLE OF CONTENTS

INTRODUCTION 1

METHODS 2

RESULTS 3

SAMPLE LOCATION MAP 7

LABORATORY REPORT ..... Appendix

INTRODUCTION

As described in previous monitoring reports for the West Ridge Mine, an "experimental practice" for the protection of soil resources was designed and implemented at the site. The experimental practice was designed to test the effectiveness of burying soils in-place rather than salvaging (removing) them and returning them at the time of final reclamation. The in-situ topsoil was covered with a geotextile material and layer markers followed by fill material to create working areas for surface operations of the mine.

As a method to monitor the buried soil resources, West Ridge Resources committed to sampling mine pad areas in specific locations to determine whether or not they are being affected by coal and surface operations. In the document called *West Ridge Mine Experimental Practice Annual Evaluation 2000: Addendum to Appendix* 2-6, page 4, it stated that a monitoring program, starting in the year 2000, will be implemented to sample and determine if the mine pad areas affected by the coal are being "acidified". The same document states that the samples will be analyzed for acid/toxic-forming potential per Division Guidelines. In consulting with soils specialist, Priscilla Burton, from the State of Utah, Division of Oil, Gas & Mining (DOGM) prior to sampling in 2001, it was determined that the most appropriate parameters to be analyzed on the mine pad areas were: pH, electrical conductivity (EC), sodium adsorption ratio (SAR) and calcium carbonate ($CaCO_3$). Moreover, it was determined that sampling should be done at the depth of 6-12 inches as opposed to 3 inches as stated in the addendum cited above.

METHODS

Soil samples of the mine **pad areas** were taken by Patrick Collins (*Mt. Nebo Scientific, Inc.*) at the West Ridge Mine site in specified locations on September 11, 2001, November 25, 2008, July 2, 2009, July 22, 2010, September 1, 2011, August 30, 2012. The *approximate* (see below) same locations were sampled all years and are shown in Figure 1. Below are brief descriptions of these locations:

T1 *Located in the right fork, it was originally described to be 64 ft northwest of the jersey barrier in the center of the canyon. Because this location was so close to construction and where equipment was placed at the time, the sample was taken about 25 ft north of that location in 2008 and 2009. In 2010 there was a new building at the previous sample area, so the soil sample pit was re-located very closeby, but 10 ft west of the northwest corner of the new building (2010 GPS name and UTM coordinates: WR T1, NAD 27, 12 S 548475 E, 4385176 N). In 2011, the sample was taken in the same place as 2010.*

T2 *Located in the left fork in the coal storage area, the sample was taken at the base of the dike in the center of the canyon. In 2009, coal covered the previous sample pit location so the sample was taken at the outside base of the dike that encloses the coal storage area. In 2010, the coal pile had been removed from the original sample location, so the soil sample was taken once again at the toe of the inside dike (2010 GPS name and UTM coordinates: WR T2, NAD 27,12 S 548098 E, 4385201 N). In 2011, the coal had again been placed in the 2010 sample location. So, the sample was taken on the inside berm where the pure coal pile ended; nonetheless some coal was mixed with the soil sample because the coal level had been at that elevation previously (new UTM coordinates: WRT2, NAD 27, 12S 548089 E, 4385214 N). In 2012, the coal pile had been removed at this site so I dug to level where surface coal was not visible and took the sample. This was about 30 ft inside and away from the berm (not on the berm).*

T3 *Located in the load-out area, the sample was taken 54 ft uphill from the conveyor belt footing on the north side of the ditch. In 2010, because of the equipment stored in the area, the pit location was slightly different from 2009, or 60 ft from the concrete conveyor belt footing on the north side of the drainage ditch in the area (2010 GPS name and UTM coordinates: WR T3, NAD 27,12 S 548175 E, 4384956 N). In 2011, the sample was taken in the same place as 2010.*

Soil sampling in the **Experimental Test Plots** was also conducted by Gary Gray, *P.E. (West Ridge Resources)* in the fall of 2005 (more information about that is given later in the report).

Soil sample pits were hand-dug with a pick and shovel. A composite sample was taken at depths between 6 and 12 inches at each of the locations described above. Small amounts or soil material were taken at each depth and mixed in the field. Soils were analyzed by the Brigham Young University, Soil and Plant Analysis Laboratory, Provo, Utah. Parameters and laboratory methods used are shown below.

pH	*ASA Mono. No. 9, Part 2, (2 ed), 1982. Method 10-3.2, page 171. Perform pH on saturated paste.*
ECe	*Electrical conductivity reported as mmhos/cm 25°C. ASA Mono. No. 9, Part 2, (2 ed), 1982. Method 10-3.3, page 172-173.*
SAR	*Sodium Adsorption Ratio. Calculated from soluble Ca, Mg and Na.*
$CaCO_3$	*Method S-13.20. Acetic acid dissolution method. Western States Laboratory Proficiency Testing Program. Soil and Plant Analytical Methods. 1998.*

RESULTS

The laboratory results for 2001, 2008, 2009, 2010, 2011 and 2012 for the soils in the pad areas are shown on Table 1. The entire 2012 lab report has been included in the Appendix of this report; original lab reports for the other years were included in the respective sample reports for those years.

In 2008, some sample values exceeded acceptable levels according to DOGM soil guidelines; the parameters that exceeded the standards were EC and SAR in sample T3. The high concentration of salts (EC and SAR) may likely be the result of road salt that is placed in the

travel areas at the mine to treat snow and ice. The road salts can also accumulate in the snow and on the coal trucks while using the haul road to and from the mine. This snow and salt most-likely drops off the trucks while idling at the loadout site. By 2009, however, the salts appear to have leached below the sampling depths. In 2010, the SAR in T3 was high again and would be considered "poor" by Division standards, but again was not in the "unacceptable" range. The mean values for the sample years rendered all parameter values within the acceptable limits according to Division Guidelines. Additionally, "acidification" of the soils will probably not be a problem due to the neutralizing or "buffering" effect caused by the high percentage of calcium carbonates (% $CaCO_3$) present in all samples. By 2011, the values for nearly all parameters were in the "good" range by Division standards (the one exception was the pH value in T1 where 8.4 put it in the "fair" range. All means for each parameter were in the "good" range. In 2012, however, the sodium values (SAR) were again elevated in the T3 sample. This is an area that is constantly undergoing changes due to the onsite operations. Unless there was a laboratory problem, the explanation for the higher SAR and EC may be the same as described above in 2008.

In conclusion, Priscilla Burton (DOGM) made the following request for the 2012 annual report.

> *"As I was reviewing the West Ridge annual report, I wondered if you could provide information on the variability of each parameter at each location T1, T2, T3 over time in the next (2012) annual report. i.e. calculate the mean and standard deviation for each row in Table 1 of the soils report. Thereby providing the range, mean and std dev. of values for pH, EC, SAR and ÊCO2 for each general location T1, T2, & T3."*

These calculations were made and have been shown on Table 1.

Table 1: Laboratory Results for Soil Sampling in Mine Pad Areas at West Ridge Mine (2001, 2008, 2009, 2010, 2011, 2012).

Sample No.	2001	2008	2009	2010	2011	2012	Mean	SDev.**
A. pH								
T1	8.04	7.75	7.81	8.15	8.40	7.35	7.92	0.33
T2	7.52	7.23	7.91	7.63	7.55	7.42	7.54	0.21
T3	7.83	8.42	8.21	7.82	7.35	7.59	7.87	0.36
Mean	7.80	7.80	7.98	7.87	7.77	7.45	7.78	0.16
SDev.	0.26	0.60	0.21	0.21	0.46	0.12	0.34	0.18
B. EC (Salinity or ECe dS/m)								
T1	6.20	4.80	14.20	1.55	3.65	2.75	5.53	4.15
T2	2.70	4.80	0.62	1.90	3.20	3.00	2.70	1.27
T3	4.20	17.50*	3.50	4.80	2.70	5.40	6.35	5.06
Mean	4.37	9.03	6.11	2.75	3.18	3.72	4.86	2.15
SDev.	1.76	7.33	7.16	1.46	0.39	1.46	3.33	2.80
C. SAR (Sodium Adsorption Ration; see Appendix A for lab data and units to calculate the SAR's)								
T1	2.19	5.83	2.53	3.65	1.22	0.83	2.71	1.67
T2	0.74	4.14	0.14	0.74	0.77	1.91	1.41	1.33
T3	1.94	31.31*	7.07	12.26	0.96	21.91*	12.58	10.93
Mean	1.62	13.76	3.25	5.55	0.98	8.22	5.56	4.40
SDev.	0.78	15.22	3.52	4.89	0.18	11.87	6.27	5.57
D. $CaCO_3$ (% Calcium Carbonate)								
T1	19.21	11.85	16.60	7.96	10.82	12.09	13.09	3.74
T2	5.10	11.25	10.77	6.18	12.38	4.80	8.41	3.12
T3	15.00	12.02	12.25	17.67	12.64	11.18	13.46	2.22
Mean	13.10	11.71	13.21	10.60	11.95	9.36	11.65	1.36
SDev.	7.24	0.40	3.03	5.05	0.80	3.97	3.64	2.50

* Value considered "unacceptable" according evaluation in the Division soil guidelines.
** Slightly different formulae were used for standard deviations between years; they have been adjusted to be consistent in this table.

As a means for comparison, Table 2 shows results of soil sampling in *the Experimental Test Plots* at the West Ridge Mine in 2005. These plots were created to simulate final reclamation of those soils that were left in-place, covered by a geotextile layer, marked with strips, then covered with fill material for the life of the mine. At the time of final reclamation the geotextile fabric, markers and fill will be removed thus exposing the native soils enabling revegetation to proceed. A similar process to test this reclamation design was implemented in the Experimental Test Plot area by placing material over existing soils, then later removing it, followed by revegetation techniques.

Table 2: Laboratory Results for Soil Sampling in Experimental Test Plot at West Ridge Mine (2005).*

	pH	EC	SAR	$CaCO_3$
Subplot Name				
Strych Fill	7.31	1.06	0.17	19.47
Strych Stockpile	7.62	0.77	0.34	20.25
Midfork Cut	7.27	0.98	0.13	16.00
Midfork Stockpile	7.39	0.90	0.19	10.83
Mean	7.40	0.93	0.21	16.64
SDev.	0.16	0.12	0.09	4.29

** Results are a subset showing specific parameters from the complete soil laboratory report prepared by Brigham Young University (October 4, 2005). Sampling was conducted by Gary Gray, P.E. from the West Ridge Mine. A complete copy of the lab report has been provided to DOGM.*

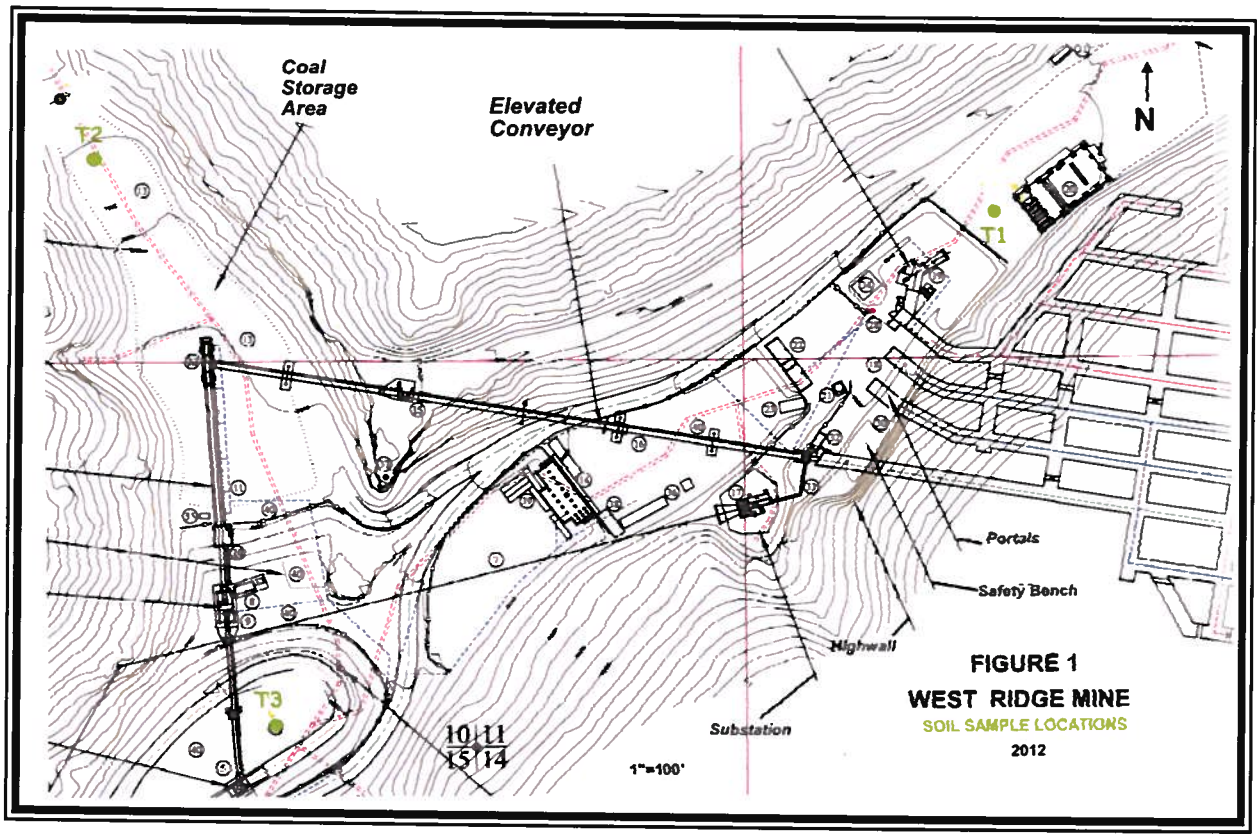


FIGURE 1
WEST RIDGE MINE
SOIL SAMPLE LOCATIONS
2012

APPENDIX

(Laboratory Report)

BRIGHAM YOUNG UNIVERSITY

Environmental Analytical Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Wildlife Sciences Department

Name: Mt. Nebo Scientific
Street: PO Box 337
Springville (City) Utah (State) 84663 (Zip)

SOIL TEST REPORT AND RECOMMENDATIONS

Date: 11-Sep-12
Telephone: 801-489-6937
Fax: 801-489-6779

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
T1	Turf	7.38						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	2.75		X				no salinity problem
SAR-Sodium Absorption Ratio	0.83	X					no sodium hazard
Calcium-SAR ppm Ca	561.15						
Magnesium SAR ppm Mg	149.50						
Sodium SAR ppm Na	86.30						
Ca Carbonate %CaCO3	12.09						

Notes:

BRIGHAM YOUNG UNIVERSITY

Environmental Analytical Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Wildlife Sciences Department

Name: Mt. Nebo Scientific
Street: PO Box 337
Springville (City) Utah (State) 84663 (Zip)

SOIL TEST REPORT AND RECOMMENDATIONS

Date: 11-Sep-12
Telephone: 801-489-6937
Fax: 801-489-6779

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
T2	Turf	7.42						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	3.00			X			no salinity problem
SAR-Sodium Absorption Ratio	1.91	X					no sodium hazard
Calcium-SAR ppm Ca	460.03						
Magnesium SAR ppm Mg	198.91						
Sodium SAR ppm Na	195.33						
Ca Carbonate %CaCO3	4.80						

Notes:

BRIGHAM YOUNG UNIVERSITY

Environmental Analytical Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Wildlife Sciences Department

Name: Mt. Nebo Scientific
Street: PO Box 337
Springville (City) Utah (State) 84663 (Zip)

SOIL TEST REPORT AND RECOMMENDATIONS

Date: 11-Sep-12
Telephone: 801-489-6937
Fax: 801-489-6779

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
T3	Turf	7.59						

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recommendations
Salinity-ECe dS/m	5.40				X		salinity a problem for sensitive crops
SAR-Sodium Absorption Ratio	21.91					X	extreme sodium hazard exists
Calcium-SAR ppm Ca	183.49						
Magnesium SAR ppm Mg	58.75						
Sodium SAR ppm Na	1336.32						
Ca Carbonate %CaCO3	11.18						

Notes:

2012

ANNUAL REPORT

Vegetation Monitoring

At the

Experimental Test Plot

At the

WEST RIDGE MINE, UTAH

Vegetation Monitoring
at the
Experimental Test Plot
2012

at the

West Ridge Mine,
Carbon County, Utah

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

WEST RIDGE RESOURCES, INC.
West Ridge Mine
P.O. Box 910
East Carbon, Utah 84520

March 2013

TABLE OF CONTENTS

INTRODUCTION 1

METHODS 3

Sampling Design and Transect/Quadrat Placement 3
Cover and Composition 3
Woody Species Density 4
Photographs 4
Raw Data 4

RESULTS 5

Midfork Cut 5
Midfork Stockpile 6
Strych Stockpile 7
Strych Fill 8
Douglas Fir/Maple Reference Area 9

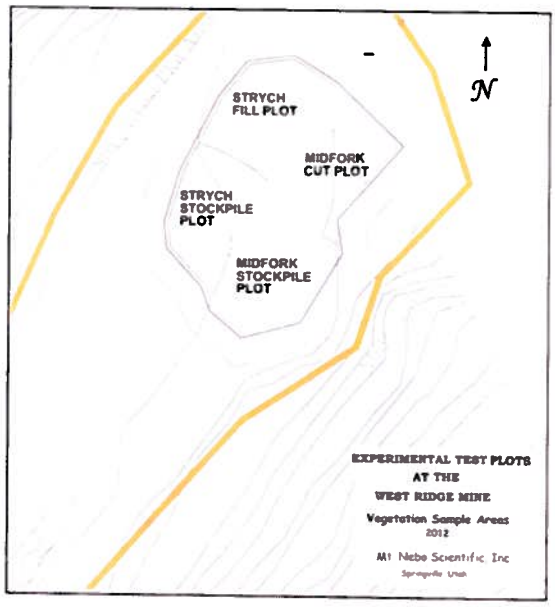
DISCUSSION 11

COLOR PHOTOGRAPHS OF THE SAMPLE AREAS 13

LABORATORY ANALYSES ..... Appendix

INTRODUCTION

As described in the West Ridge Mine's, Mining & Reclamation Plan (MRP), *Experimental Practice Test Plots* were constructed at the site in 1999 (see the Plot Layout below). These plots were created to simulate final reclamation of those soils that have been left in-place (as opposed to the more common practice to remove and stockpile them). They were covered by a geotextile layer (as a means for preservation of the in-place topsoil), identified with marker strips (to facilitate locating them at the time of reclamation), then covered with fill (to simulate the material used to cover the mine pad areas during operations), then covered with other topsoil material, and finally seeded with the *interim* seed mixture for erosion control.



In 2005, or six years following the initial test plot construction, the above procedures were reversed in an attempt to imitate final reclamation and revegetation of the mine site. Or, the fill and topsoil were removed until the marker strips were exposed. These materials were then returned to their place of origin. The geotextile material was then removed exposing the topsoil and subsoil that was left "in-place", followed by re-seeding the area with the seed mixture formulated for *final* revegetation.

This document was prepared to report the current (2012) status and condition of specific parameters for the vegetation of the Experimental Test Plots at the West Ridge Mine.

As a means to retain the following useful information here, in a letter to West Ridge Resources from Priscilla Burton (2009)[1], the following additional comments regarding the history of the Experimental Test Plots were stated:

- The work began with removing stinging nettle seed heads from a patch of nettle that completely covered the Midfork Stockpile Area.
- Certified noxious weed-free alfalfa hay was gouged into the regraded site (copy of certification was attached to the Inspection Report #717).
- There was no application of straw and wood fiber mulch tackifier.
- There was no soil amendment added based upon visual observation of vegetative cover, but soil samples were taken to document the soil chemistry.
- Soils were sampled from the test plots after they were regraded. The Brigham Young University Soil and Plant Analysis Lab analysis is dated October 4, 2005. (***NOTE:*** *The 2005 laboratory report has been provided in the appendix of this report*).
- The seeding was done on October 31, 2005.
- According to information received by the Division on September 10, 2005, the seed mix outlined in Table 3-2B (*in MRP, Appendix 2-6*) was modified due to availability: Sandberg bluegrass replaced muttongrass (*Poa fendleriana*) and neither canyon sweetvetch nor rocky mountain maple were commercially available and were not included in the seed mix.
- Containerized plants shown on Table 3-2B (*in MRP, Appendix 2-6*) were not available and not planted.
- A vegetative analysis was conducted in August 2008 and results are presented in an addendum to Appendix 2-6 (*in MRP*).
- Burton (2009) speculates that the predominance of stinging nettle in the Midfork Cut plot may have resulted from the Midfork Stockpile area (the source of the Midfork Cut topsoil) that was covered with stinging nettle and the root propagules and seed were more than likely carried over with the soil.
- The Strych Stockpile Area is the only plot that represents the experimental practice of burial and storage in place. A comparison of the Strych Stockpile area and the Strych Fill area is the test of the conventional technique versus the experimental technique in the same soil type.

---

[1] Burton, P. 2009. Test plot evaluation and soil monitoring reports, C/007/00041, West Ridge Mine, Task ID #3111. *In:* Letter from D. Haddock. April 16, 2009, State of Utah, Division of Oil, Gas & Mining, Salt Lake City, UT.

METHODS

Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were recorded August 30, 2012. The reference area proposed to ultimately be compared with this plot for revegetation success standards, was sampled during the growing season of 1998. These data were also presented herein for general comparisons with the results of quantitative sampling conducted in 2012 on the test plots.

Sampling Design and Transect/Quadrat Placement

Quadrat sample locations were chosen using random numbers with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Plant nomenclature follows *A Utah Flora* (Welsh et al., 2008)[2]

---

2 Welsh, S.L., N.D. Atwood, S. Goodrich and L.C. Higgins. 2008. A Utah flora. Print Services, Brigham Young University, Provo, UT. 1019 pp.

Woody Species Density

Density of woody plant species was not assessed because very few or no trees or shrubs were present on the plots.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

Raw Data

The raw data have been summarized on a spreadsheet and is available upon request by the operator or DOGM.

RESULTS

Midfork Cut

Table 1: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

MIDFORK CUT	Mean Percent	Standard Deviation	Percent Frequency
FORBS			
Achillea millefolium	1.00	3.00	10.00
Aster chilensis	1.50	4.50	10.00
Carduus nutans	1.00	3.00	10.00
Linum lewisii	5.50	5.68	50.00
Tragopogon dubius	0.50	1.50	10.00
Urtica dioica	18.50	12.66	70.00
GRASSES			
Elymus lanceolatus	11.50	9.23	80.00
Elymus smithii	5.00	5.00	50.00
Elymus spicatus	24.00	16.55	80.00
Poa pratensis	2.00	4.00	20.00

The Midfork Cut plot (Photo 1) was largely dominated by stinging nettle (*Urtica dioica*), bluebunch wheatgrass (*Elymus spicatus*) and thickspike wheatgrass (*E. lanceolatus*). Other dominant plant species were Lewis flax (*Linum lewisii*) and western wheatgrass (*Elymus smithii*). For a list of all plant species by cover and frequency found in the test plot, refer to Table 1.

Table 2: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

MIDFORK CUT		
Total Living Cover	70.50	3.50
Litter	18.00	5.57
Bareground	4.60	0.49
Rock	6.90	6.73
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	40.08	23.14
Grasses	59.92	23.14

Total living cover of the plot was estimated at 70.50% (Table 2-A). The living cover was comprised of 59.92% grasses, 40.08% forbs with no shrubs present in the sample quadrats (Table 2-B).

Midfork Stockpile

The dominant plant species represented in this plot (Photo 2) were Lewis flax (*Linum lewisii*), thickspike wheatgrass, bluebunch wheatgrass and western wheatgrass (Table 3).

Table 3: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

MIDFORK STOCKPILE	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Achillea millefolium	0.50	1.50	10.00
Artemisia dracunculus	2.50	7.50	10.00
Geranium richardsonii	1.00	3.00	10.00
Hedysarum boreale	0.50	1.50	10.00
Linum lewisii	16.50	12.05	70.00
Urtica dioica	7.50	8.14	60.00
GRASSES			
Elymus lanceolatus	12.00	14.00	60.00
Elymus smithii	8.00	11.45	40.00
Elymus spicatus	9.50	10.83	50.00
Poa pratensis	7.00	9.27	40.00

The total living cover for the Midfork Stockpile plot was estimated at 65.00% (Table 4-A).

The composition of the living cover was comprised of 56.22% grasses, 43.78% forbs and no shrubs (Table 4-B.) .

Table 4: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

MIDFORK STOCKPILE		
Total Living Cover	65.00	5.00
Litter	21.00	8.00
Bareground	6.80	6.34
Rock	7.20	7.11
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	43.78	22.14
Grasses	56.22	22.14

Strych Stockpile

The Strych Stockpile plot (Photo 3) was dominated by Lewis flax and bluebunch wheatgrass and thickspike wheatgrass (Table 5).

Table 5: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

STRYCH STOCKPILE	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Achillea millefolium	1.00	3.00	10.00
Artemisia dracunculus	3.50	5.50	30.00
Hedysarum boreale	2.00	4.00	20.00
Linum lewisii	22.00	4.00	100.00
Urtica dioica	3.50	7.76	20.00
GRASSES			
Elymus lanceolatus	10.50	12.74	50.00
Elymus smithii	1.00	3.00	10.00
Elymus spicatus	14.50	11.50	70.00
Poa pratensis	4.00	8.00	20.00

The total living cover of the plot was estimated at 62.00% (Table 6-A); this cover consisted of 50.14% forbs and 49.86% grasses with no woody species present (Table 6-B).

Table 6: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

STRYCH STOCKPILE	Mean Percent	Standard Deviation
A. TOTAL COVER		
Total Living Cover	62.00	8.12
Litter	23.50	6.73
Bareground	8.40	3.17
Rock	6.10	2.81
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	50.14	13.28
Grasses	49.86	13.28

Strych Fill

The Strych Fill plot's (Photo 4) dominant plant species were Lewis flax and bluebunch wheatgrass; Kentucky bluegrass (*Poa pratensis*), western wheatgrass, stinging nettle and thickspike wheatgrass were also important in the cover and frequency values (Table 7).

Table 7: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

STRYCH FILL	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Artemisia dracunculus	4.50	7.89	30.00
Descurainia pinnata	1.00	3.00	10.00
Geranium richardsonii	1.00	3.00	10.00
Hedysarum boreale	1.00	3.00	10.00
Linum lewisii	24.50	6.50	100.00
Urtica dioica	5.50	7.57	40.00
GRASSES			
Elymus lanceolatus	5.00	6.71	40.00
Elymus smithii	5.50	7.89	50.00
Elymus spicatus	10.50	17.10	30.00
Poa pratensis	6.50	7.76	50.00

Total living cover of the Strych Fill plot was estimated at 65.00% (Table 8-A). The living understory cover composition was comprised of 57.90% forbs and 42.10% grasses (Table 8-B).

Table 8: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

STRYCH FILL A. TOTAL COVER	Mean Percent	Standard Deviation
Total Living Cover	65.00	6.71
Litter	21.00	8.00
Bareground	6.00	2.00
Rock	8.00	4.00
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	57.90	15.50
Grasses	42.10	15.50

Douglas Fir/Maple Reference Area

The existing Douglas Fir/Maple Reference Area (Photo 5) was chosen to ultimately be compared to the test plots and other sites at the time of final reclamation. Each year this dataset is included with the Experimental Test Plot monitoring data for a general comparison only. When the final revegetation is compared to the reference area, the sampling will be accomplished during the same growing season.

Understory in the Douglas Fir/Maple Reference Area was dominated by bigtooth maple (*Acer grandidentatum*), mountain lover (*Pachistima myrsinites*), and Oregon grape (*Mahonia repens*). Overstory dominants were bigtooth maple and Douglas fir (*Pseudotsuga menziesii*). A list of all species present in the sample quadrats for the reference area is shown in Table 9.

The total living cover of the reference area was estimated at 63.63% of which overstory and understory cover was nearly equally represented at 31.38% and 32.25%, respectively (Table 10-A). Woody species comprised 61.57% of the total living understory cover, followed by forbs at 25.33% and grasses at 13.10% (Table 10-B).

Table 9. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Frequency by Species (1998).

DOUGLAS FIR/ MAPLE COMMUNITY REFERENCE AREA (NEW)	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY COVER			
Acer grandidentatum	15.88	21.30	50.00
Juniperus scopulorum	1.38	6.22	5.00
Pseudotsuga menziesii	14.13	20.67	45.00
UNDERSTORY COVER			
TREES & SHRUBS			
Acer grandidentatum	6.18	11.30	47.50
Juniperus scopulorum	1.30	2.90	20.00
Mahonia repens	3.33	5.82	40.00
Pachistima myrsinites	5.73	11.04	35.00
Pseudotsuga menziesii	1.95	6.19	6.00
Symphoricarpos oreophilus	1.43	3.35	20.00
FORBS			
Antennaria parvifolia	0.25	1.09	5.00
Artemisia dracunculus	0.88	3.33	10.00
Aster sp.	3.13	7.65	30.00
Circium sp.	0.13	0.78	2.50
Descurainia pinnata	1.78	7.12	10.00
Erigeron engelmannii	0.25	1.09	5.00
Erysimum asperum	0.13	0.78	2.50
Fragaria vesca	0.38	1.73	5.00
Mitella stauropetala	0.05	0.31	2.50
Senecio pudicus	0.15	0.79	5.00
Smilacina racemosa	0.33	1.03	10.00
Stellaria jamesiana	0.03	0.16	2.50
Taraxacum officinale	0.13	0.78	2.50
Thalictrum fendleri	0.13	0.78	2.50
Viola adunca	0.13	0.78	2.50
GRASSES			
Bromus inermis	1.25	5.67	7.50
Poa fendleriana	2.90	4.15	45.00
Poa pratensis	0.38	1.73	5.00

Table 10. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Sample Size (1998).

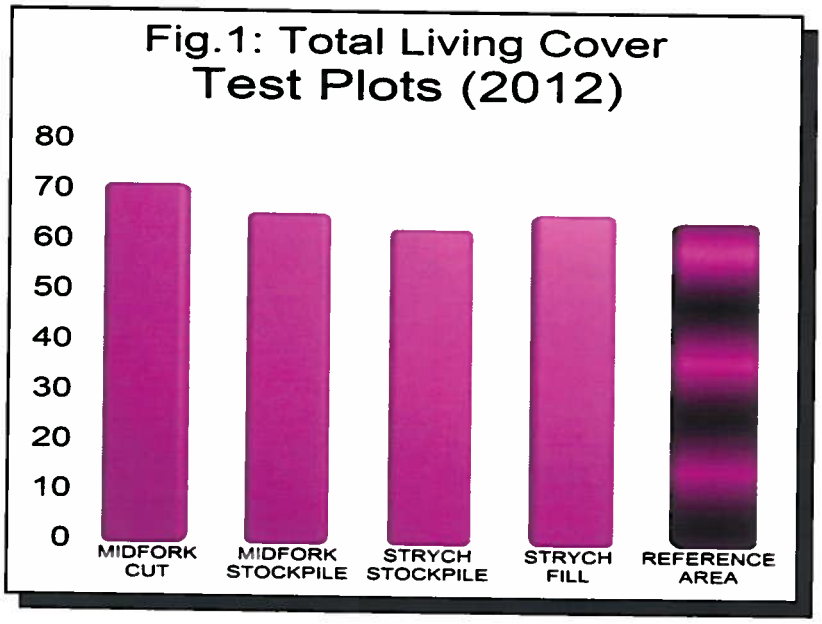
DOUGLAS FIR/ MAPLE COMMUNITY REFERENCE AREA (NEW)	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory Cover (O)	31.38	25.69	40
Understory Cover (U)	32.25	19.27	40
Cryptogams	0.25	1.09	40
Litter	18.20	12.80	40
Bareground	8.20	9.39	40
Rock	9.73	9.67	40
O+U	63.63	13.51	40
B. % COMPOSITION			
Trees & Shrubs	61.57	33.67	40
Forbs	25.33	29.49	40
Grasses	13.10	19.14	40

DISCUSSION

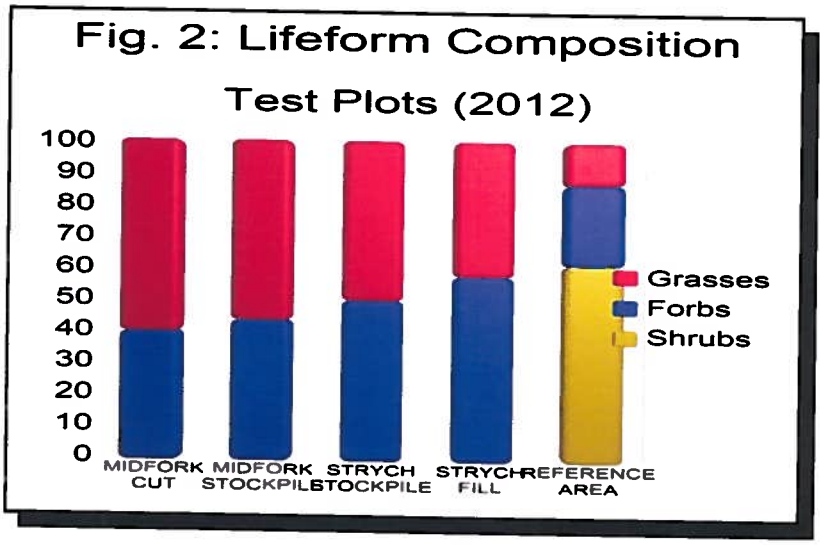
Similar to the 2008 - 2011 monitoring there was a prevalence of stinging nettle in the Midfork Cut area of the Experimental Test Plots. Stinging nettle was also an important species in the Strych Fill plot in all years, but not as prevalent as the Midfork Cut plot and not as common as usual in 2012 (perhaps a function of the random quadrat placement). Although not necessarily an undesirable species, it is interesting to note where the plant was a dominant species. Comments about this have been provided by (Burton 2009)[1] described in the INTRODUCTION of this document.

A graphic representation of the *total living cover* can be observed on Fig 1. As can be noted from the figure and also the data summary tables in this report, (as well as previous years' monitoring reports) there was not a great deal of difference between the total living cover

in the plots that represented soils that remained *in-place* to those that represented soils of the more typical scenario of first *stockpiling* the topsoil and then returning it at the time of revegetation. Most of the total living cover values for the test plots were similar to that of the reference area, with the possible exception of the Midfork Cut plot where the cover was higher in 2011 and 2012.



For lifeform composition, the most obvious observation was that there were very few woody species present in the test plots, especially when the Reference Area is compared (Fig. 2). This is most likely because the *interim* seed mixture was used on the plots, not the *final* mixture. Interim seed mixtures generally have very few woody plant species included in them.



COLOR PHOTOGRAPHS OF THE SAMPLE AREAS

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

APPENDIX

Laboratory Analyses
(2005)

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT AND RECOMMENDATIONS

Name Gary Gray-West Ridge Resources
Street PO Box 790
Lehi UT 84043
City State Zip

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Strych Fill area	Turf	7.31	43.00	35.16	21.84	Loam		4.58

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	7.17	X					apply 2.8 lbs of N/1000 sq ft
Phosphorus ppm P	9.29		X				apply 1.4 lbs of P2O5/1000 sq ft
Potassium ppm K	672.00					X	no fertilizer needed
Salinity-ECe dS/m	1.06		X				no salinity problem
SAR-Sodium Absorption Ratio	0.17	X					no sodium hazard
Calcium-SAR ppm Ca	227.20						
Potassium SAR ppm K	33.80						
Magnesium SAR ppm Mg	25.12						
Sodium SAR ppm Na	10.08						
HCO3 ppm HCO3	592.29						
% moisture sat. % sat	30.60						
Ca Carbonate %CaCO3	19.47						
Total N ppm total N	983.70						
% rock %	20.14						

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT AND RECOMMENDATIONS

Name Gary Gray-West Ridge Resources
Street PO Box 790
Lehi UT 84043
City State Zip

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Strych stockpile area	Turf	7.62	42.00	33.16	24.84	Loam		2.89

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	10.50		X				apply 2.1 lbs of N/1000 sq ft
Phosphorus ppm P	5.70	X					apply 2.1 lbs of P2O5/1000 sq ft
Potassium ppm K	448.00					X	no fertilizer needed
Salinity-ECe dS/m	0.77	X					no salinity problem
SAR-Sodium Absorption Ratio	0.34	X					no sodium hazard
Calcium-SAR ppm Ca	136.48						
Potassium SAR ppm K	22.40						
Magnesium SAR ppm Mg	32.32						
Sodium SAR ppm Na	17.28						
HCO3 ppm HCO3	432.83						
% moisture sat. % sat	30.05						
Ca Carbonate %CaCO3	20.25						
Total N ppm total N	502.60						
% rock %	15.14						

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
265 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT AND RECOMMENDATIONS

Name Gary Gray-West Ridge Resources
Street PO Box 790
Lehi UT 84043
City State Zip

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Midfork cut area	Turf	7.27	40.00	36.16	23.84	Loam		5.67

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	16.80		X				apply 2.1 lbs of N/1000 sq ft
Phosphorus ppm P	13.14		X				apply 1.4 lbs of P2O5/1000 sq ft
Potassium ppm K	566.40					X	no fertilizer needed
Salinity-ECe dS/m	0.98	X					no salinity problem
SAR-Sodium Absorption Ratio	0.13	X					no sodium hazard
Calcium-SAR ppm Ca	205.12						
Potassium SAR ppm K	28.32						
Magnesium SAR ppm Mg	24.64						
Sodium SAR ppm Na	7.20						
HCO3 ppm HCO3	689.64						
%moisture sat % sat	52.97						
Ca Carbonate %CaCO3	16.00						
Total N ppm total N	923.60						
% rock %	10.11						

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
258 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT AND RECOMMENDATIONS

Name Gary Gray-West Ridge Resources
Street PO Box 790
City Lehi State UT Zip 84043

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Midfork stockpile area	Turf	7.39	35	39.16	25.64	Loam		4.59

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	7.46	X					apply 2.8 lbs of N/1000 sq ft
Phosphorus ppm P	13.76		X				apply 1.4 lbs of P2O5/1000 sq ft
Potassium ppm K	592.30					X	no fertilizer needed
Salinity-ECe dS/m	0.90	X					no salinity problem
SAR-Sodium Absorption Ratio	0.19	X					no sodium hazard
Calcium-SAR ppm Ca	188.48						
Potassium SAR ppm K	29.80						
Magnesium SAR ppm Mg	23.84						
Sodium SAR ppm Na	10.56						
HCO3 ppm HCO3	545.94						
%moisture sat. % sat.	48.25						
Ca Carbonate %CaCO3	10.83						
Total N ppm total N	975.80						
% rock %	10.65						

Vegetation Monitoring
at the
Experimental Test Plot
2012

at the

West Ridge Mine,
Carbon County, Utah

Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

Patrick D. Collins, Ph.D.

for

WEST RIDGE RESOURCES, INC.
West Ridge Mine
P.O. Box 910
East Carbon, Utah 84520

March 2013

TABLE OF CONTENTS

INTRODUCTION 1

METHODS 3

Sampling Design and Transect/Quadrat Placement 3
Cover and Composition 3
Woody Species Density 4
Photographs 4
Raw Data 4

RESULTS 5

Midfork Cut 5
Midfork Stockpile 6
Strych Stockpile 7
Strych Fill 8
Douglas Fir/Maple Reference Area 9

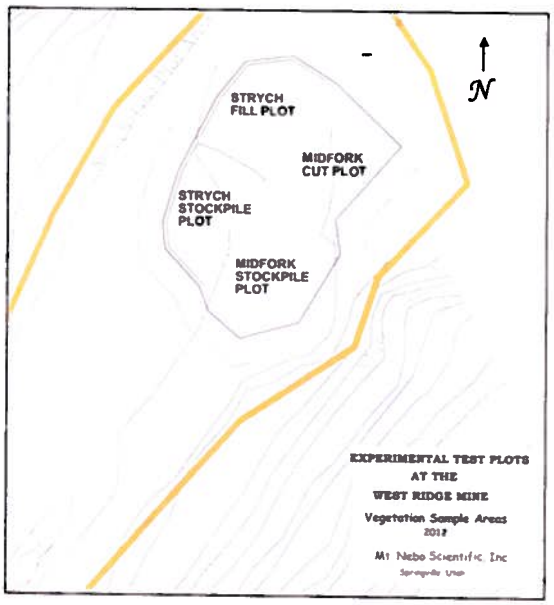
DISCUSSION 11

COLOR PHOTOGRAPHS OF THE SAMPLE AREAS 13

LABORATORY ANALYSES ..... Appendix

INTRODUCTION

As described in the West Ridge Mine's, Mining & Reclamation Plan (MRP), *Experimental Practice Test Plots* were constructed at the site in 1999 (see the Plot Layout below). These plots were created to simulate final reclamation of those soils that have been left in-place (as opposed to the more common practice to remove and stockpile them). They were covered by a geotextile layer (as a means for preservation of the in-place topsoil), identified with marker strips (to facilitate locating them at the time of reclamation), then covered with fill (to simulate the material used to cover the mine pad areas during operations), then covered with other topsoil material, and finally seeded with the *interim* seed mixture for erosion control.



In 2005, or six years following the initial test plot construction, the above procedures were reversed in an attempt to imitate final reclamation and revegetation of the mine site. Or, the fill and topsoil were removed until the marker strips were exposed. These materials were then returned to their place of origin. The geotextile material was then removed exposing the topsoil and subsoil that was left "in-place", followed by re-seeding the area with the seed mixture formulated for *final* revegetation.

This document was prepared to report the current (2012) status and condition of specific parameters for the vegetation of the Experimental Test Plots at the West Ridge Mine.

As a means to retain the following useful information here, in a letter to West Ridge Resources from Priscilla Burton (2009)[1], the following additional comments regarding the history of the Experimental Test Plots were stated:

- The work began with removing stinging nettle seed heads from a patch of nettle that completely covered the Midfork Stockpile Area.
- Certified noxious weed-free alfalfa hay was gouged into the regraded site (copy of certification was attached to the Inspection Report #717).
- There was no application of straw and wood fiber mulch tackifier.
- There was no soil amendment added based upon visual observation of vegetative cover, but soil samples were taken to document the soil chemistry.
- Soils were sampled from the test plots after they were regraded. The Brigham Young University Soil and Plant Analysis Lab analysis is dated October 4, 2005. (***NOTE:*** *The 2005 laboratory report has been provided in the appendix of this report*).
- The seeding was done on October 31, 2005.
- According to information received by the Division on September 10, 2005, the seed mix outlined in Table 3-2B (*in MRP, Appendix 2-6*) was modified due to availability: Sandberg bluegrass replaced muttongrass (*Poa fendleriana*) and neither canyon sweetvetch nor rocky mountain maple were commercially available and were not included in the seed mix.
- Containerized plants shown on Table 3-2B (*in MRP, Appendix 2-6*) were not available and not planted.
- A vegetative analysis was conducted in August 2008 and results are presented in an addendum to Appendix 2-6 (*in MRP*).
- Burton (2009) speculates that the predominance of stinging nettle in the Midfork Cut plot may have resulted from the Midfork Stockpile area (the source of the Midfork Cut topsoil) that was covered with stinging nettle and the root propagules and seed were more than likely carried over with the soil.
- The Strych Stockpile Area is the only plot that represents the experimental practice of burial and storage in place. A comparison of the Strych Stockpile area and the Strych Fill area is the test of the conventional technique versus the experimental technique in the same soil type.

---

1 Burton, P. 2009. Test plot evaluation and soil monitoring reports, C/007/00041, West Ridge Mine, Task ID #3111. *In:* Letter from D. Haddock. April 16, 2009, State of Utah, Division of Oil, Gas & Mining, Salt Lake City, UT.

METHODS

Methodologies used for this study were performed in accordance with the guidelines supplied by the State of Utah, Division of Oil, Gas and Mining (DOGM). Quantitative and qualitative data were recorded August 30, 2012. The reference area proposed to ultimately be compared with this plot for revegetation success standards, was sampled during the growing season of 1998. These data were also presented herein for general comparisons with the results of quantitative sampling conducted in 2012 on the test plots.

Sampling Design and Transect/Quadrat Placement

Quadrat sample locations were chosen using random numbers with the objective to record data without preconceived bias.

Cover and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition, cover by species, and relative frequencies were also assessed from the quadrats. Plant nomenclature follows *A Utah Flora* (Welsh et al., 2008)[2]

---

2 Welsh, S.L., N.D. Atwood, S. Goodrich and L.C. Higgins. 2008. A Utah flora. Print Services, Brigham Young University, Provo, UT. 1019 pp.

Woody Species Density

Density of woody plant species was not assessed because very few or no trees or shrubs were present on the plots.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been submitted with this report.

Raw Data

The raw data have been summarized on a spreadsheet and is available upon request by the operator or DOGM.

RESULTS

Midfork Cut

Table 1: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

MIDFORK CUT	Mean Percent	Standard Deviation	Percent Frequency
FORBS			
Achillea millefolium	1.00	3.00	10.00
Aster chilensis	1.50	4.50	10.00
Carduus nutans	1.00	3.00	10.00
Linum lewisii	5.50	5.68	50.00
Tragopogon dubius	0.50	1.50	10.00
Urtica dioica	18.50	12.66	70.00
GRASSES			
Elymus lanceolatus	11.50	9.23	80.00
Elymus smithii	5.00	5.00	50.00
Elymus spicatus	24.00	16.55	80.00
Poa pratensis	2.00	4.00	20.00

The Midfork Cut plot (Photo 1) was largely dominated by stinging nettle (*Urtica dioica*), bluebunch wheatgrass (*Elymus spicatus*) and thickspike wheatgrass (*E. lanceolatus*). Other dominant plant species were Lewis flax (*Linum lewisii*) and western wheatgrass (*Elymus smithii*). For a list of all plant species by cover and frequency found in the test plot, refer to Table 1.

Table 2: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

MIDFORK CUT		
Total Living Cover	70.50	3.50
Litter	18.00	5.57
Bareground	4.60	0.49
Rock	6.90	6.73
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	40.08	23.14
Grasses	59.92	23.14

Total living cover of the plot was estimated at 70.50% (Table 2-A). The living cover was comprised of 59.92% grasses, 40.08% forbs with no shrubs present in the sample quadrats (Table 2-B).

Midfork Stockpile

The dominant plant species represented in this plot (Photo 2) were Lewis flax (*Linum lewisii*), thickspike wheatgrass, bluebunch wheatgrass and western wheatgrass (Table 3).

Table 3: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

MIDFORK STOCKPILE	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Achillea millefolium	0.50	1.50	10.00
Artemisia dracunculus	2.50	7.50	10.00
Geranium richardsonii	1.00	3.00	10.00
Hedysarum boreale	0.50	1.50	10.00
Linum lewisii	16.50	12.05	70.00
Urtica dioica	7.50	8.14	60.00
GRASSES			
Elymus lanceolatus	12.00	14.00	60.00
Elymus smithii	8.00	11.45	40.00
Elymus spicatus	9.50	10.83	50.00
Poa pratensis	7.00	9.27	40.00

The total living cover for the Midfork Stockpile plot was estimated at 65.00% (Table 4-A).

The composition of the living cover was comprised of 56.22% grasses, 43.78% forbs and no shrubs (Table 4-B.) .

Table 4: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

MIDFORK STOCKPILE		
Total Living Cover	65.00	5.00
Litter	21.00	8.00
Bareground	6.80	6.34
Rock	7.20	7.11
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	43.78	22.14
Grasses	56.22	22.14

Strych Stockpile

The Strych Stockpile plot (Photo 3) was dominated by Lewis flax and bluebunch wheatgrass and thickspike wheatgrass (Table 5).

Table 5: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

STRYCH STOCKPILE	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Achillea millefolium	1.00	3.00	10.00
Artemisia dracunculus	3.50	5.50	30.00
Hedysarum boreale	2.00	4.00	20.00
Linum lewisii	22.00	4.00	100.00
Urtica dioica	3.50	7.76	20.00
GRASSES			
Elymus lanceolatus	10.50	12.74	50.00
Elymus smithii	1.00	3.00	10.00
Elymus spicatus	14.50	11.50	70.00
Poa pratensis	4.00	8.00	20.00

The total living cover of the plot was estimated at 62.00% (Table 6-A); this cover consisted of 50.14% forbs and 49.86% grasses with no woody species present (Table 6-B).

Table 6: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

STRYCH STOCKPILE		
A. TOTAL COVER	Mean Percent	Standard Deviation
Total Living Cover	62.00	8.12
Litter	23.50	6.73
Bareground	8.40	3.17
Rock	6.10	2.81
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	50.14	13.28
Grasses	49.86	13.28

Strych Fill

The Strych Fill plot's (Photo 4) dominant plant species were Lewis flax and bluebunch wheatgrass; Kentucky bluegrass (*Poa pratensis*), western wheatgrass, stinging nettle and thickspike wheatgrass were also important in the cover and frequency values (Table 7).

Table 7: West Ridge Mine Experimental Test Plots. Living Cover and Frequency by Plant Species (2012).

STRYCH FILL	Mean Percent	Standard Deviation	Percent Frequency
TREES & SHRUBS			
FORBS			
Artemisia dracunculus	4.50	7.89	30.00
Descurainia pinnata	1.00	3.00	10.00
Geranium richardsonii	1.00	3.00	10.00
Hedysarum boreale	1.00	3.00	10.00
Linum lewisii	24.50	6.50	100.00
Urtica dioica	5.50	7.57	40.00
GRASSES			
Elymus lanceolatus	5.00	6.71	40.00
Elymus smithii	5.50	7.89	50.00
Elymus spicatus	10.50	17.10	30.00
Poa pratensis	6.50	7.76	50.00

Total living cover of the Strych Fill plot was estimated at 65.00% (Table 8-A). The living understory cover composition was comprised of 57.90% forbs and 42.10% grasses (Table 8-B).

Table 8: West Ridge Mine Experimental Test Plots. Total Cover and Composition (2012).

STRYCH FILL A. TOTAL COVER	Mean Percent	Standard Deviation
Total Living Cover	65.00	6.71
Litter	21.00	8.00
Bareground	6.00	2.00
Rock	8.00	4.00
B. % COMPOSITION		
Shrubs	0.00	0.00
Forbs	57.90	15.50
Grasses	42.10	15.50

Douglas Fir/Maple Reference Area

The existing Douglas Fir/Maple Reference Area (Photo 5) was chosen to ultimately be compared to the test plots and other sites at the time of final reclamation. Each year this dataset is included with the Experimental Test Plot monitoring data for a general comparison only. When the final revegetation is compared to the reference area, the sampling will be accomplished during the same growing season.

Understory in the Douglas Fir/Maple Reference Area was dominated by bigtooth maple (*Acer grandidentatum*), mountain lover (*Pachistima myrsinites*), and Oregon grape (*Mahonia repens*). Overstory dominants were bigtooth maple and Douglas fir (*Pseudotsuga menziesii*). A list of all species present in the sample quadrats for the reference area is shown in Table 9.

The total living cover of the reference area was estimated at 63.63% of which overstory and understory cover was nearly equally represented at 31.38% and 32.25%, respectively (Table 10-A). Woody species comprised 61.57% of the total living understory cover, followed by forbs at 25.33% and grasses at 13.10% (Table 10-B).

Table 9. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Frequency by Species (1998).

DOUGLAS FIR/ MAPLE COMMUNITY REFERENCE AREA (NEW)	Mean Percent	Standard Deviation	Percent Frequency
OVERSTORY COVER			
Acer grandidentatum	15.88	21.30	50.00
Juniperus scopulorum	1.38	6.22	5.00
Pseudotsuga menziesii	14.13	20.67	45.00
UNDERSTORY COVER			
TREES & SHRUBS			
Acer grandidentatum	6.18	11.30	47.50
Juniperus scopulorum	1.30	2.90	20.00
Mahonia repens	3.33	5.82	40.00
Pachistima myrsinites	5.73	11.04	35.00
Pseudotsuga menziesii	1.95	6.19	6.00
Symphoricarpos oreophilus	1.43	3.35	20.00
FORBS			
Antennaria parvifolia	0.25	1.09	5.00
Artemisia dracunculus	0.88	3.33	10.00
Aster sp.	3.13	7.65	30.00
Circium sp.	0.13	0.78	2.50
Descurainia pinnata	1.78	7.12	10.00
Erigeron engelmannii	0.25	1.09	5.00
Erysimum asperum	0.13	0.78	2.50
Fragaria vesca	0.38	1.73	5.00
Mitella stauropetala	0.05	0.31	2.50
Senecio pudicus	0.15	0.79	5.00
Smilacina racemosa	0.33	1.03	10.00
Stellaria jamesiana	0.03	0.16	2.50
Taraxacum officinale	0.13	0.78	2.50
Thalictrum fendleri	0.13	0.78	2.50
Viola adunca	0.13	0.78	2.50
GRASSES			
Bromus inermis	1.25	5.67	7.50
Poa fendleriana	2.90	4.15	45.00
Poa pratensis	0.38	1.73	5.00

Table 10. West Ridge Mine: Reference Area. Total Cover, Standard Deviation and Sample Size (1998).

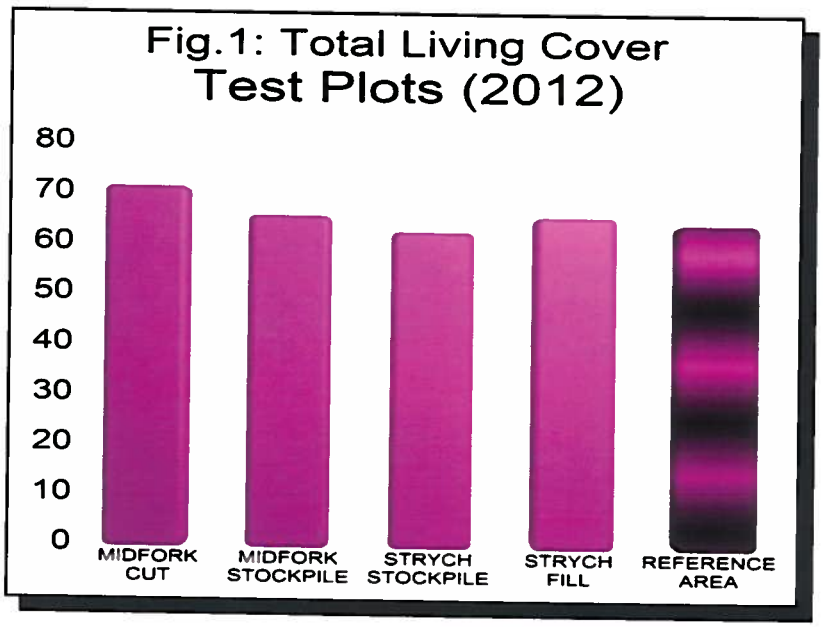
DOUGLAS FIR/ MAPLE COMMUNITY REFERENCE AREA (NEW)	Mean Percent	Standard Deviation	Sample Size
A. TOTAL COVER			
Overstory Cover (O)	31.38	25.69	40
Understory Cover (U)	32.25	19.27	40
Cryptogams	0.25	1.09	40
Litter	18.20	12.80	40
Bareground	8.20	9.39	40
Rock	9.73	9.67	40
O+U	63.63	13.51	40
B. % COMPOSITION			
Trees & Shrubs	61.57	33.67	40
Forbs	25.33	29.49	40
Grasses	13.10	19.14	40

DISCUSSION

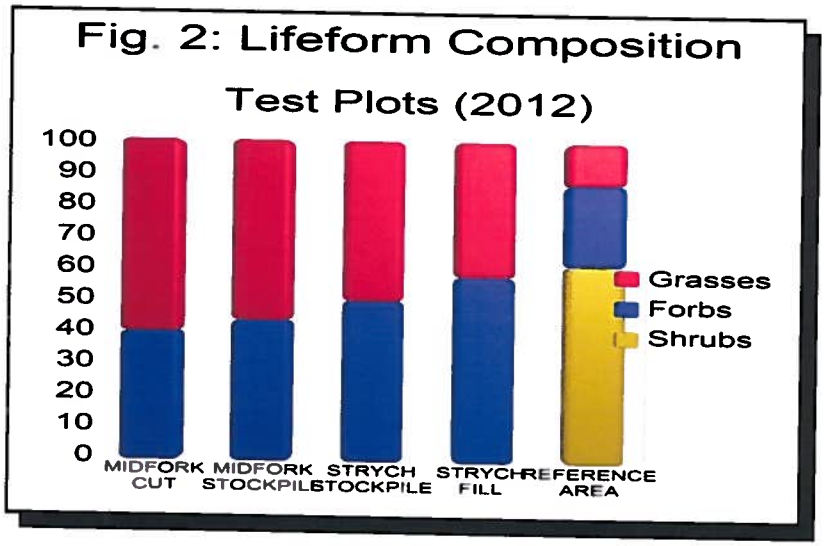
Similar to the 2008 - 2011 monitoring there was a prevalence of stinging nettle in the Midfork Cut area of the Experimental Test Plots. Stinging nettle was also an important species in the Strych Fill plot in all years, but not as prevalent as the Midfork Cut plot and not as common as usual in 2012 (perhaps a function of the random quadrat placement). Although not necessarily an undesirable species, it is interesting to note where the plant was a dominant species. Comments about this have been provided by (Burton 2009)[1] described in the INTRODUCTION of this document.

A graphic representation of the *total living cover* can be observed on Fig 1. As can be noted from the figure and also the data summary tables in this report, (as well as previous years' monitoring reports) there was not a great deal of difference between the total living cover

in the plots that represented soils that remained *in-place* to those that represented soils of the more typical scenario of first *stockpiling* the topsoil and then returning it at the time of revegetation. Most of the total living cover values for the test plots were similar to that of the reference area, with the possible exception of the Midfork Cut plot where the cover was higher in 2011 and 2012.



For lifeform composition, the most obvious observation was that there were very few woody species present in the test plots, especially when the Reference Area is compared (Fig. 2). This is most likely because the *interim* seed mixture was used on the plots, not the *final* mixture. Interim seed mixtures generally have very few woody plant species included in them.



COLOR PHOTOGRAPHS OF THE SAMPLE AREAS

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

APPENDIX

Laboratory Analyses
(2005)

10/05/2005 10:15 FAX 4220008 002

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT
AND
RECOMMENDATIONS

Name Gary Gray West Ridge Resources
Street PO Box 790
Lehi UT 84043
City State Zip

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Strych Fill area	Turf	7.31	43.00	35.16	21.84	Loam		4.58

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	7.17	X					apply 2.8 lbs of N/1000 sq ft
Phosphorus ppm P	9.29		X				apply 1.4 lbs of P2O5/1000 sq ft
Potassium ppm K	672.00					X	no fertilizer needed
Salinity-ECe dS/m	1.06		X				no salinity problem
SAR-Sodium Absorption Ratio	0.17	X					no sodium hazard
Calcium-SAR ppm Ca	227.20						
Potassium SAR ppm K	33.60						
Magnesium SAR ppm Mg	25.12						
Sodium SAR ppm Na	10.08						
HCO3 ppm HCO3	592.29						
% moisture sat. % sat	30.60						
Ca Carbonate %CaCO3	19.47						
Total N ppm total N	983.70						
% rock %	20.14						

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
255 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT AND RECOMMENDATIONS

Name Gary Gray-West Ridge Resources
Street PO Box 790
Lehi UT 84043
City State Zip

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Strych stockpile area	Turf	7.62	42.00	33.16	24.84	Loam		2.89

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	10.50		X				apply 2.1 lbs of N/1000 sq ft
Phosphorus ppm P	5.70	X					apply 2.1 lbs of P2O5/1000 sq ft
Potassium ppm K	448.00					X	no fertilizer needed
Salinity-ECe dS/m	0.77	X					no salinity problem
SAR-Sodium Absorption Ratio	0.34	X					no sodium hazard
Calcium-SAR ppm Ca	136.48						
Potassium SAR ppm K	22.40						
Magnesium SAR ppm Mg	32.32						
Sodium SAR ppm Na	17.28						
HCO3 ppm HCO3	432.63						
% moisture sat. % sat	30.05						
Ca Carbonate %CaCO3	20.25						
Total N ppm total N	502.60						
% rock %	15.14						

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
265 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT AND RECOMMENDATIONS

Name Gary Gray-West Ridge Resources
Street PO Box 790
Lehi UT 84043
City State Zip

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Midfork cut area	Turf	7.27	40.00	36.16	23.84	Loam		5.87

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	16.80		X				apply 2.1 lbs of N/1000 sq ft
Phosphorus ppm P	13.14		X				apply 1.4 lbs of P2O5/1000 sq ft
Potassium ppm K	566.40					X	no fertilizer needed
Salinity-ECe dS/m	0.98	X					no salinity problem
SAR-Sodium Absorption Ratio	0.13	X					no sodium hazard
Calcium-SAR ppm Ca	205.12						
Potassium SAR ppm K	28.32						
Magnesium SAR ppm Mg	24.64						
Sodium SAR ppm Na	7.20						
HCO3 ppm HCO3	669.64						
%moisture sat % sat	52.97						
Ca Carbonate %CaCO3	16.00						
Total N ppm total N	923.60						
% rock %	10.11						

BRIGHAM YOUNG UNIVERSITY

Soil and Plant Analysis Laboratory
258 WIDB
Provo, UT 84602
801-422-2147

Plant and Animal Science Department

SOIL TEST REPORT
AND
RECOMMENDATIONS

Name Gary Gray West Ridge Resources
Street PO Box 790
Lehi UT 84043
City State Zip

Date: 04-Oct-05
Time: 11:12 AM
Telephone:
Fax:

Sample Identification	Crop to be grown	pH	% Sand	% Silt	% Clay	Soil Texture	Cation Exchange meq/100g	% Organic Matter
Midfork stockpile area	Turf	7.39	35	39.16	25.64	Loam		4.59

Soil Test	Results	Very Low	Low	Medium	High	Very High	Recomendations
Nitrate-Nitrogen ppm N	7.46	X					apply 2.8 lbs of N/1000 sq ft
Phosphorus ppm P	13.76		X				apply 1.4 lbs of P2O5/1000 sq ft
Potassium ppm K	592.30					X	no fertilizer needed
Salinity-ECe dS/m	0.90	X					no salinity problem
SAR-Sodium Absorption Ratio	0.19	X					no sodium hazard
Calcium-SAR ppm Ca	188.48						
Potassium SAR ppm K	29.80						
Magnesium SAR ppm Mg	23.84						
Sodium SAR ppm Na	10.56						
HCO3 ppm HCO3	545.94						
%moisture sat. % sat.	48.25						
Ca Carbonate %CaCO3	10.83						
Total N ppm total N	975.80						
% rock %	10.65						

Olympus Aerial Surveys, Inc.
Report for Photography Date October 4, 2012
For
UTAH AMERICAN ENERGY
WESTRIDGE MINE SUBSIDENCE STUDY
OAS Job No. 212031

			2004/2006			
			2009/2011	2012	2012	
POINT	EASTING	NORTHING	ELEVATION	DIFFERENCE	ELEVATION	POINT
1162	19228.042	43553.774	7829.914	NR2012		1162
1163	19260.272	43272.464	7700.153	0.38	7700.535	1163
1164	19488.620	43792.977	7594.755	1.84	7596.590	1164
1165	19545.637	43484.063	7600.146	1.52	7601.668	1165
1166	19557.833	42902.388	7269.319	1.86	7271.175	1166
1167	19783.485	42610.469	7193.919	1.94	7195.863	1167
1168	19849.964	43993.079	7299.519	2.43	7301.948	1168
1169	19852.950	44396.151	7487.614	0.63	7488.241	1169
1170	19889.292	43449.148	7278.845	1.57	7280.413	1170
1171	19909.589	43056.459	7250.915	1.97	7252.882	1171
1172	20015.066	42390.915	7106.107	1.29	7107.397	1172
1173	20077.561	42001.962	7126.686	1.57	7128.259	1173
1174	20134.582	42784.604	7072.611	1.08	7073.687	1174
1175	20167.795	43774.827	7147.462	2.03	7149.488	1175
1176	20239.687	44310.781	7176.082	0.81	7176.897	1176
1177	20264.255	41640.852	6983.898	1.63	6985.526	1177
1178	20303.727	43240.455	7134.734	2.46	7137.191	1178
1179	20374.244	42686.535	7173.507	1.13	7174.633	1179
1180	20435.299	44722.337	7208.999	1.42	7210.423	1180
1181	20478.778	43532.292	7273.980	1.29	7275.274	1181
1182	20503.659	42419.240	7203.744	0.87	7204.611	1182
1183	20542.300	45072.568	7243.537	0.96	7244.501	1183
1184	20616.253	43883.650	7438.117	0.63	7438.747	1184
1185	20682.928	42103.019	7244.208	2.80	7247.009	1185
1186	20702.065	44399.778	7449.265	0.07	7449.331	1186
1187	20721.952	43192.340	7482.636	1.08	7483.714	1187
1188	20779.028	44867.865	7437.428	0.83	7438.257	1188
1189	20786.538	41460.444	7418.536	2.65	7421.188	1189
1190	20839.794	43071.434	7547.306	0.95	7548.258	1190
1191	20860.891	43342.278	7609.776	0.40	7610.172	1191
1192	20920.907	44061.388	7616.686	1.50	7618.187	1192
1193	20995.759	41670.536	7551.299	1.91	7553.214	1193
1194	21012.318	41305.340	7226.441	0.28	7226.717	1194
1195	21019.711	43725.759	7580.972	2.71	7583.682	1195
1196	21025.573	42636.475	7655.578	1.21	7656.791	1196
1197	21152.355	41919.795	7619.107	1.47	7620.573	1197
1198	21152.651	44954.185	7658.034	0.72	7658.749	1198
1199	21190.169	41021.080	6975.952	0.06	6976.015	1199
1200	21236.607	43292.152	7811.650	0.42	7812.066	1200
1201	21239.690	42163.326	7672.490	2.04	7674.534	1201
1202	21305.412	43695.437	7802.685	1.24	7803.929	1202
1203	21379.149	41547.281	7254.396	0.04	7254.433	1203
1204	21387.757	45865.803	7531.394	-0.20	7531.189	1204
1205	21397.801	42451.134	7837.730	0.46	7838.190	1205
1206	21415.547	44572.819	7776.242	1.93	7778.172	1206

1207	21424.340	45499.745	7618.510	2.12	7620.634	1207
1208	21455.210	44947.014	7787.755	0.51	7788.267	1208
1209	21536.171	40581.568	7267.436	0.91	7268.351	1209
1210	21561.985	42796.032	7949.426	-0.07	7949.353	1210
1211	21606.616	44117.839	8007.413	-0.12	8007.291	1211
1212	21681.774	43336.963	8032.637	0.90	8033.537	1212
1213	21686.038	46124.626	7628.604	1.76	7630.362	1213
1214	21702.718	41886.850	7295.757	1.57	7297.327	1214
1215	21712.395	39992.392	7572.978	3.94	7576.916	1215
1216	21729.217	45800.998	7714.625	0.04	7714.668	1216
1217	21743.971	41344.763	7012.708	-1.24	7011.470	1217
1218	21753.500	45417.411	7785.525	1.58	7787.104	1218
1219	21779.942	39371.732	7985.267	1.62	7986.890	1219
1220	21831.278	43753.602	8066.500	0.75	8067.247	1220
1221	21841.715	44724.189	7919.882	0.59	7920.476	1221
1222	21848.488	42332.230	7624.486	1.05	7625.538	1222
1223	21957.034	40883.058	7254.076	0.66	7254.733	1223
1224	22001.875	42797.293	7804.927	-0.56	7804.371	1224
1225	22048.451	46494.620	7617.375	0.51	7617.881	1225
1226	22056.426	43430.799	7996.614	0.40	7997.012	1226
1227	22079.232	46108.115	7731.407	1.25	7732.654	1227
1228	22079.402	41664.582	7076.726	0.13	7076.860	1228
1229	22096.512	45705.118	7921.042	-0.02	7921.027	1229
1230	22152.640	44290.387	8065.237	-1.85	8063.392	1230
1231	22156.608	42198.830	7451.340	0.28	7451.624	1231
1232	22258.839	45487.198	8034.102	0.17	8034.271	1232
1233	22275.592	44770.653	8042.354	-0.99	8041.368	1233
1234	22317.431	43776.403	7973.713	0.05	7973.764	1234
1235	22379.500	43103.195	7876.361	-0.24	7876.120	1235
1236	22396.024	45154.225	8119.027	-1.31	8117.720	1236
1237	22408.574	41730.018	7076.523	0.76	7077.280	1237
1238	22416.744	46882.566	7706.436	0.65	7707.081	1238
1239	22449.626	42156.969	7458.716	0.11	7458.823	1239
1240	22460.202	42654.447	7750.770	-0.03	7750.739	1240
1241	22517.787	44511.587	8007.494	-3.32	8004.170	1241
1242	22550.059	43382.632	7855.660	-0.96	7854.704	1242
1243	22561.180	44148.921	7976.443	-3.11	7973.336	1243
1244	22573.048	45768.354	8009.617	0.12	8009.738	1244
1245	22604.938	40655.844	7697.902	0.33	7698.229	1245
1246	22684.430	45541.689	8093.191	-0.37	8092.820	1246
1247	22685.977	44856.615	8013.444	-2.54	8010.900	1247
1248	22688.183	40132.799	7921.544	0.66	7922.209	1248
1249	22709.799	46109.109	7981.362	0.05	7981.412	1249
1250	22711.062	43740.853	7902.074	-1.36	7900.717	1250
1251	22720.389	42019.836	7377.216	-0.04	7377.175	1251
1252	22728.881	46675.628	7829.225	1.13	7830.359	1252
1253	22730.086	43035.174	7702.400	0.11	7702.506	1253
1254	22798.709	45179.357	8007.372	0.10	8007.474	1254
1255	22817.920	39660.891	8055.461	2.38	8057.839	1255
1256	22852.196	38959.741	8145.715	3.29	8149.005	1256
1257	22891.475	42444.930	7426.238	0.61	7426.848	1257
1258	22942.538	44316.211	7809.776	-2.48	7807.294	1258
1259	22942.802	46532.547	7947.513	-0.67	7946.845	1259
1260	22949.244	43505.084	7747.714	-1.71	7746.000	1260
1261	23039.923	45779.376	8246.003	-0.42	8245.586	1261
1262	23058.164	39172.793	8150.395	2.11	8152.509	1262
1263	23073.061	42856.445	7397.061	-0.27	7396.792	1263

1264	23073.390	41558.890	7386.976	1.78	7388.753	1264
1265	23097.842	44802.705	7805.212	-2.08	7803.134	1265
1266	23100.058	43984.649	7705.741	-2.69	7703.046	1266
1267	23116.076	40474.695	7585.267	1.64	7586.908	1267
1268	23187.601	45375.724	7988.423	-1.99	7986.428	1268
1269	23219.489	44513.624	7749.548	-3.13	7746.420	1269
1270	23229.760	42512.467	7197.631	2.39	7200.021	1270
1271	23255.311	38706.549	7995.969	1.52	7997.485	1271
1272	23307.486	45894.353	8316.460	-1.01	8315.453	1272
1273	23337.445	43322.396	7523.019	-2.05	7520.973	1273
1274	23364.781	42098.370	7351.870	1.73	7353.598	1274
1275	23385.072	39153.770	8124.759	1.47	8126.229	1275
1276	23396.816	46505.882	8218.629	-0.33	8218.300	1276
1277	23428.781	43775.454	7523.427	-2.27	7521.153	1277
1278	23441.960	41162.933	7443.497	1.53	7445.031	1278
1279	23445.291	38463.431	7940.588	2.89	7943.475	1279
1280	23448.779	42849.166	7271.307	-1.70	7269.611	1280
1281	23454.357	44218.738	7622.734	-3.50	7619.239	1281
1282	23466.262	44952.780	7797.714	-0.33	7797.383	1282
1283	23473.251	41542.631	7612.612	1.64	7614.253	1283
1284	23535.251	45485.587	7997.185	-1.52	7995.666	1284
1285	23538.043	46049.193	8407.862	-1.31	8406.550	1285
1286	23570.347	43118.370	7347.224	-1.66	7345.560	1286
1287	23640.095	39681.288	7891.188	2.08	7893.270	1287
1288	23647.589	38942.706	8064.413	1.16	8065.572	1288
1289	23650.976	44526.872	7580.110	-0.76	7579.345	1289
1290	23721.353	38121.875	7726.834	1.02	7727.855	1290
1291	23753.118	41518.247	7759.265	0.34	7759.610	1291
1292	23753.725	42882.845	7215.317	-2.22	7213.099	1292
1293	23758.378	43645.064	7387.159	-1.34	7385.814	1293
1294	23765.745	38322.970	7767.037	1.23	7768.272	1294
1295	23779.427	39302.726	8096.641	1.07	8097.713	1295
1296	23797.179	46269.747	8487.935	-1.18	8486.757	1296
1900	23823.560	47149.079	8552.006	-1.25	8550.757	1900
1297	23823.823	45146.517	7768.089	-2.15	7765.936	1297
1298	23849.157	41046.788	7506.772	2.12	7508.890	1298
1299	23861.072	43088.474	7377.175	-1.38	7375.795	1299
1300	23875.052	45709.986	8078.644	-1.61	8077.035	1300
1301	23876.561	44061.839	7637.159	-2.50	7634.657	1301
1901	23895.094	46998.793	8542.133	-1.12	8541.009	1901
1902	23923.483	47401.506	8526.751	0.00	8526.753	1902
1302	24017.450	37859.976	7609.638	2.82	7612.463	1302
1303	24033.269	39630.343	8025.593	1.07	8026.665	1303
1304	24038.464	38614.163	7957.638	0.64	7958.276	1304
1305	24044.793	40282.723	7845.247	3.80	7849.047	1305
1306	24080.484	39017.237	7963.335	1.35	7964.680	1306
1307	24128.919	45013.675	7907.209	0.71	7907.916	1307
1308	24137.643	43537.354	7644.983	-2.53	7642.455	1308
1309	24142.386	41652.554	7915.888	-0.35	7915.540	1309
1903	24163.244	46553.088	8726.199	-0.70	8725.495	1903
1310	24168.084	44594.086	7839.605	-2.12	7837.486	1310
1311	24175.879	37450.075	7636.109	0.16	7636.265	1311
1312	24184.762	43101.313	7307.941	0.18	7308.125	1312
1313	24190.157	45495.593	8115.522	-1.41	8114.111	1313
1904	24197.438	46315.105	8551.817	0.27	8552.085	1904
1314	24209.708	45980.276	8314.422	-2.94	8311.477	1314
1315	24246.228	43860.629	7801.096	-3.38	7797.712	1315
1316	24284.532	39947.412	8039.021	1.42	8040.440	1316

1317	24306.958	39372.792	7924.311	-0.05	7924.263	1317
1318	24322.802	41061.065	7746.773	1.66	7748.433	1318
1319	24329.976	38296.854	7802.972	1.67	7804.642	1319
1905	24348.086	47591.340	8816.758	-0.52	8816.234	1905
1906	24352.641	46726.197	8848.404	-1.06	8847.342	1906
1320	24352.699	44299.141	7889.931	-1.87	7888.059	1320
1907	24356.388	47185.506	8881.332	-0.53	8880.798	1907
1321	24381.791	37132.131	7562.103	-1.07	7561.034	1321
1322	24395.492	45234.954	8096.900	-0.73	8096.168	1322
1323	24439.383	37836.075	7352.665	0.83	7353.492	1323
1324	24444.169	38915.578	7826.651	-0.20	7826.452	1324
1908	24463.311	47610.241	8807.565	-2.16	8805.403	1908
1325	24476.529	39671.993	7913.853	1.41	7915.261	1325
1909	24491.087	47349.902	8827.375	-0.37	8827.004	1909
1326	24524.119	43616.973	7609.205	-0.89	7608.320	1326
1910	24524.929	46933.616	8906.244	-0.96	8905.288	1910
1327	24553.760	45703.602	8387.935	-3.47	8384.464	1327
1328	24566.169	44740.256	8001.137	-0.23	8000.902	1328
1329	24571.149	43256.081	7345.472	3.75	7349.219	1329
1330	24572.731	41493.423	8012.287	0.70	8012.989	1330
1911	24583.065	46035.085	8566.003	-1.46	8564.540	1911
1331	24585.714	39301.068	7832.348	0.39	7832.735	1331
1332	24631.064	37477.995	7349.386	-0.05	7349.337	1332
1333	24646.518	45030.778	8123.917	-0.57	8123.344	1333
1334	24647.139	43948.555	7706.842	-0.92	7705.926	1334
1335	24656.077	36811.408	7382.169	-0.30	7381.868	1335
1336	24657.131	40451.417	8022.256	1.33	8023.584	1336
1337	24680.600	38585.036	7565.177	0.76	7565.936	1337
1912	24703.550	46854.772	8907.911	-0.81	8907.097	1912
1338	24710.606	38161.593	7508.832	2.27	7511.100	1338
1913	24732.283	46365.288	8826.861	-0.21	8826.647	1913
1339	24732.816	41972.920	7944.860	-2.01	7942.847	1339
1340	24735.159	39888.745	7928.299	1.10	7929.398	1340
1914	24739.099	47053.004	8875.640	-0.67	8874.965	1914
1341	24741.415	41023.489	7945.715	2.15	7947.862	1341
1915	24743.830	46621.025	8886.580	-0.60	8885.977	1915
1916	24754.102	47480.260	8764.021	-0.44	8763.584	1916
1342	24760.384	42727.205	7600.892	-1.75	7599.142	1342
1343	24765.118	44272.028	7817.600	-0.03	7817.569	1343
1917	24794.735	47878.262	8794.293	-2.37	8791.924	1917
1344	24803.926	39089.147	7679.224	-0.18	7679.040	1344
1345	24817.235	37166.067	7270.914	0.51	7271.427	1345
1346	24827.814	37767.801	7205.267	-0.21	7205.053	1346
1347	24838.713	36454.022	7144.251	0.28	7144.529	1347
1918	24853.598	47184.065	8809.165	-0.27	8808.897	1918
1919	24865.357	45896.283	8500.331	-0.17	8500.157	1919
1348	24900.623	44555.591	7875.342	-0.42	7874.921	1348
1349	24921.171	45466.151	8209.980	-0.49	8209.491	1349
1350	24926.193	39501.792	7774.199	1.81	7776.005	1350
1351	24954.471	41944.312	7943.884	-2.06	7941.820	1351
1352	24959.683	43600.672	7448.406	-0.20	7448.204	1352
1353	24971.300	41367.441	8130.781	-0.04	8130.737	1353
1920	24979.425	46100.192	8558.460	-0.42	8558.042	1920
1354	25002.062	37467.010	7079.260	0.04	7079.303	1354
1921	25017.732	48139.200	8773.080	-1.49	8771.587	1921
1355	25025.785	37993.635	7160.724	1.91	7162.639	1355
1356	25026.977	36743.165	7166.584	-1.11	7165.469	1356

1357	25033.591	43141.208	7543.924	-2.49	7541.430	1357
1358	25050.813	40820.346	8139.083	1.04	8140.124	1358
1359	25060.661	37071.597	7122.901	-1.17	7121.730	1359
1360	25072.223	44945.414	7936.182	-0.37	7935.812	1360
1361	25081.412	38456.744	7299.762	3.11	7302.869	1361
1362	25091.604	36211.891	6960.423	0.73	6961.153	1362
1922	25103.822	47570.095	8674.707	-0.60	8674.109	1922
1363	25112.868	38870.757	7432.941	1.46	7434.403	1363
1923	25121.336	46939.652	8849.628	-0.72	8848.911	1923
1364	25128.510	40323.593	7917.027	1.92	7918.946	1364
1924	25130.913	46695.139	8742.299	0.23	8742.528	1924
1925	25161.505	46384.779	8602.203	-0.36	8601.847	1925
1365	25184.386	44015.152	7600.851	-0.57	7600.282	1365
1926	25200.061	47829.245	8683.431	-0.18	8683.255	1926
1927	25200.720	47205.742	8755.740	-0.76	8754.983	1927
1928	25213.687	45631.753	8206.404	-0.73	8205.678	1928
1366	25274.203	39831.069	7725.735	0.67	7726.405	1366
101	25282.582	37088.596	7063.176	-0.99	7062.191	101
1367	25287.534	39328.630	7528.296	2.61	7530.903	1367
102	25315.264	35744.230	7130.453	1.06	7131.517	102
1929	25315.618	48189.411	8692.342	-2.11	8690.235	1929
1368	25317.163	45152.157	7916.215	-2.19	7914.021	1368
103	25323.388	34805.468	7358.889	0.83	7359.721	103
104	25325.604	36781.657	7033.287	1.73	7035.018	104
1369	25336.468	41199.755	8289.113	-2.42	8286.690	1369
1370	25339.127	38080.975	7501.988	2.77	7504.759	1370
1371	25351.685	44402.829	7640.134	0.28	7640.416	1371
105	25358.892	33843.995	7052.873	3.73	7056.603	105
106	25359.440	36518.978	6968.382	2.45	6970.831	106
107	25362.041	35511.993	7199.003	3.21	7202.210	107
108	25363.798	37690.136	7349.213	2.15	7351.360	108
109	25368.610	33526.107	7059.297	1.00	7060.297	109
110	25375.684	37355.591	7208.496	4.54	7213.035	110
1930	25379.650	45983.969	8237.556	-0.11	8237.448	1930
1931	25380.254	47932.277	8660.325	-1.56	8658.765	1931
1932	25386.932	46975.934	8808.544	-0.55	8807.994	1932
111	25389.036	35184.230	7346.166	1.59	7347.752	111
1372	25398.782	45409.366	8099.100	0.25	8099.350	1372
112	25421.306	34506.467	7371.927	2.79	7374.714	112
1933	25424.005	45768.346	8142.249	0.55	8142.799	1933
1934	25434.468	47450.561	8667.225	-0.15	8667.073	1934
113	25455.568	34180.280	7292.504	1.92	7294.426	113
114	25467.636	36204.421	7087.728	0.98	7088.707	114
1935	25479.543	48433.559	8658.823	-0.90	8657.923	1935
1936	25501.029	46228.957	8321.603	-1.24	8320.365	1936
115	25501.371	36836.543	7126.946	0.85	7127.799	115
1373	25509.074	40728.407	8022.867	-0.97	8021.893	1373
116	25510.821	35403.356	7327.720	-3.75	7323.968	116
1374	25525.101	43801.488	7507.790	1.48	7509.275	1374
1375	25530.549	38845.641	7598.942	1.66	7600.601	1375
1376	25561.136	44874.010	7804.764	0.11	7804.870	1376
1937	25563.377	46973.968	8812.622	-0.54	8812.086	1937
117	25563.654	37083.522	7206.866	0.76	7207.623	117
118	25568.477	36592.115	7005.031	2.10	7007.134	118
1938	25580.870	47786.594	8622.736	-0.67	8622.064	1938
119	25581.105	36061.683	7200.713	2.54	7203.249	119
1939	25581.988	46525.544	8496.258	-0.43	8495.825	1939

1940	25586.174	48062.858	8633.216	-0.75	8632.470	1940
1377	25589.661	42589.331	7890.944	-1.50	7889.441	1377
1941	25594.518	47514.327	8657.490	-0.71	8656.783	1941
1378	25596.045	44195.766	7496.083	1.19	7497.277	1378
1942	25610.169	45070.803	7865.502	0.68	7866.185	1942
120	25620.372	37245.464	7277.850	1.72	7279.573	120
1943	25621.115	45524.397	7962.382	-1.07	7961.316	1943
1379	25638.045	38498.004	7698.355	0.93	7699.282	1379
121	25640.832	35057.487	7497.890	1.76	7499.655	121
1380	25652.830	40191.933	7792.714	-0.03	7792.680	1380
122	25674.861	37482.887	7531.440	1.28	7532.721	122
123	25683.112	33498.034	7332.508	2.99	7335.493	123
1381	25704.882	39749.604	7720.401	0.51	7720.907	1381
124	25713.230	37824.935	7692.462	1.69	7694.149	124
125	25722.208	35714.318	7381.303	1.17	7382.469	125
1944	25726.427	48587.559	8593.001	-1.69	8591.313	1944
126	25742.010	36892.385	7022.364	0.57	7022.935	126
127	25749.156	33939.254	7399.180	2.04	7401.223	127
1382	25758.573	44494.566	7582.066	0.04	7582.104	1382
1383	25777.156	41324.978	8425.227	-4.18	8421.052	1383
1945	25784.807	46797.698	8663.554	-0.51	8663.041	1945
1946	25798.646	45839.903	8035.187	-1.12	8034.063	1946
128	25818.025	34222.145	7580.704	2.93	7583.637	128
1947	25819.120	45218.768	7859.769	-0.56	7859.205	1947
1384	25832.680	38140.232	7812.192	0.39	7812.577	1384
1385	25848.203	39409.497	7804.119	-0.12	7804.002	1385
1948	25849.840	47026.682	8815.300	-0.45	8814.854	1948
129	25850.846	34584.418	7785.375	-0.64	7784.738	129
130	25865.742	35951.996	7332.644	3.24	7335.887	130
131	25869.381	36690.126	7075.348	2.53	7077.882	131
1949	25878.752	46220.471	8328.802	-1.22	8327.585	1949
1386	25881.074	40940.725	8192.796	-4.82	8187.972	1386
1950	25887.639	48258.376	8546.580	-0.40	8546.184	1950
1387	25889.955	38866.544	7849.851	0.41	7850.262	1387
1388	25902.485	43454.128	7628.970	2.03	7630.997	1388
132	25911.793	34955.402	7734.684	2.14	7736.826	132
133	25922.308	37196.491	7154.437	1.32	7155.754	133
1389	25923.088	44031.322	7661.727	0.47	7662.192	1389
134	25927.660	35504.965	7612.397	0.79	7613.188	134
1951	25938.068	48897.115	8431.060	-0.89	8430.174	1951
135	25948.408	33489.089	7491.743	3.89	7495.635	135
1952	25950.953	45046.086	7748.670	0.90	7749.573	1952
1953	25966.254	45660.208	7962.719	-1.58	7961.136	1953
1390	25977.148	40672.872	8060.588	-2.75	8057.839	1390
1954	25982.342	47765.717	8628.783	-2.21	8626.577	1954
1391	25984.302	44855.159	7662.221	-0.26	7661.963	1391
136	25985.845	36202.398	7345.742	2.77	7348.517	136
1955	25995.202	46518.509	8550.356	-1.28	8549.076	1955
1392	26018.111	38401.134	7884.190	0.80	7884.987	1392
1956	26020.960	48462.425	8495.513	0.37	8495.881	1956
1393	26035.555	40189.756	7896.484	-1.46	7895.022	1393
137	26052.071	33796.410	7593.114	3.23	7596.348	137
1957	26094.039	47981.663	8581.706	-0.74	8580.967	1957
1958	26117.138	47045.207	8833.599	-0.69	8832.905	1958
138	26117.252	37534.221	7286.821	-1.71	7285.114	138
139	26117.505	35307.509	7777.031	2.49	7779.523	139
1394	26119.219	41361.729	8524.271	-4.80	8519.467	1394

1959	26124.724	45351.287	7789.872	-2.21	7787.661	1959
140	26130.227	36853.129	7075.992	0.77	7076.761	140
141	26134.846	37875.341	7504.312	0.09	7504.397	141
142	26142.747	34182.734	7835.086	1.69	7836.778	142
1960	26161.026	46068.201	8304.776	-3.00	8301.772	1960
143	26167.019	34529.137	7971.642	2.90	7974.539	143
1961	26170.399	46464.298	8614.225	-0.52	8613.701	1961
1395	26172.730	44236.191	7751.046	-0.31	7750.739	1395
1396	26181.255	39355.588	7889.271	-0.66	7888.611	1396
1397	26185.440	43973.679	7642.195	0.26	7642.455	1397
1962	26192.086	48616.803	8360.660	-1.07	8359.592	1962
144	26195.229	35674.026	7671.738	2.40	7674.138	144
1963	26196.454	45796.445	8064.178	-2.31	8061.863	1963
1398	26215.047	39834.611	7959.549	-1.03	7958.518	1398
145	26215.193	34709.085	8008.781	2.59	8011.370	145
146	26221.129	35977.590	7590.654	3.73	7594.387	146
147	26237.664	33465.521	7396.649	3.49	7400.137	147
1399	26252.370	40864.033	8270.314	-3.80	8266.511	1399
148	26265.358	36540.863	7249.273	1.21	7250.487	148
1964	26269.302	47078.275	8831.985	-0.83	8831.160	1964
1400	26277.232	38104.538	7675.079	-0.26	7674.823	1400
1401	26283.275	44549.623	7758.390	-0.27	7758.117	1401
1965	26286.354	49192.950	8252.233	-2.45	8249.779	1965
1966	26287.587	46759.760	8752.123	0.57	8752.691	1966
1402	26293.284	38933.161	7932.843	0.22	7933.059	1402
149	26320.150	35178.984	7918.184	4.64	7922.825	149
1403	26322.774	43006.130	7893.345	-1.61	7891.737	1403
1967	26327.806	47538.070	8653.500	-0.09	8653.414	1967
1968	26329.820	46314.153	8484.945	0.11	8485.054	1968
150	26342.955	37022.043	7108.166	NR2012		150
151	26360.299	33894.769	7459.817	-0.47	7459.348	151
152	26377.593	37246.247	7074.403	0.00	7074.406	152
1969	26385.597	47968.021	8553.052	-0.67	8552.386	1969
1970	26385.874	48196.107	8438.294	2.23	8440.522	1970
1971	26394.865	45607.892	7927.557	-2.70	7924.852	1971
1972	26415.073	46590.397	8626.088	-0.60	8625.489	1972
153	26422.147	34505.082	7836.352	1.40	7837.756	153
1404	26424.061	40508.201	8168.086	-2.41	8165.679	1404
1405	26424.369	44790.434	7820.045	-0.49	7819.552	1405
1406	26428.759	42072.565	8180.670	-2.45	8178.223	1406
154	26441.619	34932.989	8073.799	3.08	8076.882	154
1973	26444.224	48637.836	8259.437	-1.59	8257.842	1973
1974	26445.371	48818.841	8246.367	-1.64	8244.725	1974
155	26455.972	33527.754	7248.607	1.06	7249.664	155
156	26456.501	37922.660	7484.585	1.69	7486.279	156
1407	26456.634	43455.650	7811.595	-0.09	7811.506	1407
1408	26471.502	38605.071	7831.217	1.17	7832.386	1408
157	26482.036	36621.978	7442.841	1.25	7444.087	157
158	26490.790	35621.447	7901.426	1.30	7902.725	158
1409	26504.876	39715.923	8038.923	-2.29	8036.632	1409
159	26507.174	34240.305	7689.517	3.20	7692.716	159
160	26517.475	36179.905	7548.262	1.31	7549.576	160
1410	26546.574	40163.992	8101.906	-3.35	8098.559	1410
1975	26554.613	46063.742	8279.385	-0.91	8278.480	1975
1976	26565.745	45270.213	7890.091	-2.12	7887.967	1976
1411	26570.002	41296.560	8692.695	-3.89	8688.809	1411
1977	26572.628	46331.367	8486.896	-0.64	8486.252	1977

1978	26575.185	46810.369	8734.125	-1.29	8732.835	1978
1979	26577.336	47466.986	8646.887	-0.57	8646.314	1979
1412	26592.004	39218.056	7938.457	-0.20	7938.253	1412
1980	26594.703	45734.308	8013.058	-2.16	8010.897	1980
161	26599.535	34808.139	8006.196	2.02	8008.219	161
162	26600.020	35103.910	8136.188	1.21	8137.397	162
1981	26614.754	46993.115	8816.435	-0.26	8816.178	1981
1413	26617.440	38458.051	7756.105	-0.30	7755.809	1413
1982	26617.677	48396.026	8312.542	-0.31	8312.236	1982
1983	26617.704	44770.030	7942.641	-0.16	7942.483	1983
163	26624.084	37559.260	7127.331	0.46	7127.792	163
1414	26635.926	43917.145	7713.290	-0.35	7712.941	1414
1415	26642.702	44282.038	7904.482	-2.10	7902.378	1415
1984	26652.685	49067.874	8156.045	-0.68	8155.370	1984
164	26657.549	33869.231	7328.419	1.97	7330.387	164
1985	26660.418	49269.510	8230.555	-2.20	8228.358	1985
165	26663.309	36463.517	7573.392	0.10	7573.491	165
1986	26664.332	46548.631	8585.110	-0.24	8584.873	1986
166	26674.139	37236.836	7157.075	0.01	7157.083	166
1416	26677.079	40949.734	8520.813	-4.67	8516.144	1416
1417	26690.653	38188.375	7500.636	-0.04	7500.592	1417
167	26722.589	34434.205	7785.659	3.43	7789.084	167
1418	26734.025	38827.464	7775.405	-0.99	7774.410	1418
1987	26751.805	49444.001	8312.581	-0.76	8311.816	1987
1419	26760.038	42667.579	8163.620	-0.92	8162.696	1419
1420	26768.119	41490.715	8621.973	-5.48	8616.493	1420
168	26784.011	36847.101	7438.832	3.89	7442.720	168
169	26786.018	35319.600	8108.224	1.25	8109.476	169
1988	26797.517	47397.425	8635.468	-0.35	8635.122	1988
170	26802.191	37914.605	7322.521	0.40	7322.919	170
1989	26805.248	47936.421	8521.827	-0.49	8521.332	1989
171	26810.309	36071.187	7740.605	0.41	7741.019	171
1421	26814.980	39435.038	7954.397	-2.98	7951.418	1421
1990	26818.267	45603.787	8068.753	-3.76	8064.992	1990
1991	26821.829	49629.638	8420.650	-0.89	8419.764	1991
1422	26826.133	39756.979	7957.675	-3.60	7954.076	1422
172	26832.773	34634.931	7940.084	2.40	7942.489	172
173	26834.594	34236.302	7668.348	3.83	7672.182	173
1992	26835.305	48759.861	8144.962	-1.69	8143.275	1992
1993	26841.651	44511.533	8114.941	-2.62	8112.321	1993
174	26845.180	34776.786	8017.097	1.44	8018.540	174
1994	26845.791	46078.206	8285.059	-2.19	8282.873	1994
175	26847.742	37639.723	7104.392	-0.15	7104.240	175
176	26851.937	33537.771	7215.028	3.56	7218.592	176
1423	26865.214	43002.801	8113.895	-0.74	8113.156	1423
1995	26866.177	45290.564	8099.294	-0.97	8098.327	1995
177	26866.758	37293.418	7202.218	0.40	7202.618	177
178	26868.431	35055.767	8073.550	0.83	8074.384	178
1424	26885.355	40577.769	8231.765	-2.95	8228.813	1424
179	26914.143	35453.108	8088.885	1.47	8090.354	179
1996	26918.668	46462.182	8545.356	-0.38	8544.980	1996
1997	26920.407	46755.506	8693.059	-1.38	8691.683	1997
1998	26927.965	46933.717	8792.196	-0.03	8792.169	1998
1425	26929.269	38374.479	7467.005	0.25	7467.256	1425
180	26932.963	36340.570	7777.689	0.65	7778.341	180
181	26966.442	33835.353	7479.430	2.52	7481.946	181
1426	26966.620	40204.088	8021.630	-3.96	8017.669	1426

182	27003.523	34412.569	7820.991	3.84	7824.827	182
1999	27017.309	45844.029	8299.386	-1.83	8297.554	1999
2000	27026.623	49110.722	8291.974	-0.44	8291.537	2000
183	27040.316	35841.833	7993.043	-1.16	7991.887	183
1427	27045.926	39207.949	7923.336	-3.08	7920.256	1427
184	27050.338	36964.317	7446.117	2.67	7448.789	184
841	27054.121	38135.886	7308.260	0.10	7308.364	841
2001	27061.425	49607.795	8534.192	-0.22	8533.969	2001
185	27067.537	35540.783	8107.573	1.25	8108.824	185
1428	27069.867	38745.002	7702.670	-0.79	7701.879	1428
1429	27070.110	43645.409	7942.589	-0.04	7942.546	1429
1430	27074.822	41386.251	8450.456	-3.91	8446.547	1430
1431	27076.485	41882.584	8570.660	-3.04	8567.618	1431
186	27077.504	34151.188	7650.682	0.64	7651.322	186
2002	27079.122	49853.507	8553.723	0.34	8554.067	2002
2003	27087.546	44664.275	8320.113	-2.19	8317.922	2003
2004	27094.409	48024.461	8413.789	-1.01	8412.783	2004
187	27099.676	34604.104	7842.053	2.87	7844.927	187
188	27100.595	37888.190	7136.582	0.99	7137.576	188
2005	27102.562	44338.249	8126.811	-1.82	8124.986	2005
2006	27102.808	47271.482	8641.851	0.31	8642.162	2006
189	27110.390	33477.657	7172.494	1.34	7173.831	189
2007	27114.139	46270.080	8510.390	0.23	8510.622	2007
2008	27118.842	48791.725	8142.125	-1.80	8140.326	2008
2009	27121.134	47120.857	8658.270	-0.16	8658.107	2009
1432	27122.884	39819.815	7857.279	-3.39	7853.885	1432
190	27134.911	35237.969	8023.624	1.65	8025.276	190
2010	27140.481	47747.245	8527.483	-0.56	8526.928	2010
191	27140.884	36054.030	7988.514	-0.25	7988.263	191
1433	27150.619	41010.346	8244.223	-3.33	8240.896	1433
192	27152.535	36548.740	7659.430	NR2012		192
2011	27152.647	49347.094	8363.112	-0.21	8362.901	2011
842	27157.324	38297.027	7316.514	1.51	7318.027	842
193	27158.759	34821.309	7921.028	1.80	7922.825	193
2012	27168.290	48380.053	8258.798	0.01	8258.804	2012
1434	27169.383	44086.965	7983.939	-3.82	7980.119	1434
194	27171.588	33827.341	7359.274	1.86	7361.133	194
1435	27210.684	43064.817	8211.423	1.11	8212.538	1435
2013	27211.417	45933.009	8468.650	-1.71	8466.937	2013
2014	27217.630	45163.547	8299.497	-2.68	8296.813	2014
2015	27218.015	44592.156	8361.641	-1.32	8360.320	2015
1436	27218.849	40327.690	7983.491	-4.72	7978.776	1436
2016	27223.452	46699.554	8706.163	-0.52	8705.643	2016
1437	27229.677	38572.079	7461.965	0.70	7462.666	1437
2017	27235.816	44887.368	8348.641	-0.26	8348.379	2017
2018	27242.897	46380.711	8589.472	-0.81	8588.664	2018
2019	27249.003	48922.935	8195.355	0.33	8195.684	2019
1438	27265.282	39546.841	7815.400	-3.18	7812.215	1438
2020	27266.689	46872.489	8706.251	-0.97	8705.282	2020
195	27268.902	35748.194	8094.848	0.19	8095.036	195
2021	27283.053	45340.586	8388.593	-0.95	8387.641	2021
196	27292.402	35032.470	7984.059	8.62	7992.683	196
2022	27318.848	49659.397	8382.159	-0.30	8381.856	2022
1439	27318.888	38989.881	7814.457	-4.11	7810.343	1439
197	27325.287	37405.849	7448.265	0.63	7448.898	197
1440	27339.258	40720.166	8003.436	-3.96	7999.479	1440
1441	27339.966	42233.165	8632.024	-1.39	8630.630	1441

843	27350.913	38401.228	7344.011	1.80	7345.808	843
844	27362.348	38196.739	7227.431	2.00	7229.432	844
2023	27362.511	44239.545	8176.371	-1.39	8174.984	2023
2024	27367.726	45719.265	8451.123	-0.79	8450.330	2024
198	27368.325	36884.578	7705.676	2.25	7707.924	198
2025	27391.377	46064.531	8584.649	-1.22	8583.429	2025
199	27399.930	34418.329	7610.962	2.55	7613.514	199
2026	27404.481	46604.837	8696.357	-0.83	8695.529	2026
1442	27405.436	40081.918	7863.057	-4.40	7858.656	1442
200	27405.973	35560.267	8102.533	1.68	8104.216	200
201	27409.011	33870.873	7235.808	2.77	7238.583	201
202	27414.047	34633.301	7651.257	0.94	7652.192	202
203	27415.653	36640.553	7820.954	0.02	7820.978	203
2027	27417.620	44455.622	8371.428	-0.43	8370.995	2027
2028	27433.766	48629.163	8126.469	-1.61	8124.862	2028
2029	27443.794	49966.849	8440.253	0.45	8440.704	2029
204	27454.069	34164.227	7406.272	2.88	7409.154	204
205	27456.666	33482.145	7015.886	2.04	7017.926	205
1443	27470.038	43751.692	8174.667	-1.79	8172.873	1443
2030	27477.269	45236.818	8485.958	-1.22	8484.742	2030
2031	27480.185	48275.933	8216.509	-0.61	8215.902	2031
2032	27489.417	47628.503	8506.524	0.13	8506.650	2032
845	27504.716	38474.741	7327.041	2.70	7329.743	845
1444	27515.594	41564.566	8251.271	-3.49	8247.783	1444
2033	27519.768	48062.627	8267.416	0.78	8268.191	2033
206	27523.402	36113.395	8060.222	0.87	8061.096	206
2034	27532.046	45826.550	8578.869	-0.68	8578.194	2034
1445	27536.096	39342.929	7739.181	-4.99	7734.188	1445
207	27550.164	37123.349	7720.737	2.22	7722.961	207
2035	27559.727	50239.802	8511.405	2.23	8513.631	2035
208	27559.780	35840.512	8073.735	1.13	8074.866	208
1446	27564.579	41800.992	8367.120	-2.62	8364.504	1446
1447	27564.664	42569.373	8602.644	-1.56	8601.087	1447
2036	27565.258	45491.968	8602.718	-0.79	8601.926	2036
1448	27565.390	39003.455	7706.276	-3.07	7703.207	1448
846	27566.628	38679.991	7429.533	0.28	7429.813	846
2037	27572.129	47834.423	8381.074	-0.30	8380.772	2037
2038	27574.746	46345.351	8688.077	-0.19	8687.887	2038
2039	27576.183	44187.587	8265.674	-2.33	8263.340	2039
1449	27581.297	39841.438	7755.367	-3.06	7752.306	1449
1450	27582.639	41253.238	8078.426	-3.07	8075.360	1450
2040	27582.723	49293.832	8312.081	-0.63	8311.454	2040
2041	27587.000	49504.792	8358.538	-0.51	8358.027	2041
2042	27593.863	49668.527	8409.657	-2.05	8407.608	2042
847	27596.055	38277.412	7207.681	2.73	7210.409	847
209	27600.511	34818.830	7705.276	2.65	7707.926	209
2043	27601.739	48825.799	8203.352	-0.45	8202.905	2043
1451	27602.591	40412.612	7809.704	-2.80	7806.900	1451
1452	27609.481	43356.095	8364.584	-1.61	8362.974	1452
210	27609.990	35204.927	8055.646	1.57	8057.218	210
2044	27631.052	46522.801	8674.051	0.48	8674.529	2044
2045	27631.701	44861.676	8608.252	-1.38	8606.872	2045
2046	27649.012	44658.229	8607.776	-1.87	8605.907	2046
211	27650.756	37819.730	7367.338	-0.67	7366.669	211
2047	27654.538	49050.698	8328.518	-1.90	8326.617	2047
212	27660.190	36013.754	8066.611	0.89	8067.498	212
213	27672.716	34150.851	7258.862	2.64	7261.507	213

1453	27680.150	40840.252	7875.380	-1.93	7873.454	1453
214	27687.715	33519.231	6968.145	2.09	6970.231	214
2048	27697.399	46060.565	8687.500	-0.22	8687.285	2048
2049	27698.774	45755.353	8669.532	-0.36	8669.173	2049
848	27698.862	38668.881	7353.906	4.04	7357.946	848
215	27704.128	34545.070	7545.555	1.58	7547.133	215
216	27706.257	35524.696	8041.657	-0.15	8041.506	216
217	27708.280	33836.194	7092.098	0.90	7092.999	217
218	27720.677	36782.233	7918.044	1.37	7919.417	218
2050	27726.973	43672.604	8364.051	-1.74	8362.311	2050
2051	27730.133	49756.698	8511.915	-2.02	8509.900	2051
2052	27739.792	48415.630	8097.371	-1.75	8095.619	2052
2053	27744.237	45134.779	8616.908	-0.99	8615.918	2053
219	27750.125	36497.835	8033.157	-0.44	8032.712	219
220	27759.461	36182.083	8074.346	0.28	8074.624	220
1454	27765.681	40143.799	7705.825	-4.73	7701.094	1454
2054	27768.575	47689.345	8361.517	0.66	8362.179	2054
221	27779.312	37349.791	7621.991	NR2012		221
2055	27781.194	48103.187	8203.157	0.23	8203.386	2055
2056	27784.174	47291.015	8485.459	0.67	8486.132	2056
2057	27790.570	49140.463	8432.691	-1.08	8431.616	2057
2058	27823.445	48774.824	8216.783	-0.10	8216.684	2058
2059	27824.569	44254.749	8357.268	-1.41	8355.857	2059
2060	27825.572	50591.976	8614.751	0.95	8615.700	2060
222	27827.354	34994.001	7849.104	1.36	7850.468	222
1455	27838.849	42917.445	8613.380	-1.32	8612.059	1455
849	27847.722	38490.858	7196.738	2.01	7198.753	849
2061	27858.521	44809.272	8712.935	-1.12	8711.813	2061
2062	27861.031	43927.984	8363.069	-1.24	8361.828	2062
223	27863.980	35895.789	8055.558	-0.41	8055.152	223
1456	27869.775	42247.971	8370.538	-2.77	8367.766	1456
2063	27889.395	49321.006	8510.000	-1.00	8508.997	2063
2064	27899.657	49536.373	8552.697	0.10	8552.802	2064
1457	27899.821	39707.780	7687.590	-4.61	7682.976	1457
850	27918.873	38880.083	7353.272	2.26	7355.531	850
2065	27922.758	50270.043	8614.608	-0.35	8614.253	2065
1458	27928.162	41614.119	8065.313	-3.36	8061.948	1458
224	27928.416	32701.112	7466.243	0.82	7467.061	224
1459	27929.912	41141.351	7895.623	-2.41	7893.210	1459
2066	27930.417	48271.707	8089.286	-1.73	8087.556	2066
2067	27930.975	45699.720	8726.262	-0.40	8725.866	2067
1460	27934.101	39281.960	7608.830	-4.48	7604.346	1460
2068	27941.841	45528.235	8784.568	-0.44	8784.126	2068
225	27955.310	33753.157	7013.343	2.85	7016.188	225
2069	27961.150	48486.897	8133.419	-0.25	8133.166	2069
2070	27965.001	50041.780	8613.959	-0.43	8613.529	2070
2071	27965.688	44541.844	8596.085	-1.64	8594.448	2071
226	27965.813	31341.857	7698.309	5.68	7703.991	226
2072	27971.524	48983.535	8409.480	-0.19	8409.293	2072
851	27976.996	38676.180	7190.622	6.50	7197.122	851
227	27978.352	34407.336	7377.607	3.30	7380.907	227
2073	27978.533	48746.744	8255.589	-0.82	8254.772	2073
228	27980.196	32132.803	7348.930	4.11	7353.044	228
229	27985.503	35620.087	7952.284	0.10	7952.385	229
1461	27994.321	40653.192	7734.907	-3.32	7731.592	1461
230	27998.479	34122.630	7200.999	2.27	7203.273	230
231	28003.219	34710.240	7639.653	1.57	7641.219	231

232	28005.950	36502.716	8048.528	-0.26	8048.269	232
2074	28007.157	43330.874	8628.599	-1.52	8627.076	2074
233	28024.756	36128.582	8038.685	1.01	8039.695	233
1462	28038.169	42581.027	8374.507	-1.70	8372.805	1462
1463	28039.077	43152.054	8629.789	-1.45	8628.343	1463
1464	28046.019	43631.737	8610.639	-0.75	8609.887	1464
2075	28049.215	45245.733	8789.714	0.08	8789.795	2075
2076	28066.280	44916.349	8798.847	-1.09	8797.756	2076
2077	28068.993	49700.694	8673.058	-1.12	8671.941	2077
234	28074.588	33052.009	7356.842	3.08	7359.921	234
235	28075.414	35260.117	7904.589	0.22	7904.805	235
236	28080.162	30917.712	7993.890	0.35	7994.245	236
2078	28083.022	50627.428	8731.956	-2.27	8729.685	2078
237	28098.345	31954.344	7433.605	2.95	7436.551	237
2079	28099.657	47850.841	8167.730	1.12	8168.848	2079
1465	28100.703	39990.166	7582.112	-3.01	7579.102	1465
238	28116.310	35045.198	7898.027	-5.90	7892.125	238
2080	28124.023	49958.928	8680.789	-1.04	8679.749	2080
239	28141.163	37774.736	7677.207	2.29	7679.495	239
1466	28152.285	41878.282	8023.228	-3.09	8020.141	1466
852	28165.342	39101.062	7430.892	0.66	7431.550	852
2081	28172.219	44260.231	8612.476	-0.30	8612.179	2081
240	28180.545	33387.076	7273.706	2.90	7276.608	240
2082	28188.277	48079.412	8076.147	-1.53	8074.619	2082
2083	28189.216	49203.955	8542.945	0.95	8543.896	2083
2084	28191.657	44021.240	8593.616	-1.58	8592.035	2084
2085	28193.218	49490.062	8669.778	-1.33	8668.451	2085
241	28205.323	32642.914	7680.405	1.32	7681.723	241
2086	28217.099	45437.491	8771.032	-0.30	8770.737	2086
2087	28223.921	48529.505	8194.876	-0.82	8194.059	2087
242	28227.164	34865.760	7782.086	0.39	7782.474	242
1467	28243.881	43536.092	8756.465	-2.56	8753.910	1467
243	28247.285	31067.009	7991.621	2.62	7994.245	243
244	28249.401	31271.531	7851.112	0.79	7851.902	244
2088	28251.728	50159.862	8785.516	-0.59	8784.928	2088
2089	28251.972	48983.126	8481.505	-0.73	8480.777	2089
853	28253.131	38839.108	7235.995	2.04	7238.031	853
245	28258.998	36206.129	7977.852	-0.59	7977.261	245
246	28269.474	31524.683	7755.422	1.29	7756.715	246
247	28271.677	34443.085	7469.378	1.60	7470.973	247
2090	28272.676	48768.858	8331.036	-0.33	8330.709	2090
248	28286.136	33911.057	7023.189	3.97	7027.161	248
1468	28292.167	41432.506	7850.875	-4.00	7846.872	1468
249	28295.476	35647.112	7835.152	-0.51	7834.643	249
2091	28297.076	48246.620	8135.352	-0.68	8134.670	2091
1469	28298.506	42811.502	8351.843	-1.53	8350.309	1469
250	28298.858	35861.633	7941.363	0.03	7941.395	250
2092	28301.028	43213.928	8546.703	-0.87	8545.837	2092
2093	28311.706	49696.868	8776.894	-1.13	8775.761	2093
1470	28314.111	42314.764	8089.328	-2.70	8086.629	1470
1471	28314.511	39665.636	7502.000	-3.82	7498.177	1471
251	28314.564	36508.277	8005.872	-0.11	8005.761	251
2094	28319.645	44487.510	8706.301	-2.27	8704.033	2094
252	28324.692	34143.667	7163.818	-1.61	7162.206	252
1472	28328.281	40960.132	7686.389	-4.74	7681.647	1472
253	28328.394	35364.109	7756.027	0.36	7756.390	253
254	28333.946	32263.319	7683.836	2.47	7686.307	254

1473	28346.648	40435.371	7552.801	-3.96	7548.845	1473
255	28348.805	38152.120	7621.028	0.73	7621.761	255
854	28349.551	36990.279	7993.439	-0.11	7993.329	854
2095	28354.132	50913.642	8893.356	0.73	8894.088	2095
2096	28354.466	43706.643	8769.575	-1.07	8768.506	2096
2097	28357.833	49435.115	8678.236	0.20	8678.440	2097
855	28362.573	39315.155	7360.803	-0.20	7360.604	855
2098	28367.621	50732.297	8875.583	-0.07	8875.513	2098
256	28375.708	36733.146	8044.039	-0.24	8043.800	256
2099	28407.546	44817.109	8839.899	-0.89	8839.009	2099
2100	28416.681	44617.473	8795.693	-0.89	8794.801	2100
2101	28420.424	46700.442	8349.069	-1.05	8348.017	2101
2102	28432.679	48853.732	8381.979	-0.73	8381.253	2102
257	28433.832	31786.526	7764.972	0.80	7765.775	257
856	28435.676	38869.622	7224.331	0.96	7225.291	856
2103	28452.854	47923.096	8072.689	-3.12	8069.565	2103
258	28459.190	37349.912	7928.308	-0.13	7928.178	258
2104	28471.237	49065.013	8496.081	-0.26	8495.819	2104
259	28474.129	35633.213	7791.908	-1.10	7790.807	259
260	28476.589	36016.833	7904.461	0.59	7905.046	260
2105	28483.453	45108.665	8775.138	-0.90	8774.235	2105
2106	28485.396	49892.807	8853.613	0.19	8853.801	2106
1474	28487.342	40020.921	7536.709	-3.81	7532.902	1474
1475	28492.857	43294.976	8509.677	0.22	8509.892	1475
261	28493.215	33173.101	7505.539	1.09	7506.631	261
2107	28500.025	50529.577	8919.762	-3.24	8916.523	2107
262	28500.804	32632.173	7816.660	2.60	7819.263	262
263	28518.114	30897.220	8146.577	1.47	8148.050	263
264	28520.465	37047.317	8006.022	-0.38	8005.646	264
2108	28520.968	48527.478	8334.866	0.06	8334.921	2108
2109	28532.558	43939.669	8833.295	-1.58	8831.712	2109
2110	28542.946	49197.547	8575.908	-0.96	8574.945	2110
2111	28549.227	48201.084	8237.237	-0.09	8237.142	2111
2112	28549.719	44486.636	8844.896	-1.85	8843.050	2112
2113	28555.096	50251.838	8936.187	-2.41	8933.772	2113
2114	28570.255	44150.410	8857.777	-0.80	8856.982	2114
265	28570.378	34659.754	7502.984	-1.88	7501.102	265
266	28571.810	35226.565	7610.875	1.45	7612.323	266
2115	28576.511	43497.388	8579.634	-0.81	8578.827	2115
857	28592.626	38966.709	7344.424	1.08	7345.508	857
267	28598.671	36582.249	7973.367	-0.70	7972.672	267
268	28602.810	36292.684	7892.458	-0.21	7892.246	268
269	28609.913	32958.197	7708.778	-2.60	7706.174	269
1476	28617.995	41638.020	7748.071	-6.56	7741.509	1476
1477	28618.991	42015.465	7816.163	-1.96	7814.204	1477
270	28631.047	34377.878	7188.603	1.66	7190.264	270
271	28640.441	34088.624	7061.015	2.54	7063.557	271
272	28640.555	35769.798	7808.354	-0.04	7808.317	272
273	28647.537	33811.105	7145.602	4.87	7150.472	273
2116	28659.765	49594.113	8757.343	-1.12	8756.221	2116
2117	28662.602	48803.116	8466.824	-0.31	8466.516	2117
274	28665.489	31080.495	8124.640	1.47	8126.109	274
2118	28668.186	47688.181	8056.748	-1.50	8055.244	2118
1478	28669.450	42719.170	8113.395	-0.83	8112.562	1478
858	28678.470	39546.034	7463.759	3.32	7467.075	858
275	28687.076	34953.371	7536.675	0.05	7536.726	275
2119	28689.831	51010.618	9148.840	-0.13	9148.714	2119

859	28703.321	38855.323	7280.589	1.16	7281.746	859
276	28705.508	32029.349	7910.708	2.10	7912.812	276
277	28719.865	36826.689	8029.710	-0.64	8029.068	277
1479	28722.210	41178.208	7639.838	-5.05	7634.783	1479
2120	28737.805	44156.726	8853.434	-0.37	8853.062	2120
2121	28754.537	47928.113	8207.377	-1.34	8206.034	2121
2122	28755.566	50701.984	9139.758	-0.09	9139.668	2122
2123	28755.688	48498.777	8465.104	-0.09	8465.012	2123
1480	28761.711	40860.329	7673.645	-3.47	7670.173	1480
860	28778.757	39135.492	7545.837	1.44	7547.275	860
278	28789.999	32357.934	7967.369	2.53	7969.903	278
2124	28794.979	51182.197	9185.196	-0.42	9184.779	2124
2125	28798.832	44352.562	8823.180	-0.88	8822.303	2125
279	28809.678	32789.896	7770.239	0.67	7770.906	279
1481	28814.574	43172.115	8398.792	-1.02	8397.773	1481
861	28821.125	39913.960	7549.553	-0.83	7548.725	861
2126	28821.601	47096.046	8151.718	-0.86	8150.860	2126
280	28824.226	38024.605	7682.682	1.38	7684.061	280
2127	28830.629	44663.837	8778.142	-1.13	8777.009	2127
281	28835.779	31344.048	8104.830	0.65	8105.478	281
282	28843.485	31593.076	8071.263	-0.28	8070.984	282
2128	28846.420	48921.368	8567.450	-0.33	8567.123	2128
283	28851.989	36239.435	7866.294	-0.62	7865.678	283
284	28852.948	35305.300	7499.398	-1.56	7497.842	284
285	28855.233	35562.752	7642.577	-2.84	7639.735	285
286	28859.125	37097.742	7977.469	0.40	7977.871	286
2129	28860.014	43576.462	8609.084	-0.34	8608.742	2129
1482	28861.216	42441.413	7905.272	-0.30	7904.972	1482
2130	28862.774	48286.430	8458.791	-0.88	8457.911	2130
862	28871.412	38912.680	7335.708	-0.04	7335.666	862
1483	28873.595	40297.772	7753.880	-4.11	7749.770	1483
2131	28875.893	47502.488	8050.915	-2.77	8048.144	2131
2132	28878.478	49924.853	8938.704	-1.80	8936.908	2132
2133	28879.659	50143.845	9126.510	-0.35	9126.158	2133
287	28881.193	34401.938	7096.932	0.47	7097.399	287
2134	28898.560	43873.395	8787.929	-0.67	8787.262	2134
288	28900.894	36566.702	7952.212	-0.55	7951.660	288
289	28908.835	33691.818	7196.513	3.38	7199.894	289
2135	28909.385	49562.070	8801.282	-1.28	8800.005	2135
2136	28909.832	50367.555	9130.287	-0.51	9129.777	2136
863	28914.422	30781.022	7922.669	0.73	7923.401	863
2137	28916.340	48641.827	8551.030	-0.52	8550.515	2137
2138	28930.146	48031.871	8326.887	1.05	8327.941	2138
290	28939.094	34865.227	7405.042	-5.26	7399.784	290
864	28950.805	39341.111	7579.440	1.66	7581.095	864
2139	28951.640	44806.525	8713.470	-0.15	8713.321	2139
291	28952.880	35933.554	7794.229	0.68	7794.913	291
292	28970.447	30889.614	7901.441	0.13	7901.569	292
293	28974.357	37521.681	7850.274	-0.89	7849.382	293
2140	28977.641	49212.324	8717.420	-1.24	8716.176	2140
294	28980.314	33999.184	7245.066	1.77	7246.833	294
1484	28987.780	41146.642	7799.796	-2.32	7797.479	1484
295	28998.883	32096.918	8055.945	2.38	8058.321	295
2141	29001.158	46311.411	8405.995	-1.35	8404.649	2141
2142	29004.925	51349.286	9170.540	0.25	9170.787	2142
2143	29023.671	50781.699	9129.538	-0.18	9129.355	2143
2144	29034.331	47783.251	8185.390	-1.38	8184.011	2144

1485	29035.834	41747.274	7820.295	-3.48	7816.819	1485
2145	29058.211	47326.104	8033.194	-2.29	8030.901	2145
2146	29059.749	43764.374	8722.960	-1.74	8721.222	2146
2147	29060.829	44179.971	8795.693	-1.55	8794.138	2147
1486	29064.830	42963.695	8245.376	-0.97	8244.402	1486
296	29069.123	33520.387	7300.553	5.01	7305.560	296
2148	29080.894	51059.876	9143.145	-0.40	9142.743	2148
297	29090.021	35561.722	7749.981	-0.23	7749.748	297
2149	29091.024	48597.628	8615.218	-0.02	8615.200	2149
865	29092.631	39519.737	7645.339	1.34	7646.680	865
298	29098.666	36826.178	8022.586	-0.16	8022.426	298
866	29104.833	39026.117	7475.311	2.03	7477.341	866
2150	29104.833	49871.920	8971.074	-0.88	8970.198	2150
2151	29107.023	47561.884	8174.911	-2.28	8172.632	2151
2152	29111.287	48005.548	8370.701	-0.10	8370.603	2152
2153	29112.759	48247.760	8496.382	-0.38	8496.000	2153
299	29117.053	34610.687	7118.791	0.71	7119.498	299
2154	29126.746	49670.606	8923.539	-0.74	8922.795	2154
300	29132.880	31246.677	7976.472	-1.22	7975.251	300
2155	29134.619	44405.992	8763.179	-1.19	8761.992	2155
301	29161.673	31847.833	8183.973	-0.01	8183.964	301
302	29169.238	34058.105	7409.368	0.66	7410.026	302
2156	29179.942	48943.325	8735.013	-1.11	8733.906	2156
303	29181.034	35360.429	7591.078	1.44	7592.518	303
867	29183.777	40117.986	7779.003	0.66	7779.664	867
1487	29190.379	40748.062	7861.254	-3.50	7857.751	1487
304	29195.313	37854.219	7762.854	1.75	7764.608	304
840	29198.243	31085.260	7914.255	0.63	7914.886	840
2157	29202.791	49454.942	8850.166	-0.34	8849.821	2157
305	29206.627	37119.901	7965.510	0.41	7965.916	305
306	29208.001	34412.493	7244.711	0.22	7244.935	306
307	29209.683	33682.918	7570.147	1.32	7571.472	307
308	29209.746	31567.112	8046.443	1.73	8048.170	308
2158	29213.631	43582.205	8593.913	-0.91	8593.000	2158
1488	29218.389	42099.719	7946.389	-1.31	7945.079	1488
868	29219.397	39693.401	7763.856	-0.26	7763.599	868
869	29227.842	30700.340	7706.515	0.42	7706.938	869
309	29231.126	30847.625	7766.180	1.78	7767.958	309
310	29235.627	34958.850	7340.265	-0.26	7340.007	310
2159	29236.644	50170.717	8882.477	1.84	8884.318	2159
2160	29252.415	43328.488	8409.457	1.10	8410.559	2160
870	29253.298	38116.881	7760.480	0.32	7760.804	870
871	29267.567	39151.476	7444.867	-0.38	7444.488	871
311	29272.120	36150.458	7795.351	0.77	7796.120	311
2161	29284.797	51515.166	9037.523	-0.50	9037.021	2161
312	29291.590	36483.196	7913.268	-0.37	7912.896	312
1489	29292.227	41515.605	7977.416	-0.81	7976.611	1489
872	29300.597	39391.893	7581.927	2.01	7583.933	872
2162	29302.237	50507.373	8882.656	-0.33	8882.328	2162
313	29305.435	33109.226	7543.666	0.19	7543.855	313
2163	29305.717	43907.193	8765.321	-0.49	8764.827	2163
2164	29309.570	47672.933	8322.153	-2.42	8319.731	2164
1490	29318.045	40436.311	7932.392	-4.28	7928.107	1490
873	29321.767	39907.135	7802.259	0.60	7802.854	873
2165	29339.258	49235.783	8820.704	-0.68	8820.028	2165
2166	29345.804	51153.491	8963.432	-0.65	8962.780	2166
2167	29354.792	50845.491	8904.027	-0.53	8903.496	2167

314	29361.532	33446.561	7540.529	2.78	7543.309	314
315	29369.679	34063.935	7510.495	1.48	7511.980	315
1491	29373.562	42693.790	8091.275	-2.17	8089.101	1491
2168	29376.035	47242.330	8140.197	-1.28	8138.918	2168
316	29383.498	35834.257	7738.424	-0.51	7737.914	316
2169	29394.855	44451.993	8694.729	-1.13	8693.599	2169
2170	29399.861	47952.638	8418.169	-2.00	8416.168	2170
874	29400.422	38943.017	7539.272	-2.63	7536.646	874
2171	29406.492	48620.096	8703.842	-1.42	8702.425	2171
1492	29426.755	40955.564	8049.084	-1.58	8047.502	1492
2172	29429.594	48265.376	8497.127	-1.55	8495.579	2172
2173	29440.798	44142.216	8750.804	-0.87	8749.930	2173
2174	29446.805	47001.681	8001.750	-1.85	7999.901	2174
317	29452.972	34667.737	7273.974	-1.99	7271.988	317
2175	29465.367	48884.438	8777.604	-1.12	8776.485	2175
318	29469.730	30895.973	7757.721	0.52	7758.243	318
319	29472.426	31229.796	7792.939	0.78	7793.720	319
875	29474.670	38535.790	7698.467	0.76	7699.222	875
2176	29477.239	49396.776	8779.702	-2.01	8777.691	2176
320	29480.712	36806.146	8006.698	0.39	8007.089	320
876	29488.167	39973.446	7817.664	-0.07	7817.590	876
321	29490.462	32004.084	8107.625	0.36	8107.989	321
322	29497.443	33922.483	7604.238	0.42	7604.656	322
2177	29500.576	51743.819	8878.550	0.04	8878.588	2177
877	29500.712	30573.609	7428.721	2.48	7431.202	877
323	29501.030	35347.942	7412.410	-2.00	7410.411	323
324	29504.447	37076.767	7990.811	0.82	7991.632	324
2178	29512.109	45443.432	8462.070	-0.31	8461.763	2178
325	29512.816	38141.533	7839.619	-0.32	7839.298	325
2179	29519.194	49084.028	8777.304	-1.78	8775.520	2179
326	29520.573	35615.077	7587.992	0.06	7588.050	326
2180	29522.646	50626.231	8797.445	-1.36	8796.085	2180
327	29525.260	35072.645	7272.900	-0.40	7272.502	327
2181	29546.312	47810.859	8477.285	-1.53	8475.756	2181
2182	29547.129	45699.941	8478.997	-1.31	8477.686	2182
328	29547.478	37816.846	7869.150	-1.35	7867.798	328
329	29549.388	36159.603	7857.047	-0.06	7856.984	329
2183	29552.732	49620.659	8759.650	-0.29	8759.357	2183
330	29558.179	31707.921	7994.348	0.88	7995.227	330
878	29558.320	40142.370	7842.508	0.02	7842.532	878
879	29567.880	40353.684	7921.665	-0.86	7920.800	879
1493	29568.923	41368.184	8167.710	-1.31	8166.398	1493
2184	29568.967	51436.942	8839.526	-0.38	8839.146	2184
1494	29570.095	40749.971	8103.987	-3.04	8100.949	1494
880	29573.392	39321.316	7520.284	-0.67	7519.616	880
331	29585.288	33685.292	7782.590	-0.66	7781.931	331
332	29585.716	32219.990	8025.787	0.66	8026.447	332
2185	29586.931	47336.340	8198.206	-0.91	8197.299	2185
333	29592.377	34125.513	7605.763	3.89	7609.654	333
2186	29592.793	50285.672	8764.776	-0.47	8764.302	2186
881	29594.537	39600.298	7630.822	-0.39	7630.435	881
2187	29599.860	43538.995	8570.023	0.36	8570.384	2187
2188	29603.371	42890.788	8296.888	-1.40	8295.486	2188
334	29618.225	37323.909	7965.770	-0.71	7965.065	334
335	29622.354	33354.559	7683.992	0.57	7684.561	335
882	29630.231	39799.251	7725.783	1.22	7727.002	882
2189	29635.114	43915.098	8751.339	-1.17	8750.171	2189

2190	29638.064	44293.444	8692.111	-0.38	8691.729	2190
2191	29638.158	43202.167	8414.585	-0.71	8413.876	2191
2192	29642.743	48529.426	8697.518	-0.88	8696.635	2192
2193	29675.293	48255.266	8600.228	-1.92	8598.308	2193
336	29679.345	36443.497	7935.158	0.08	7935.237	336
337	29679.973	31449.128	7797.956	4.17	7802.125	337
338	29688.543	30857.807	7585.069	-0.06	7585.008	338
1495	29688.979	41847.117	8321.295	-1.67	8319.625	1495
2194	29689.069	48817.660	8744.664	-1.11	8743.556	2194
883	29699.108	40440.321	7911.138	-0.48	7910.654	883
2195	29700.044	46839.261	7991.398	-3.50	7987.899	2195
2196	29701.986	49738.400	8691.374	0.44	8691.811	2196
339	29717.340	33035.198	7688.203	1.27	7689.473	339
2197	29718.318	50062.739	8695.690	-0.20	8695.489	2197
2198	29720.527	50936.662	8750.779	-0.35	8750.431	2198
2199	29721.739	48037.020	8575.411	-0.99	8574.424	2199
1496	29726.947	42341.387	8319.508	-0.24	8319.263	1496
884	29732.343	30486.060	7398.874	2.09	7400.965	884
885	29735.280	39417.815	7512.368	-0.72	7511.644	885
340	29742.259	36160.343	7926.315	0.11	7926.421	340
2200	29757.414	49473.678	8693.142	-0.73	8692.414	2200
2201	29757.894	49233.257	8710.346	-1.41	8708.938	2201
341	29759.516	36761.155	7988.090	0.16	7988.251	341
886	29762.350	32411.404	7963.806	-0.02	7963.790	886
2202	29762.880	47084.448	8113.365	-1.47	8111.899	2202
342	29770.334	37674.236	7939.693	0.25	7939.946	342
343	29776.938	37096.954	7991.934	0.18	7992.115	343
2203	29782.025	47502.652	8279.031	-1.28	8277.754	2203
344	29782.042	35771.678	7721.885	0.69	7722.577	344
2204	29785.697	45185.585	8394.661	-0.51	8394.155	2204
1497	29787.425	41153.407	8332.181	-2.68	8329.502	1497
345	29789.459	31937.914	8018.649	-0.39	8018.260	345
346	29795.153	33697.780	7876.373	1.98	7878.356	346
347	29798.499	31704.411	7993.497	1.51	7995.009	347
2205	29801.431	45638.976	8320.232	0.22	8320.455	2205
348	29802.357	35142.130	7311.703	0.41	7312.112	348
2206	29804.169	50362.838	8670.753	-0.11	8670.642	2206
887	29808.539	40150.224	7790.720	0.06	7790.776	887
349	29812.111	31198.820	7682.976	2.13	7685.106	349
2207	29819.267	51748.171	8730.757	-0.17	8730.589	2207
2208	29833.776	47791.838	8453.472	-1.18	8452.295	2208
350	29849.540	37400.460	8002.468	0.40	8002.863	350
351	29849.607	35433.692	7440.916	0.41	7441.326	351
888	29854.695	39764.390	7609.389	0.15	7609.539	888
352	29874.730	38032.160	7918.023	0.01	7918.034	352
2209	29875.923	48280.418	8672.851	-1.99	8670.863	2209
2210	29876.368	42909.271	8488.786	0.69	8489.475	2210
889	29880.186	30652.066	7417.931	1.05	7418.977	889
2211	29881.524	44170.346	8726.648	-2.23	8724.418	2211
2212	29884.437	45947.803	8252.109	0.01	8252.122	2212
890	29887.223	39579.675	7525.858	0.46	7526.319	890
891	29897.485	38202.570	7903.656	0.43	7904.086	891
2213	29908.034	47303.078	8291.674	-1.56	8290.118	2213
892	29911.638	40460.154	7808.773	-0.66	7808.108	892
1498	29915.817	42614.116	8394.115	-1.25	8392.865	1498
353	29916.930	36412.243	7918.794	-0.59	7918.209	353
2214	29921.085	43506.010	8673.082	-1.62	8671.465	2214

354	29923.881	33354.203	7899.832	0.25	7900.080	354
893	29932.074	32440.664	7970.520	-1.05	7969.466	893
2215	29946.292	46684.843	7978.577	-2.02	7976.561	2215
2216	29952.923	49030.546	8672.641	-0.97	8671.667	2216
1499	29955.914	41458.201	8507.616	-0.61	8507.002	1499
894	29956.700	39927.070	7667.036	0.30	7667.335	894
2217	29960.509	52121.636	8663.499	0.09	8663.586	2217
2218	29972.785	50055.925	8545.499	-1.15	8544.354	2218
2219	29973.787	47669.470	8431.043	-1.73	8429.316	2219
895	29978.032	32595.021	7916.204	0.43	7916.633	895
355	29979.464	33077.167	7829.482	0.48	7829.961	355
356	29981.326	32275.131	8050.703	-1.22	8049.480	356
896	29983.037	40701.922	7903.323	1.49	7904.816	896
897	29992.134	30330.811	7265.321	1.34	7266.661	897
357	29996.406	30895.525	7378.059	2.71	7380.771	357
898	30001.592	40287.353	7729.593	-1.99	7727.606	898
2220	30002.667	51128.500	8619.380	-0.06	8619.319	2220
2221	30004.487	51515.389	8614.345	-0.27	8614.072	2221
2222	30007.971	50526.079	8571.635	0.22	8571.855	2222
2223	30010.713	48880.686	8666.826	-1.61	8665.214	2223
2224	30012.679	47942.690	8545.126	-0.50	8544.631	2224
358	30017.004	36611.676	7928.724	-0.98	7927.749	358
2225	30018.457	48594.706	8678.516	-2.26	8676.251	2225
2226	30024.544	43795.721	8760.668	-0.30	8760.364	2226
359	30031.364	31170.120	7718.311	1.73	7720.037	359
1500	30038.024	41702.968	8576.185	-0.94	8575.243	1500
360	30055.950	34113.379	7733.385	1.35	7734.734	360
1501	30058.702	42265.905	8577.139	-0.87	8576.267	1501
361	30060.160	31661.776	7863.106	-1.05	7862.053	361
362	30062.437	36183.986	7866.103	1.14	7867.248	362
2227	30069.954	47448.697	8431.876	-1.47	8430.402	2227
363	30077.410	31995.066	7980.638	0.29	7980.928	363
364	30086.982	35404.213	7347.149	1.31	7348.461	364
365	30094.127	36861.008	7923.198	-0.16	7923.040	365
366	30097.024	37126.983	7921.904	-0.43	7921.470	366
899	30098.568	39415.046	7549.748	-0.36	7549.389	899
367	30103.480	37395.769	7935.029	-0.16	7934.874	367
900	30110.541	30661.318	7304.276	2.27	7306.541	900
368	30112.605	35866.517	7708.993	-1.15	7707.844	368
901	30121.106	38463.685	7877.768	-0.01	7877.761	901
2228	30124.810	51877.385	8586.471	0.34	8586.812	2228
2229	30125.333	51322.801	8565.550	0.34	8565.885	2229
2230	30125.516	46890.651	8118.838	-1.57	8117.267	2230
369	30126.980	37953.644	8002.123	-1.92	8000.206	369
1502	30127.620	41112.057	8103.789	-1.42	8102.373	1502
2231	30129.709	48180.483	8663.225	-0.39	8662.834	2231
2232	30129.844	44334.089	8700.589	-2.10	8698.484	2232
2233	30134.059	43036.481	8633.939	0.33	8634.269	2233
370	30136.739	37702.032	7938.561	-0.30	7938.256	370
2234	30136.841	45678.469	8119.106	-0.99	8118.111	2234
902	30138.679	40362.353	7694.506	-1.93	7692.578	902
903	30160.732	40008.010	7599.832	-2.01	7597.823	903
371	30172.141	33742.087	7975.690	5.01	7980.702	371
904	30175.597	40597.227	7795.777	2.85	7798.629	904
1503	30180.879	42011.957	8654.885	0.65	8655.531	1503
905	30181.193	30476.222	7182.531	4.26	7186.790	905
372	30189.584	32905.368	7952.918	-0.04	7952.874	372

2235	30191.186	44036.684	8736.789	-0.55	8736.239	2235
2236	30196.204	50093.396	8480.159	-1.48	8478.677	2236
2237	30197.904	45991.278	8109.319	-1.16	8108.160	2237
2238	30200.863	49091.861	8526.586	-0.51	8526.080	2238
2239	30204.068	46484.583	7964.357	-1.19	7963.172	2239
2240	30209.807	49353.419	8512.829	-2.13	8510.702	2240
906	30213.808	40890.144	7943.648	0.74	7944.388	906
907	30225.189	40153.142	7610.563	2.78	7613.344	907
2241	30241.923	42667.464	8626.426	-1.25	8625.175	2241
2242	30259.250	43444.014	8776.975	-0.26	8776.715	2242
373	30259.429	33154.828	7962.641	1.41	7964.047	373
374	30263.033	36507.808	7857.754	-1.86	7855.897	374
2243	30266.345	47828.705	8575.499	-1.11	8574.391	2243
375	30273.708	33475.762	8007.035	0.94	8007.978	375
2244	30275.092	47061.118	8259.784	-1.21	8258.575	2244
376	30281.997	30910.874	7365.395	2.86	7368.254	376
377	30283.066	32401.365	8039.847	1.12	8040.965	377
2245	30284.770	48833.785	8521.941	-1.65	8520.291	2245
2246	30296.690	50526.730	8458.699	-2.16	8456.544	2246
2247	30300.053	48357.429	8649.619	-0.55	8649.069	2247
2248	30311.228	52289.806	8534.649	-0.19	8534.463	2248
2249	30313.821	50745.295	8470.748	-0.75	8469.993	2249
378	30322.262	38020.272	7988.739	0.12	7988.854	378
379	30323.406	31340.235	7681.814	2.42	7684.233	379
908	30333.552	30675.563	7312.232	1.66	7313.893	908
2250	30338.217	47217.354	8364.229	-1.44	8362.793	2250
2251	30344.548	47502.018	8437.796	-0.94	8436.855	2251
1504	30356.272	41588.751	8374.689	-1.28	8373.410	1504
380	30362.363	35420.239	7270.582	0.95	7271.536	380
2252	30369.147	44227.796	8698.541	0.61	8699.148	2252
909	30373.005	39523.117	7713.619	-1.78	7711.843	909
2253	30373.986	44588.446	8673.786	-1.48	8672.309	2253
381	30379.049	36874.499	7795.251	-0.34	7794.913	381
2254	30379.632	43801.842	8724.209	-0.26	8723.953	2254
382	30380.624	35861.022	7661.223	-0.60	7660.627	382
2255	30384.065	46743.928	8120.831	-0.67	8120.162	2255
2256	30384.664	49890.796	8406.458	-1.30	8405.160	2256
383	30386.470	32713.894	8005.432	1.26	8006.689	383
384	30387.644	36189.053	7736.301	-0.56	7735.740	384
385	30388.201	32036.750	7989.053	-0.81	7988.241	385
910	30395.654	40593.923	7715.585	0.35	7715.933	910
386	30397.777	37368.178	7838.209	-0.18	7838.024	386
2257	30401.828	43191.472	8780.881	0.11	8780.991	2257
1505	30414.474	42326.650	8748.284	-1.02	8747.262	1505
387	30415.593	37734.503	7876.735	-0.55	7876.185	387
2258	30417.703	49039.654	8466.072	-1.81	8464.263	2258
911	30418.209	30045.487	7191.874	2.38	7194.254	911
388	30426.885	32267.182	8020.042	0.73	8020.771	388
389	30440.116	31037.195	7698.103	0.44	7698.544	389
912	30444.933	41091.078	7954.196	-0.11	7954.085	912
913	30446.776	30422.186	7322.917	3.23	7326.147	913
2259	30451.625	48011.728	8645.373	-0.59	8644.783	2259
390	30454.517	35553.875	7367.966	0.78	7368.748	390
2260	30460.533	46256.994	7941.600	-3.04	7938.565	2260
391	30462.498	38514.027	7845.260	0.02	7845.276	391
392	30473.910	37092.082	7778.931	-0.56	7778.369	392
2261	30479.433	50977.220	8417.068	-1.59	8415.473	2261

914	30488.120	40247.864	7693.734	0.09	7693.828	914
2262	30493.156	44714.851	8635.203	-1.49	8633.710	2262
2263	30521.572	42669.140	8775.067	-1.30	8773.763	2263
915	30522.340	39642.640	7784.288	-1.30	7782.985	915
393	30533.469	34238.103	7862.990	7.76	7870.752	393
2264	30538.461	51382.118	8415.899	-0.12	8415.775	2264
2265	30538.629	42931.792	8799.722	0.24	8799.964	2265
1506	30539.567	42029.510	8546.588	-0.01	8546.574	1506
2266	30542.491	51645.399	8410.983	-0.88	8410.106	2266
2267	30545.976	43919.372	8658.086	0.03	8658.121	2267
916	30545.998	30185.551	7305.663	2.33	7307.989	916
2268	30547.981	47591.437	8536.261	-1.35	8534.908	2268
2269	30553.038	44408.904	8593.902	-0.18	8593.724	2269
394	30562.573	33005.310	8056.263	0.11	8056.375	394
395	30565.230	31664.264	7966.604	1.66	7968.265	395
396	30568.683	32423.155	8081.401	0.83	8082.227	396
2270	30572.289	43343.816	8732.586	0.28	8732.867	2270
2271	30580.507	43584.523	8703.251	-0.74	8702.511	2271
2272	30583.917	52500.400	8566.629	-0.32	8566.307	2272
2273	30587.311	46510.428	8109.735	-2.00	8107.738	2273
397	30591.060	33317.619	8061.685	1.57	8063.255	397
398	30592.264	33805.770	8020.168	1.93	8022.099	398
399	30594.627	32732.366	8066.938	0.78	8067.720	399
2274	30597.753	50067.066	8407.477	-1.35	8406.125	2274
917	30598.086	40811.396	7767.963	0.61	7768.574	917
2275	30605.004	47231.613	8472.958	-1.97	8470.991	2275
400	30605.171	38061.814	7970.321	0.42	7970.740	400
401	30617.629	33502.980	8084.810	0.41	8085.220	401
402	30618.642	30911.132	7696.280	-0.30	7695.982	402
403	30626.898	36515.501	7701.502	-1.27	7700.236	403
2276	30634.164	50589.154	8356.764	-0.45	8356.310	2276
404	30641.144	39257.504	7652.743	-2.14	7650.606	404
405	30641.237	36840.537	7693.618	-0.27	7693.353	405
2277	30644.885	46922.303	8326.628	-1.77	8324.857	2277
918	30647.030	40082.116	7781.926	-0.18	7781.744	918
406	30652.318	32261.673	8067.591	1.43	8069.019	406
407	30657.983	31994.886	8086.483	0.11	8086.594	407
408	30664.349	36042.182	7606.392	0.13	7606.526	408
409	30669.173	37713.186	7863.265	-2.06	7861.210	409
410	30672.742	34784.607	7711.273	0.65	7711.923	410
2278	30679.288	47765.266	8560.446	-1.09	8559.358	2278
919	30689.564	30665.623	7639.711	-0.43	7639.281	919
2279	30696.695	50338.844	8326.821	1.39	8328.206	2279
411	30704.517	37489.200	7752.954	-1.03	7751.922	411
920	30704.892	41320.376	8029.823	0.39	8030.216	920
2280	30711.221	46104.663	7929.641	-2.78	7926.865	2280
2281	30723.857	43978.081	8567.787	-0.68	8567.112	2281
2282	30724.075	44747.337	8537.422	-0.27	8537.152	2282
2283	30726.080	48023.232	8549.352	-0.86	8548.492	2283
412	30741.787	37179.400	7695.474	-1.28	7694.198	412
921	30753.580	39480.928	7772.567	-1.30	7771.269	921
922	30758.055	39714.117	7880.442	-2.34	7878.103	922
923	30760.129	40899.767	7805.044	0.21	7805.255	923
2284	30762.832	42631.702	8794.952	0.19	8795.145	2284
1507	30767.273	41797.969	8378.383	-1.54	8376.844	1507
2285	30767.876	51640.438	8314.713	-1.65	8313.068	2285
2286	30770.153	49281.562	8360.300	-0.97	8359.325	2286

2287	30771.027	52071.864	8424.891	-1.34	8423.555	2287
2288	30778.397	46675.095	8283.139	-1.52	8281.614	2288
2289	30788.051	51088.866	8268.615	-0.90	8267.715	2289
2290	30791.948	47349.005	8558.453	-1.21	8557.245	2290
413	30795.757	38936.118	7730.417	0.02	7730.433	413
414	30799.693	33611.466	8087.083	1.88	8088.962	414
2291	30805.740	49658.756	8340.639	-2.24	8338.398	2291
415	30810.942	36226.367	7644.213	0.47	7644.687	415
2292	30812.156	43248.982	8703.907	-0.13	8703.776	2292
2293	30823.581	51337.300	8288.307	-2.26	8286.049	2293
924	30823.851	30781.138	7703.359	1.87	7705.228	924
2294	30823.974	50113.745	8277.817	-0.45	8277.365	2294
2295	30825.061	50622.771	8237.204	-1.27	8235.932	2295
2296	30825.689	46364.716	8108.754	-2.04	8106.712	2296
925	30830.903	29913.231	7181.896	0.10	7182.000	925
2297	30844.738	51904.808	8343.606	-0.81	8342.800	2297
1508	30846.811	42272.007	8641.179	-0.65	8640.533	1508
416	30846.927	31114.528	7882.181	1.39	7883.573	416
417	30847.818	32903.090	7966.884	0.18	7967.064	417
418	30851.365	32595.835	7999.475	-0.43	7999.047	418
926	30855.350	30399.006	7484.627	1.37	7486.000	926
419	30855.575	37960.301	7963.868	-1.58	7962.287	419
2298	30862.238	48870.097	8349.805	-1.50	8348.303	2298
420	30863.755	33203.280	7990.969	0.47	7991.443	420
2299	30865.459	45021.384	8441.603	-0.83	8440.775	2299
2300	30867.885	44474.821	8490.783	-0.34	8490.439	2300
421	30870.715	31546.547	8030.565	0.27	8030.838	421
422	30877.547	35866.760	7389.431	2.14	7391.572	422
423	30881.941	34490.333	7874.475	2.19	7876.666	423
927	30894.434	41034.850	7814.569	0.20	7814.771	927
2301	30895.360	47089.859	8456.448	-1.74	8454.707	2301
2302	30905.748	43609.011	8578.907	-0.17	8578.737	2302
928	30927.711	39742.122	7950.485	-0.06	7950.423	928
424	30939.988	38089.209	8038.474	-1.80	8036.675	424
929	30941.464	41479.737	8121.764	0.06	8121.827	929
2303	30950.601	46580.942	8268.857	-2.26	8266.597	2303
425	30958.196	37085.494	7734.055	-0.73	7733.325	425
426	30958.602	32271.376	7930.429	0.19	7930.615	426
2304	30964.988	42891.149	8713.834	-0.42	8713.412	2304
427	30965.511	34086.153	7952.715	2.64	7955.357	427
428	30965.893	39297.685	7739.603	-2.09	7737.510	428
2305	30972.816	52038.894	8348.401	-0.84	8347.565	2305
2306	30974.098	45141.097	8355.513	-1.53	8353.988	2306
2307	30976.350	49495.752	8213.946	-1.41	8212.532	2307
2308	30978.879	41955.729	8425.296	-1.59	8423.703	2308
429	30984.127	37421.497	7826.955	-1.37	7825.586	429
430	30994.095	36845.814	7649.865	-0.83	7649.034	430
431	30998.719	30877.758	7683.054	-0.22	7682.837	431
2309	31005.397	44726.286	8431.071	0.84	8431.909	2309
2310	31007.195	50546.399	8298.857	-2.37	8296.483	2310
930	31009.738	39511.601	7871.044	0.23	7871.278	930
931	31014.794	30127.016	7260.716	1.71	7262.428	931
2311	31016.848	46190.730	8016.535	-2.28	8014.255	2311
432	31026.327	36449.376	7616.020	0.29	7616.308	432
2312	31028.029	46900.229	8485.452	-0.47	8484.983	2312
2313	31031.986	43877.350	8502.648	-1.31	8501.340	2313
2314	31034.692	45964.375	7916.136	-2.18	7913.958	2314

2315	31036.488	49997.668	8193.835	-1.32	8192.510	2315
932	31037.185	30556.603	7557.854	1.89	7559.744	932
433	31040.640	34942.316	7730.123	4.01	7734.130	433
2316	31041.897	47182.288	8527.902	-1.08	8526.819	2316
2317	31042.896	48433.100	8320.081	1.30	8321.377	2317
434	31045.697	33493.993	8026.212	0.23	8026.444	434
435	31051.300	33774.808	8045.546	1.05	8046.599	435
933	31055.188	41277.964	7938.649	0.32	7938.967	933
2318	31056.538	50893.288	8371.150	-2.11	8369.035	2318
2319	31059.342	44424.743	8413.929	-0.28	8413.645	2319
2320	31062.093	44405.212	8413.929	-2.21	8411.717	2320
436	31062.926	31984.461	7930.133	0.80	7930.933	436
437	31065.300	36131.184	7594.502	-1.26	7593.242	437
2321	31069.275	43365.323	8583.766	-0.57	8583.194	2321
438	31076.266	31162.416	7844.607	1.09	7845.698	438
2322	31081.874	44023.116	8482.108	0.14	8482.247	2322
439	31088.830	35430.889	7614.621	0.36	7614.979	439
934	31095.340	40909.254	7854.289	0.30	7854.584	934
2323	31099.012	48891.442	8214.850	-0.51	8214.340	2323
935	31111.077	39791.944	8068.515	0.59	8069.106	935
440	31118.905	37915.447	8071.977	0.32	8072.300	440
2324	31118.980	49599.739	8151.574	-2.55	8149.026	2324
441	31122.072	34306.196	7963.092	3.13	7966.219	441
936	31128.530	41701.884	8208.940	1.06	8210.005	936
937	31134.106	29760.133	7049.976	1.24	7051.221	937
2325	31145.977	43005.681	8621.209	-0.01	8621.199	2325
2326	31146.943	48701.556	8211.561	0.73	8212.288	2326
938	31147.990	30329.218	7302.694	2.62	7305.316	938
2327	31156.228	42205.864	8518.299	-0.70	8517.603	2327
939	31158.439	41077.768	7928.152	-0.21	7927.945	939
2328	31160.983	50730.861	8411.493	-2.17	8409.322	2328
940	31164.637	30708.247	7557.778	-1.04	7556.737	940
2329	31174.437	46570.024	8303.246	-1.61	8301.638	2329
442	31174.756	32925.865	7860.238	-0.59	7859.649	442
941	31176.222	40594.556	7955.191	0.55	7955.740	941
443	31180.297	35341.563	7650.859	1.56	7652.415	443
2330	31188.842	50186.114	8306.410	-0.76	8305.650	2330
444	31189.619	31463.935	7838.361	-0.68	7837.678	444
2331	31190.723	49155.697	8120.235	-1.22	8119.015	2331
2332	31191.251	42568.263	8713.625	-0.33	8713.292	2332
445	31195.085	32584.570	7842.298	0.33	7842.631	445
446	31222.404	36230.189	7570.206	-1.84	7568.366	446
942	31222.960	30034.149	7144.615	1.63	7146.242	942
447	31225.660	31759.109	7904.899	0.40	7905.295	447
2333	31234.178	46122.291	8005.796	-1.37	8004.425	2333
448	31234.995	36902.587	7700.568	-1.30	7699.270	448
943	31235.002	39608.767	8001.180	0.62	8001.803	943
2334	31236.108	50409.896	8391.531	-2.11	8389.420	2334
2335	31263.702	46387.964	8248.926	-1.15	8247.780	2335
449	31266.695	33207.092	7903.148	0.91	7904.063	449
450	31268.858	33827.516	8067.856	0.83	8068.686	450
451	31271.710	37167.734	7820.766	-1.82	7818.944	451
2336	31273.549	44724.467	8232.197	-0.69	8231.507	2336
452	31281.215	38275.746	8056.607	-1.82	8054.790	452
2337	31300.199	48331.712	8182.285	0.60	8182.887	2337
453	31305.534	31079.029	7672.659	-0.63	7672.032	453
944	31307.696	41541.121	8131.523	-0.06	8131.464	944

2338	31309.812	41928.345	8416.970	-1.16	8415.813	2338
454	31310.646	34159.809	8007.824	2.33	8010.151	454
2339	31313.243	43760.816	8462.790	0.18	8462.973	2339
1509	31316.526	29282.085	7236.136	-0.33	7235.804	1509
455	31318.797	37586.268	7875.996	-0.05	7875.943	455
945	31323.559	39919.008	8271.410	-0.94	8270.466	945
456	31324.467	39307.395	7830.939	0.03	7830.966	456
2340	31335.311	49473.121	8225.825	-2.08	8223.750	2340
2341	31346.650	42454.546	8706.867	NR2012		2341
2342	31347.453	47707.226	8317.719	-0.93	8316.789	2342
457	31348.320	33514.895	7985.437	0.94	7986.374	457
458	31349.245	35085.029	7744.305	1.41	7745.717	458
946	31349.758	41258.411	8113.113	1.49	8114.599	946
947	31351.113	40895.988	7968.163	1.48	7969.642	947
459	31352.063	36710.407	7601.137	-1.37	7599.764	459
948	31356.534	30474.294	7302.323	1.10	7303.422	948
2343	31358.814	46581.969	8385.499	-0.69	8384.807	2343
2344	31363.895	43934.567	8434.797	-0.55	8434.243	2344
460	31366.399	36548.742	7556.914	-1.83	7555.082	460
2345	31371.499	45864.107	7896.591	-3.14	7893.452	2345
949	31372.272	29535.215	7189.807	2.00	7191.803	949
2346	31378.891	46851.242	8409.714	-1.28	8408.432	2346
461	31382.520	30816.440	7531.172	0.50	7531.672	461
2347	31390.775	49945.963	8366.025	-1.69	8364.331	2347
462	31398.477	37937.581	7962.572	-1.49	7961.079	462
463	31400.889	32234.894	7728.585	0.95	7729.536	463
950	31408.627	40259.798	8211.000	0.24	8211.238	950
2348	31417.808	45525.603	7995.176	-2.33	7992.845	2348
2349	31424.855	48492.921	8072.539	-0.61	8071.926	2349
2350	31428.900	51221.846	8571.695	-1.89	8569.805	2350
2351	31432.547	42246.520	8607.982	-0.33	8607.647	2351
2352	31438.615	47178.581	8392.448	-1.46	8390.985	2352
2353	31448.069	50948.528	8535.698	-0.99	8534.705	2353
951	31450.845	39630.923	8083.907	-0.44	8083.468	951
952	31455.525	30043.399	7085.107	1.09	7086.200	952
953	31460.052	30228.013	7170.464	0.95	7171.418	953
2354	31460.950	50589.362	8492.148	-2.31	8489.835	2354
2355	31461.081	42636.554	8649.322	-0.48	8648.845	2355
2356	31463.956	47446.550	8322.354	0.29	8322.645	2356
464	31466.211	31397.424	7650.651	1.33	7651.980	464
2357	31468.390	46110.342	8041.273	-0.96	8040.310	2357
2358	31474.342	49247.992	8263.145	-0.39	8262.757	2358
2359	31483.471	47912.344	8176.813	-0.27	8176.548	2359
465	31484.683	32885.902	7763.237	3.72	7766.958	465
954	31489.036	39469.989	7986.558	0.34	7986.900	954
2360	31490.674	46347.088	8225.723	-0.56	8225.163	2360
955	31492.624	30613.963	7291.777	2.51	7294.287	955
2361	31505.715	48964.034	8201.364	-0.49	8200.878	2361
956	31505.873	41089.769	8164.925	0.62	8165.544	956
2362	31519.044	48745.172	8147.836	-1.11	8146.725	2362
2363	31529.470	43332.115	8464.877	0.32	8465.202	2363
2364	31535.620	44719.608	8082.811	-1.04	8081.774	2364
2365	31546.287	50222.381	8475.574	-1.54	8474.034	2365
2366	31547.043	47054.798	8378.812	-1.41	8377.401	2366
2367	31560.483	41833.605	8360.536	-0.44	8360.099	2367
467	31565.872	31833.058	7730.855	-1.92	7728.930	467
468	31566.642	35302.241	7765.696	-0.79	7764.906	468

469	31567.195	33151.946	7899.823	1.71	7901.529	469
2368	31573.996	43951.290	8311.615	-0.18	8311.433	2368
470	31578.202	34011.232	8099.914	1.24	8101.152	470
471	31578.550	38205.326	8028.543	-0.80	8027.739	471
957	31582.538	39994.307	8430.903	1.39	8432.295	957
2369	31594.404	44264.335	8265.258	-0.68	8264.574	2369
2370	31595.156	48213.049	8051.786	-0.93	8050.857	2370
2371	31595.537	43658.534	8362.325	0.42	8362.750	2371
472	31597.621	35713.972	7642.516	5.79	7648.309	472
473	31599.065	34338.679	8047.048	3.78	8050.823	473
958	31605.591	39773.829	8287.625	0.69	8288.313	958
1510	31608.525	28998.042	7421.950	0.11	7422.059	1510
2372	31609.149	42232.601	8580.427	-0.55	8579.881	2372
474	31611.514	30856.934	7492.734	0.28	7493.018	474
959	31611.916	41267.702	8317.388	-1.97	8315.415	959
2373	31613.169	51289.250	8674.469	-0.87	8673.597	2373
475	31627.574	37208.687	7696.260	-1.22	7695.044	475
2374	31628.305	46095.300	8039.798	-1.42	8038.380	2374
476	31629.116	33732.788	8063.239	1.59	8064.824	476
2375	31634.923	49514.657	8383.537	-1.49	8382.050	2375
477	31637.759	34935.580	7907.219	2.27	7909.494	477
478	31639.778	34683.474	7955.092	1.95	7957.046	478
2376	31648.669	45811.625	7887.607	-1.81	7885.793	2376
479	31649.982	38459.793	8136.010	-0.19	8135.820	479
480	31652.984	31563.446	7602.833	-1.91	7600.919	480
481	31654.967	36195.286	7556.965	1.86	7558.826	481
482	31655.182	39302.757	7987.932	-1.87	7986.058	482
483	31660.294	36484.406	7579.522	-0.53	7578.993	483
2377	31663.936	44866.364	8009.713	-1.90	8007.810	2377
2378	31686.106	44141.196	8225.877	-0.21	8225.665	2378
484	31686.403	31128.302	7539.869	-1.51	7538.356	484
2379	31688.622	49868.289	8359.641	-0.38	8359.265	2379
485	31689.905	37810.382	7827.857	-0.34	7827.518	485
960	31691.094	40772.660	8162.896	0.04	8162.933	960
2380	31702.716	50695.320	8651.930	-0.35	8651.584	2380
2381	31707.322	45469.142	7867.914	-1.78	7866.131	2381
486	31709.704	37516.945	7685.985	-1.45	7684.538	486
2382	31712.570	46794.212	8196.699	-1.44	8195.263	2382
487	31713.881	32024.489	7592.691	-0.62	7592.070	487
488	31721.348	32326.863	7561.186	1.06	7562.249	488
961	31724.046	29290.726	7343.191	-0.56	7342.633	961
962	31725.491	39614.016	8144.941	-0.01	8144.932	962
489	31727.656	36869.845	7543.940	-2.14	7541.798	489
2383	31728.498	46557.668	8128.506	-1.28	8127.225	2383
2384	31730.566	50516.741	8628.552	-1.75	8626.797	2384
963	31735.102	29608.105	7289.904	2.93	7292.839	963
2385	31747.447	42637.072	8612.206	0.14	8612.345	2385
2386	31747.991	45051.282	7950.596	-2.29	7948.303	2386
964	31755.649	30398.872	7128.171	1.14	7129.310	964
2387	31758.859	48480.582	8203.427	-1.64	8201.783	2387
490	31765.984	32944.707	7802.039	1.01	7803.045	490
491	31772.276	33430.633	7942.881	-0.20	7942.684	491
965	31773.963	40072.810	8520.280	-0.13	8520.150	965
492	31777.701	34076.211	8144.222	0.98	8145.204	492
966	31781.739	41068.626	8268.925	-0.38	8268.543	966
967	31784.995	39847.581	8345.899	0.22	8346.122	967
2388	31798.332	47228.218	8185.754	-0.69	8185.061	2388

2389	31798.657	47879.761	8031.122	-1.76	8029.365	2389
1511	31803.490	28592.982	7712.273	0.10	7712.375	1511
2390	31804.922	46344.860	8025.578	-0.98	8024.595	2390
2391	31805.669	50982.788	8716.850	-1.16	8715.693	2391
2392	31808.279	43398.477	8291.522	-0.03	8291.497	2392
2393	31809.391	45604.323	7883.859	-2.47	7881.390	2393
2394	31825.235	41389.779	8478.296	-2.19	8476.102	2394
2395	31827.613	48840.402	8371.455	-1.48	8369.976	2395
2396	31880.083	49982.528	8479.258	-0.70	8478.557	2396
2397	31880.566	41553.958	8479.011	-1.35	8477.665	2397
493	31882.984	36068.794	7637.534	-1.30	7636.233	493
968	31889.160	30719.160	7224.733	-1.96	7222.771	968
494	31895.218	38042.066	7913.747	-2.54	7911.205	494
2398	31895.617	46052.359	7908.253	-1.17	7907.083	2398
969	31895.719	39664.098	8236.998	-0.48	8236.513	969
495	31902.188	33898.195	8091.204	1.86	8093.065	495
2399	31907.531	43591.562	8203.131	-1.08	8202.054	2399
2400	31908.292	45363.227	7867.153	-1.85	7865.305	2400
2401	31912.047	49496.360	8486.196	-0.79	8485.404	2401
2402	31912.650	48352.232	8249.209	-2.39	8246.820	2402
496	31914.851	38566.015	8307.905	-0.36	8307.542	496
2403	31920.579	50206.061	8553.479	-0.80	8552.677	2403
2404	31920.766	41912.240	8493.705	-0.98	8492.727	2404
497	31921.622	39306.387	8151.592	2.13	8153.717	497
498	31923.698	31367.303	7400.802	0.95	7401.751	498
499	31923.926	35504.733	7834.089	1.78	7835.873	499
2405	31925.522	50608.755	8712.384	-1.15	8711.230	2405
970	31925.575	30501.443	7132.022	0.41	7132.429	970
500	31927.978	37197.327	7570.054	-1.33	7568.728	500
2406	31928.774	48994.676	8422.770	-1.78	8420.989	2406
501	31929.731	34397.138	8129.105	2.34	8131.445	501
2407	31932.269	46948.210	8106.749	-2.10	8104.647	2407
2408	31932.768	42360.218	8681.578	0.03	8681.611	2408
502	31940.606	32711.802	7653.344	-0.54	7652.802	502
503	31959.872	34961.711	7998.977	4.29	8003.271	503
971	31970.788	29594.354	7431.423	0.10	7431.527	971
504	31977.553	37715.161	7748.323	-5.70	7742.623	504
972	31979.864	39843.611	8396.148	-2.01	8394.136	972
2409	31980.628	46174.430	7917.355	-0.28	7917.075	2409
505	31982.594	38272.243	8054.658	-0.11	8054.548	505
2410	31984.479	44020.865	8083.139	-1.00	8082.135	2410
2411	31987.904	46688.893	8042.456	-0.53	8041.922	2411
506	31992.345	33213.199	7827.624	1.61	7829.235	506
507	31993.892	30953.459	7250.085	-3.03	7247.055	507
973	32000.013	30270.592	7221.037	2.07	7223.105	973
508	32000.684	32240.434	7461.694	-1.27	7460.423	508
509	32001.670	37492.855	7672.595	-0.98	7671.616	509
510	32007.421	31776.551	7477.843	0.28	7478.121	510
511	32011.399	36349.738	7734.284	1.34	7735.619	511
512	32015.561	36775.261	7615.228	0.60	7615.825	512
1512	32044.469	28304.229	7417.488	0.77	7418.254	1512
974	32045.391	40134.557	8563.069	-1.09	8561.975	974
975	32051.102	40887.666	8367.910	0.27	8368.176	975
2412	32052.178	48057.827	8219.934	-1.73	8218.204	2412
976	32053.616	40534.063	8410.054	-0.30	8409.758	976
2413	32055.943	45781.693	8026.977	-1.14	8025.835	2413
2414	32057.236	44542.614	7942.845	-3.64	7939.208	2414

2415	32057.674	45100.870	7866.378	-1.68	7864.702	2415
513	32061.367	34182.644	8242.861	0.46	8243.325	513
2416	32069.066	49123.865	8509.969	-1.99	8507.983	2416
1513	32072.207	41195.556	8473.930	-1.31	8472.617	1513
2417	32076.923	41661.014	8555.124	-0.48	8554.643	2417
514	32079.401	33481.282	7924.556	-0.70	7923.856	514
515	32081.559	38972.439	8269.581	0.23	8269.814	515
2418	32093.523	48479.464	8384.493	-1.90	8382.593	2418
2419	32099.571	50419.467	8686.191	-0.41	8685.780	2419
977	32103.873	30083.865	7324.916	0.45	7325.367	977
2420	32116.867	50842.446	8948.415	-1.68	8946.738	2420
2421	32120.163	47388.439	7993.474	-1.66	7991.814	2421
516	32120.340	32417.523	7563.020	0.68	7563.704	516
2422	32120.924	42000.817	8606.125	-0.64	8605.482	2422
2423	32123.028	41452.181	8620.305	-0.16	8620.144	2423
517	32125.445	33740.384	8039.440	-0.20	8039.237	517
518	32137.355	34592.113	8158.673	3.43	8162.100	518
2424	32139.320	44170.616	8029.180	-1.19	8027.988	2424
2425	32157.790	46443.529	7943.572	-0.84	7942.733	2425
2426	32159.194	45534.708	8060.214	-1.99	8058.223	2426
2427	32161.206	42509.014	8622.074	-0.15	8621.922	2427
519	32164.751	34049.121	8140.858	-1.57	8139.290	519
520	32164.814	36395.704	7783.506	-0.43	7783.078	520
978	32166.381	29300.110	7531.260	-0.61	7530.647	978
2428	32167.280	47821.841	8209.258	-1.38	8207.881	2428
979	32168.518	30396.368	7176.942	3.72	7180.663	979
980	32172.224	39954.476	8524.035	-0.76	8523.275	980
1514	32181.370	28516.752	7561.935	0.73	7562.665	1514
981	32185.392	40631.229	8510.298	-0.78	8509.514	981
521	32185.696	39177.760	8322.292	0.11	8322.405	521
2429	32195.808	48230.247	8373.040	-2.52	8370.519	2429
2430	32196.550	48815.387	8510.507	-0.65	8509.855	2430
522	32196.702	34320.273	8253.027	-0.17	8252.860	522
523	32197.245	38699.331	8446.869	-0.93	8445.936	523
524	32207.664	32992.205	7854.602	-0.93	7853.667	524
525	32211.274	35895.741	7783.402	5.64	7789.045	525
526	32214.564	36147.455	7744.323	1.27	7745.596	526
2431	32215.809	44752.146	7832.452	-2.02	7830.431	2431
527	32219.660	39418.016	8360.100	-1.30	8358.802	527
528	32221.735	31524.011	7416.063	-2.19	7413.874	528
529	32224.207	36877.232	7638.823	0.79	7639.615	529
530	32230.014	37966.647	7843.836	0.47	7844.304	530
2432	32231.733	47603.630	8148.793	-2.01	8146.786	2432
531	32236.569	35231.630	8018.157	1.89	8020.047	531
2433	32238.820	42937.363	8455.814	-0.43	8455.384	2433
532	32242.935	33438.943	7948.023	-0.39	7947.633	532
2434	32243.448	49473.720	8657.663	-1.29	8656.374	2434
2435	32251.040	42771.132	8524.262	-0.88	8523.385	2435
2436	32253.869	47195.192	7990.603	-2.53	7988.071	2436
982	32253.979	39752.583	8472.775	-2.50	8470.273	982
1515	32258.430	28781.444	7751.765	-0.53	7751.238	1515
533	32258.897	31034.417	7172.224	-1.04	7171.187	533
983	32260.957	40154.543	8649.031	-0.88	8648.147	983
534	32267.171	37369.917	7653.258	2.06	7655.313	534
2437	32269.620	46919.018	7965.753	-2.86	7962.897	2437
535	32270.687	38328.817	8056.660	-1.15	8055.514	535
2438	32270.693	44131.360	7920.457	-1.61	7918.850	2438

2439	32271.444	47955.630	8354.650	-1.03	8353.615	2439
984	32290.677	29676.617	7587.555	0.37	7587.927	984
985	32290.710	32013.977	7391.880	1.27	7393.145	985
2440	32296.773	45864.421	8175.984	-0.04	8175.946	2440
2441	32299.047	42311.894	8663.184	-0.43	8662.750	2441
536	32299.210	32022.477	7396.634	-0.22	7396.418	536
2442	32300.358	46764.095	7958.008	-2.90	7955.109	2442
537	32305.918	32713.463	7770.095	-1.65	7768.448	537
2443	32312.045	42024.582	8671.335	-0.41	8670.922	2443
1516	32315.141	41023.780	8516.243	-1.20	8515.042	1516
2444	32325.460	49763.664	8687.178	-0.68	8686.499	2444
2445	32329.327	41606.312	8694.631	0.33	8694.959	2445
2446	32332.550	41338.286	8620.454	-1.51	8618.942	2446
1517	32335.927	28169.028	7396.202	1.07	7397.277	1517
2447	32336.634	41813.669	8683.221	-0.82	8682.400	2447
1518	32337.322	27901.537	7262.508	0.63	7263.133	1518
2448	32341.254	45673.451	8224.953	-0.55	8224.400	2448
538	32348.927	34538.813	8272.343	0.79	8273.136	538
2449	32361.818	49090.468	8648.811	-1.73	8647.077	2449
986	32362.347	40449.593	8567.933	-0.01	8567.924	986
987	32366.989	28894.789	7753.381	2.49	7755.875	987
2450	32370.472	45267.016	8106.690	-1.00	8105.685	2450
539	32373.537	37689.721	7697.327	0.98	7698.304	539
540	32375.882	34868.066	8192.053	8.19	8200.239	540
2451	32376.931	47766.915	8341.552	-2.06	8339.489	2451
2452	32382.942	50565.744	8877.245	-0.10	8877.141	2452
2453	32390.598	47342.968	8011.536	-2.70	8008.839	2453
2454	32395.254	50263.749	8763.013	-1.06	8761.950	2454
2455	32405.626	44364.729	7819.276	-1.73	7817.542	2455
2456	32412.377	43146.275	8438.673	-0.64	8438.038	2456
988	32414.885	40002.297	8641.782	-2.65	8639.133	988
541	32422.154	30894.463	7314.860	4.46	7319.320	541
2457	32430.475	42920.486	8471.704	-1.08	8470.623	2457
2458	32433.327	48760.036	8597.646	-1.64	8596.003	2458
2459	32441.251	48216.884	8486.764	-0.63	8486.129	2459
542	32441.839	32931.843	7844.018	-0.41	7843.606	542
1519	32452.824	28432.026	7673.004	0.40	7673.402	1519
543	32453.894	36284.548	7871.826	0.49	7872.321	543
989	32454.860	30668.981	7398.259	0.96	7399.223	989
2460	32455.176	44962.734	7956.737	-1.75	7954.988	2460
990	32463.919	30413.989	7452.204	-0.18	7452.024	990
544	32464.173	34558.443	8349.099	-0.17	8348.930	544
2461	32467.125	48539.539	8572.767	-0.49	8572.278	2461
545	32473.152	31322.460	7199.545	-0.23	7199.311	545
546	32481.482	38826.906	8568.681	-0.70	8567.984	546
991	32497.288	40199.679	8750.270	-2.13	8748.141	991
2462	32499.236	42527.208	8574.852	-0.68	8574.173	2462
992	32504.441	29847.497	7553.603	NR2012		992
547	32505.534	35108.559	8181.836	6.70	8188.532	547
548	32509.748	39054.462	8556.740	-0.71	8556.026	548
549	32512.054	37907.082	7797.541	0.99	7798.536	549
550	32518.598	34106.988	8068.974	-0.89	8068.082	550
551	32519.019	33218.967	7828.429	-2.52	7825.907	551
552	32520.762	35488.705	8028.436	NR2012		552
2463	32521.062	41507.995	8681.642	-0.80	8680.838	2463
553	32521.118	39357.148	8561.826	-2.56	8559.270	553
554	32522.626	37072.640	7745.146	1.58	7746.729	554

555	32522.708	31941.910	7282.509	-0.16	7282.348	555
556	32523.041	35846.149	7944.963	2.79	7947.753	556
557	32525.105	38655.522	8443.443	0.81	8444.253	557
2464	32525.752	47579.161	8127.442	-1.60	8125.837	2464
558	32526.101	31665.311	7246.681	1.12	7247.799	558
993	32527.851	29292.440	7775.444	2.84	7778.287	993
2465	32529.285	47958.140	8357.132	-1.46	8355.668	2465
2466	32529.857	49819.674	8843.783	-0.14	8843.644	2466
559	32534.553	33825.348	7946.332	0.58	7946.908	559
560	32538.638	38335.950	8146.658	-0.16	8146.495	560
2467	32545.028	42223.538	8579.880	-0.90	8578.981	2467
561	32546.614	32440.823	7585.650	-0.85	7584.797	561
562	32557.408	31170.504	7305.302	-3.07	7302.228	562
2468	32557.526	44526.808	7827.325	-2.07	7825.251	2468
994	32584.249	39692.524	8626.347	-2.36	8623.990	994
995	32588.655	29504.156	7759.071	0.56	7759.629	995
563	32589.666	32139.718	7370.595	-0.12	7370.476	563
564	32591.676	33577.554	7865.509	1.26	7866.770	564
2469	32597.736	47116.287	8165.629	-0.91	8164.716	2469
2470	32598.013	43017.643	8440.730	-1.13	8439.604	2470
2471	32601.998	45890.885	8356.929	-0.04	8356.892	2471
2472	32613.136	49099.506	8727.907	-1.26	8726.645	2472
565	32613.669	36682.424	7780.565	-1.83	7778.731	565
2473	32613.870	41940.451	8579.641	0.00	8579.642	2473
2474	32614.055	46217.414	8274.926	-1.77	8273.155	2474
566	32624.355	37480.713	7754.927	1.10	7756.028	566
1520	32626.388	28211.322	7513.116	-1.46	7511.657	1520
2475	32627.973	44716.400	7844.496	-1.66	7842.839	2475
2476	32631.821	50216.919	8973.027	-0.31	8972.716	2476
1521	32632.815	28755.769	7935.972	-0.36	7935.615	1521
1522	32642.554	40712.099	8738.317	-1.65	8736.664	1522
2477	32644.253	48676.305	8577.850	-1.71	8576.141	2477
2478	32645.627	49303.918	8839.537	-1.21	8838.331	2478
2479	32647.575	41233.101	8699.248	-0.14	8699.106	2479
2480	32655.689	45402.003	8222.777	-0.31	8222.472	2480
567	32657.895	34704.796	8411.283	-0.68	8410.603	567
2481	32671.660	46941.426	8194.785	-1.94	8192.848	2481
568	32672.296	32997.926	7761.316	-1.84	7759.478	568
2482	32674.848	41711.476	8590.634	-1.14	8589.497	2482
2483	32687.725	48933.179	8659.547	-1.54	8658.004	2483
996	32688.603	39052.395	8603.459	0.04	8603.499	996
2484	32690.962	46704.040	8186.412	-3.95	8182.465	2484
2485	32691.021	49494.482	8961.454	-1.30	8960.159	2485
569	32696.739	31305.851	7372.935	0.09	7373.022	569
570	32716.427	35282.075	8201.309	NR2012		570
2486	32719.377	44209.528	7802.432	-0.31	7802.123	2486
571	32723.111	38751.564	8450.608	-0.89	8449.722	571
2487	32725.709	48354.143	8472.290	-1.01	8471.278	2487
572	32726.822	31610.687	7333.102	-1.42	7331.685	572
2488	32731.521	40912.736	8722.842	-1.14	8721.701	2488
2489	32732.212	45693.762	8368.794	-0.24	8368.552	2489
2490	32741.961	46129.488	8350.728	0.18	8350.911	2490
573	32744.943	30863.605	7476.621	0.53	7477.151	573
574	32757.664	36173.263	7989.271	0.60	7989.874	574
2491	32765.667	47801.039	8183.541	-2.16	8181.378	2491
2492	32777.363	49656.960	8990.759	-0.60	8990.163	2492
997	32779.095	30238.028	7471.302	0.55	7471.853	997

2493	32796.128	48031.415	8329.172	-2.12	8327.052	2493
998	32803.896	29864.802	7548.701	-0.69	7548.007	998
575	32804.019	34426.485	8185.633	-1.45	8184.187	575
576	32804.235	37818.030	7752.983	1.23	7754.216	576
577	32807.137	39374.857	8746.900	-2.12	8744.776	577
999	32812.017	29093.808	7957.624	0.18	7957.807	999
2494	32814.158	47535.251	8183.003	-0.54	8182.465	2494
578	32814.530	31890.017	7407.095	-0.86	7406.237	578
579	32815.524	36458.364	7891.239	0.63	7891.873	579
580	32815.985	38523.671	8217.860	2.85	8220.709	580
2495	32819.696	47059.737	8331.923	-0.59	8331.338	2495
2496	32820.054	42775.055	8450.299	-1.00	8449.301	2496
581	32820.966	34879.555	8437.122	-0.21	8436.914	581
582	32824.271	33189.682	7731.944	-1.44	7730.506	582
583	32825.684	32673.211	7614.202	-2.01	7612.193	583
2497	32832.901	45922.892	8439.448	0.21	8439.662	2497
1523	32834.579	28533.926	7783.582	0.22	7783.807	1523
1524	32835.033	40424.455	8810.590	-3.38	8807.212	1524
2498	32835.988	49896.122	9018.031	-0.52	9017.511	2498
584	32839.571	34052.214	8007.669	-1.02	8006.650	584
585	32839.625	37275.725	7852.265	4.48	7856.742	585
2499	32840.457	42395.150	8445.172	-0.92	8444.253	2499
2500	32843.407	41440.262	8599.184	-0.07	8599.112	2500
1000	32843.611	40080.548	8849.815	-1.02	8848.796	1000
586	32849.098	35905.918	8097.701	0.31	8098.014	586
2501	32851.525	45040.303	7949.195	-0.53	7948.664	2501
2502	32856.958	44374.330	7810.243	-1.56	7808.688	2502
587	32867.469	32138.878	7324.190	-0.99	7323.200	587
2503	32868.018	42140.637	8452.259	-0.92	8451.344	2503
2504	32868.769	40978.520	8709.109	-0.51	8708.600	2504
1001	32878.543	30483.932	7614.390	-0.86	7613.526	1001
588	32888.929	38068.075	7913.490	0.15	7913.636	588
1002	32894.686	39793.117	8821.175	-4.17	8817.007	1002
2505	32897.496	48830.807	8584.339	-1.50	8582.843	2505
1003	32900.744	39530.437	8791.799	-2.19	8789.605	1003
589	32911.092	32357.355	7390.975	2.41	7393.387	589
590	32912.631	33468.954	7808.821	-0.85	7807.966	590
2506	32914.165	41557.164	8538.999	-0.40	8538.599	2506
2507	32917.703	48456.301	8458.804	-1.53	8457.272	2507
591	32918.016	35499.356	8222.796	1.70	8224.498	591
592	32918.223	39015.587	8539.331	-1.39	8537.938	592
593	32920.528	36917.206	7921.538	-1.03	7920.504	593
2508	32946.656	45369.804	8086.865	0.15	8087.014	2508
2509	32948.389	49125.147	8675.994	-0.36	8675.632	2509
2510	32953.964	41129.686	8664.245	-1.56	8662.690	2510
1525	32971.426	40888.332	8707.219	-0.66	8706.557	1525
1004	32976.171	38341.959	8037.664	-0.24	8037.427	1004
1005	32976.967	28918.643	8007.310	0.95	8008.262	1005
2511	32992.428	47489.301	8307.342	-0.15	8307.190	2511
594	32993.888	31030.761	7527.735	-0.03	7527.701	594
595	32995.215	39341.298	8668.416	-1.34	8667.076	595
2512	32998.754	44731.139	7940.848	-1.10	7939.750	2512
596	33000.958	34401.740	8104.546	0.59	8105.134	596
2513	33006.152	42110.026	8396.522	-0.28	8396.239	2513
597	33006.769	33089.467	7716.882	0.17	7717.050	597
1006	33013.570	38896.885	8401.275	0.25	8401.528	1006
1007	33024.146	30134.565	7594.823	2.29	7597.111	1007

2514	33034.733	46718.744	8412.932	-0.82	8412.112	2514
2515	33045.769	45950.652	8340.443	0.56	8341.003	2515
2516	33047.118	48088.883	8285.184	-1.84	8283.344	2516
598	33050.724	33247.281	7723.856	-0.87	7722.990	598
599	33051.661	36734.106	7971.511	0.50	7972.012	599
600	33054.426	31436.713	7504.044	-0.59	7503.457	600
2517	33054.577	42371.883	8371.431	-0.55	8370.880	2517
2518	33056.794	46321.389	8477.660	-1.75	8475.911	2518
2519	33058.080	43086.272	8332.573	-0.09	8332.481	2519
1526	33066.902	28467.462	7694.468	0.90	7695.372	1526
2520	33078.998	42843.602	8407.430	-0.49	8406.936	2520
2521	33085.693	49332.757	8696.448	-0.83	8695.615	2521
2522	33088.728	45168.799	7922.573	-0.56	7922.018	2522
601	33096.741	35142.632	8485.836	0.32	8486.156	601
602	33097.590	36201.142	8109.308	0.17	8109.479	602
2523	33102.236	42575.882	8356.157	-0.72	8355.437	2523
1008	33102.357	39095.010	8488.219	-0.88	8487.340	1008
1009	33110.525	29944.647	7610.494	0.64	7611.133	1009
2524	33116.919	47747.238	8305.967	-2.40	8303.568	2524
603	33117.499	37628.832	7880.720	-0.03	7880.685	603
604	33124.502	30823.225	7640.605	-1.26	7639.347	604
2525	33124.692	48864.614	8543.042	-0.16	8542.877	2525
605	33126.115	31756.836	7456.704	-0.64	7456.059	605
606	33127.147	34643.703	8173.391	-0.67	8172.721	606
607	33129.132	38721.245	8212.485	-1.15	8211.335	607
2526	33134.048	41215.194	8565.968	-0.45	8565.520	2526
608	33136.248	32820.180	7627.722	-4.98	7622.739	608
1010	33140.677	39618.257	8788.597	-3.50	8785.098	1010
2527	33147.284	45594.750	8136.144	-0.13	8136.011	2527
2528	33148.568	44347.617	7791.402	-3.49	7787.908	2528
1011	33152.156	30256.117	7707.143	1.92	7709.063	1011
2529	33157.088	49649.202	8820.010	-1.84	8818.167	2529
2530	33169.973	48646.721	8451.238	-2.06	8449.182	2530
2531	33170.363	47049.767	8466.190	-3.00	8463.188	2531
609	33171.458	33755.528	7812.751	-2.71	7810.045	609
1012	33173.162	29115.521	8010.012	0.57	8010.581	1012
610	33174.168	31953.024	7462.291	0.92	7463.211	610
2532	33178.517	46598.523	8479.138	-2.62	8476.515	2532
1527	33179.155	40787.084	8620.907	-3.05	8617.861	1527
1013	33185.521	28785.800	7841.311	-1.09	7840.225	1013
1528	33185.906	40272.996	8795.649	-3.46	8792.189	1528
2533	33198.906	48334.769	8331.235	-1.04	8330.192	2533
2534	33209.454	44113.527	7781.743	-1.48	7780.259	2534
2535	33209.956	42225.518	8256.897	-0.85	8256.044	2535
2536	33213.755	41898.000	8351.122	-0.61	8350.509	2536
2537	33214.095	41721.847	8387.079	-0.82	8386.264	2537
2538	33216.809	40956.426	8553.754	1.01	8554.764	2538
611	33220.027	38460.570	8077.736	-0.35	8077.388	611
2539	33222.252	41341.614	8496.944	-0.47	8496.474	2539
612	33223.304	37124.869	8038.336	-1.06	8037.279	612
1014	33224.797	30497.599	7864.098	0.48	7864.577	1014
613	33232.112	35757.843	8401.095	1.42	8402.517	613
614	33232.183	31159.930	7658.910	1.04	7659.954	614
2540	33233.607	46844.267	8539.971	-0.99	8538.985	2540
1015	33234.806	29380.080	7908.922	-0.05	7908.868	1015
615	33243.105	37942.047	7867.315	-0.07	7867.245	615
616	33251.120	36512.625	8087.323	0.67	8087.996	616

617	33256.429	32340.642	7437.841	1.61	7439.451	617
1529	33257.733	39898.990	8848.276	-3.39	8844.890	1529
2541	33262.871	45358.604	7951.341	-0.51	7950.836	2541
618	33267.969	34061.066	7894.510	-3.24	7891.270	618
619	33276.977	38199.096	8007.993	-0.55	8007.441	619
2542	33278.590	48501.860	8359.883	-1.56	8358.324	2542
2543	33289.346	48880.642	8504.377	-1.95	8502.429	2543
2544	33289.673	46205.667	8363.927	-0.87	8363.054	2544
620	33291.102	33487.354	7700.268	-1.28	7698.988	620
1016	33312.009	38872.257	8394.546	-0.35	8394.196	1016
2545	33316.223	44803.929	8009.027	-0.61	8008.413	2545
621	33329.177	34870.929	8243.969	-0.76	8243.205	621
622	33329.361	39398.654	8684.179	-3.88	8680.297	622
1017	33329.562	29166.142	8015.815	0.29	8016.101	1017
2546	33338.741	44501.471	7827.235	-1.56	7825.673	2546
2547	33345.453	42610.933	8217.395	-0.17	8217.224	2547
2548	33345.461	42377.003	8178.221	-0.12	8178.104	2548
623	33349.131	39067.948	8547.168	-1.30	8545.870	623
624	33354.483	30941.122	7797.377	2.35	7799.723	624
2549	33380.781	41994.456	8219.353	1.18	8220.529	2549
2550	33381.709	48982.077	8518.282	-1.24	8517.039	2550
625	33393.612	32723.574	7439.988	-1.26	7438.724	625
2551	33395.194	45968.406	8235.415	-2.19	8233.221	2551
2552	33398.099	47386.244	8500.759	-1.89	8498.867	2552
626	33404.587	34367.182	7945.293	2.82	7948.115	626
627	33410.717	36183.887	8357.465	0.28	8357.741	627
2553	33419.404	49340.538	8619.506	-1.29	8618.220	2553
2554	33419.692	42985.634	8208.288	-0.50	8207.789	2554
2555	33420.305	41643.798	8290.887	-0.35	8290.537	2555
628	33424.488	33112.065	7650.507	-3.64	7646.862	628
629	33428.365	31388.573	7746.124	-2.53	7743.597	629
1018	33432.037	30034.324	7874.425	0.93	7875.359	1018
1019	33442.156	28942.603	7926.878	0.90	7927.777	1019
630	33445.236	34689.000	8097.831	-0.06	8097.772	630
2556	33459.684	43209.408	8149.768	-1.23	8148.538	2556
2557	33460.958	41849.171	8187.784	0.36	8188.139	2557
631	33470.504	35403.487	8607.472	-0.75	8606.726	631
2558	33477.909	47697.188	8493.103	-1.42	8491.683	2558
1020	33480.762	28676.901	7731.600	1.53	7733.131	1020
2559	33487.923	47199.181	8553.868	-2.01	8551.854	2559
2560	33493.288	43670.789	7926.717	0.08	7926.796	2560
1021	33497.027	30318.225	7986.827	0.75	7987.577	1021
632	33500.433	35106.884	8405.800	-1.71	8404.086	632
2561	33501.123	44878.863	8110.923	-0.77	8110.153	2561
633	33504.043	38027.850	8004.578	0.65	8005.233	633
1022	33510.701	29645.469	7890.599	1.07	7891.674	1022
2562	33513.747	44225.544	7776.258	-2.26	7773.995	2562
634	33516.843	31841.419	7687.559	0.52	7688.078	634
2563	33518.149	47992.617	8500.669	-2.23	8498.444	2563
2564	33527.521	48213.452	8504.168	-3.07	8501.101	2564
2565	33527.811	43509.971	8011.054	-0.43	8010.626	2565
635	33528.225	36747.915	8323.958	0.95	8324.913	635
1023	33531.628	39378.143	8751.313	-4.25	8747.060	1023
636	33531.791	37129.595	8233.662	3.75	8237.412	636
637	33533.825	38853.960	8449.982	-1.58	8448.400	637
638	33533.866	31215.942	7813.073	-0.14	7812.936	638
2566	33535.852	46988.506	8536.744	-1.32	8535.421	2566

639	33547.601	38313.139	8209.695	0.02	8209.713	639
2567	33547.741	42709.954	8109.973	0.05	8110.019	2567
2568	33550.080	48425.773	8490.352	-1.99	8488.362	2568
640	33550.190	37437.041	8122.475	0.18	8122.656	640
641	33555.565	38571.644	8404.816	-1.43	8403.390	641
642	33555.684	39067.592	8618.989	-2.81	8616.178	642
2569	33556.584	45591.681	7952.243	-2.74	7949.507	2569
2570	33562.210	42103.491	8098.733	-0.07	8098.661	2570
643	33575.730	37684.694	8079.957	1.71	8081.664	643
1530	33576.820	40424.591	8720.709	-2.85	8717.855	1530
644	33580.888	33749.119	7691.351	0.36	7691.714	644
2571	33582.098	46475.963	8331.053	-1.71	8329.342	2571
645	33585.902	36398.640	8360.738	-0.46	8360.275	645
2572	33591.774	42324.822	8033.642	-0.42	8033.220	2572
1531	33598.946	40062.552	8753.728	-2.94	8750.785	1531
646	33601.098	36105.073	8468.777	3.74	8472.518	646
647	33604.098	32394.654	7446.920	0.17	7447.088	647
1532	33608.070	39700.803	8765.022	-3.72	8761.302	1532
648	33609.251	31555.354	7742.801	0.19	7742.991	648
1024	33611.154	30662.183	7962.552	0.46	7963.009	1024
1025	33619.422	30401.531	8032.855	2.21	8035.067	1025
2573	33621.867	43978.945	7766.807	-1.18	7765.623	2573
2574	33633.220	46211.128	8232.731	-2.35	8230.381	2574
649	33635.396	32994.070	7446.555	-2.98	7443.573	649
2575	33636.301	45838.245	8023.632	-0.66	8022.973	2575
2576	33643.860	47409.491	8600.637	-0.89	8599.746	2576
2577	33644.658	47227.340	8561.505	-1.62	8559.889	2577
2578	33645.150	48850.614	8504.736	-1.95	8502.791	2578
650	33662.749	33174.039	7542.630	-0.63	7542.005	650
651	33673.652	34067.265	7796.425	-2.55	7793.872	651
1026	33688.980	30103.641	8013.943	1.48	8015.420	1026
652	33689.978	34738.430	8115.761	0.60	8116.359	652
2579	33691.643	42929.935	8039.400	-0.11	8039.290	2579
1027	33696.464	29847.968	7948.053	0.23	7948.283	1027
1028	33696.766	29254.227	8081.332	0.46	8081.793	1028
653	33705.197	34346.572	7886.183	-1.07	7885.115	653
2580	33712.608	44433.631	7869.508	0.19	7869.702	2580
2581	33719.979	49307.638	8619.715	-1.13	8618.582	2581
2582	33720.176	44940.818	8266.570	-0.18	8266.389	2582
1029	33721.943	28856.052	7919.552	0.06	7919.607	1029
2583	33734.658	47737.197	8595.763	-2.66	8593.106	2583
654	33750.160	33516.788	7599.569	-1.32	7598.252	654
2584	33756.291	42543.806	7927.590	-0.73	7926.857	2584
2585	33758.002	43079.477	8022.599	-0.80	8021.803	2585
655	33758.471	39281.591	8743.463	-3.67	8739.788	655
2586	33766.827	43369.569	7893.388	-0.54	7892.844	2586
656	33772.494	32058.008	7651.213	4.74	7655.954	656
657	33782.418	32616.058	7613.484	-0.69	7612.799	657
658	33784.577	31390.905	7826.938	2.36	7829.301	658
659	33789.358	35662.623	8682.458	-1.27	8681.192	659
2587	33793.323	44695.869	8112.891	-0.38	8112.509	2587
1030	33798.272	29534.129	8058.417	1.30	8059.712	1030
2588	33798.791	47511.650	8607.439	-2.32	8605.119	2588
2589	33800.644	46743.243	8346.464	-1.78	8344.688	2589
660	33807.090	33028.884	7577.871	0.50	7578.372	660
661	33817.295	30943.926	7991.133	-0.61	7990.527	661
662	33823.960	37752.265	8241.377	-0.03	8241.348	662

1031	33829.871	30275.265	8121.545	1.39	8122.936	1031
2590	33833.935	44002.004	7771.935	-1.26	7770.676	2590
663	33834.136	38092.267	8176.615	0.20	8176.810	663
664	33846.521	38870.511	8652.636	-2.93	8649.710	664
665	33852.496	37349.642	8298.142	0.20	8298.339	665
2591	33869.657	46423.359	8242.201	-2.03	8240.168	2591
666	33879.901	38257.491	8278.736	-0.74	8277.993	666
667	33879.953	33824.602	7656.838	-3.07	7653.772	667
1533	33884.741	40650.887	8674.985	-2.32	8672.665	1533
2592	33885.091	43684.771	7753.213	-1.35	7751.867	2592
668	33894.206	31833.803	7696.420	0.87	7697.291	668
2593	33894.889	47008.814	8424.488	-1.62	8422.866	2593
2594	33898.476	47784.315	8630.270	-1.55	8628.724	2594
669	33901.757	36994.624	8528.762	0.38	8529.141	669
670	33902.509	36282.251	8566.977	-1.17	8565.812	670
2595	33903.130	44190.585	7811.584	-0.71	7810.878	2595
1032	33908.461	30527.150	8107.638	2.52	8110.160	1032
671	33916.887	34983.706	8222.150	-8.76	8213.394	671
1534	33917.180	39578.837	8732.278	-3.97	8728.311	1534
672	33924.234	38530.925	8514.631	-1.55	8513.082	672
1033	33926.853	29814.958	8055.839	2.97	8058.812	1033
2596	33935.192	42804.948	7866.908	-0.20	7866.704	2596
2597	33944.366	47974.960	8643.160	-1.22	8641.945	2597
673	33948.719	33236.972	7608.392	-2.26	7606.132	673
674	33952.258	34754.504	8094.243	-2.26	8091.979	674
2598	33953.174	46172.864	8062.961	-0.78	8062.183	2598
675	33954.203	36521.756	8613.848	0.00	8613.847	675
2599	33955.583	47283.714	8520.186	-2.29	8517.900	2599
2600	33958.539	45034.858	8327.132	-1.66	8325.476	2600
1034	33959.253	28966.406	8008.462	-0.75	8007.710	1034
1535	33961.485	41419.152	8442.558	0.07	8442.631	1535
676	33966.907	32703.492	7687.079	0.15	7687.229	676
677	33974.734	34120.033	7758.656	-0.15	7758.508	677
2601	33977.416	45763.299	8113.087	-1.54	8111.543	2601
1035	33988.009	29261.149	8099.706	0.86	8100.562	1035
678	33990.379	35308.519	8458.168	0.71	8458.880	678
679	33990.465	32284.859	7527.653	-2.62	7525.034	679
680	33990.640	34441.621	7936.818	-1.38	7935.443	680
1036	33994.642	30127.794	8152.496	2.86	8155.360	1036
681	33998.708	31185.593	7906.358	NR2012		681
682	34006.062	35832.812	8770.058	-0.76	8769.297	682
683	34007.451	36822.877	8588.552	-1.09	8587.460	683
1037	34019.093	29661.156	8117.631	4.10	8121.731	1037
684	34021.119	30740.143	8093.526	1.81	8095.334	684
1536	34027.559	39940.487	8690.867	-4.08	8686.787	1536
2602	34031.475	44458.108	8016.062	-1.06	8014.998	2602
2603	34041.015	45280.289	8302.340	-1.76	8300.584	2603
685	34044.351	31614.027	7751.292	-1.63	7749.659	685
2604	34049.481	43707.946	7748.115	0.21	7748.322	2604
1537	34053.728	40254.120	8673.377	-4.50	8668.879	1537
2605	34055.673	48238.311	8698.182	-1.06	8697.124	2605
2606	34058.893	43436.612	7728.529	-0.70	7727.830	2606
2607	34060.623	45861.030	8139.989	-1.32	8138.670	2607
2608	34062.015	47466.119	8528.269	-1.31	8526.963	2608
1538	34070.364	40860.135	8646.005	-2.06	8643.941	1538
1038	34073.211	38766.596	8603.016	-2.58	8600.440	1038
686	34080.027	32616.948	7687.243	-0.62	7686.623	686

2609	34089.464	43051.579	7824.019	-0.10	7823.918	2609
2610	34089.737	48826.557	8707.154	-1.22	8705.938	2610
687	34092.635	32052.022	7648.916	-5.81	7643.104	687
1039	34092.823	38372.549	8394.971	-1.67	8393.304	1039
2611	34099.283	46884.059	8324.840	-0.57	8324.267	2611
2612	34121.632	43865.439	7775.393	-0.03	7775.363	2612
1040	34129.686	29973.471	8205.121	1.23	8206.346	1040
2613	34135.688	48432.548	8751.231	-2.61	8748.620	2613
688	34139.917	33441.432	7685.061	-2.68	7682.380	688
689	34156.213	32368.774	7661.879	-0.35	7661.530	689
1539	34156.223	41149.336	8571.849	-0.20	8571.649	1539
1540	34162.129	39073.118	8717.611	-3.67	8713.940	1540
1541	34166.996	39396.517	8712.474	-3.81	8708.661	1541
2614	34167.558	47742.382	8548.023	-1.67	8546.356	2614
2615	34168.506	48660.759	8771.805	-1.15	8770.656	2615
2616	34176.812	44638.936	8252.124	-0.84	8251.285	2616
1542	34182.997	41592.390	8430.754	-0.62	8430.132	1542
2617	34184.537	45068.411	8403.587	-0.84	8402.748	2617
1543	34184.584	41990.033	8324.207	-0.02	8324.188	1543
2618	34197.459	46659.488	8280.535	-2.73	8277.807	2618
690	34198.141	34785.779	8122.612	-2.99	8119.617	690
2619	34202.635	43484.552	7735.215	-1.32	7733.899	2619
2620	34206.258	46365.150	8096.076	-1.27	8094.808	2620
691	34213.395	33589.615	7712.218	-1.47	7710.746	691
1041	34229.063	37179.809	8578.526	-0.24	8578.284	1041
1042	34230.465	38462.974	8492.362	-1.50	8490.865	1042
1043	34232.570	30288.281	8272.682	2.85	8275.533	1043
2621	34242.938	47006.883	8318.205	-0.89	8317.319	2621
692	34244.444	33077.281	7703.073	1.25	7704.322	692
1044	34251.116	29466.865	8151.103	0.64	8151.744	1044
2622	34254.407	44289.975	7969.616	-0.65	7968.962	2622
693	34259.261	35932.084	8815.462	-0.18	8815.280	693
694	34264.223	35596.531	8651.366	-2.40	8648.968	694
1045	34266.081	29155.411	8051.348	1.20	8052.545	1045
2623	34272.072	47980.049	8574.202	-3.73	8570.467	2623
2624	34283.103	47554.082	8437.336	-1.60	8435.735	2624
2625	34286.213	43965.281	7858.329	0.78	7859.114	2625
2626	34293.360	42440.196	8042.937	0.44	8043.376	2626
1046	34297.961	36949.498	8689.483	0.25	8689.730	1046
2627	34298.049	45707.850	8296.278	-2.58	8293.697	2627
1047	34301.018	37708.080	8581.841	-2.11	8579.733	1047
695	34302.866	33927.928	7728.463	-2.20	7726.263	695
2628	34312.888	42625.529	7942.217	-0.22	7942.000	2628
696	34314.557	32157.117	7658.351	0.88	7659.227	696
697	34316.823	36715.951	8743.853	0.09	8743.944	697
698	34319.644	34174.598	7784.960	-2.21	7782.752	698
699	34325.777	31752.493	7753.795	0.23	7754.023	699
2629	34327.041	42096.292	8190.695	2.67	8193.367	2629
700	34327.275	35305.690	8516.411	-3.94	8512.466	700
701	34328.763	34999.666	8259.791	-1.74	8258.050	701
2630	34338.835	43606.977	7766.345	0.30	7766.650	2630
702	34338.861	34416.826	7915.495	-1.82	7913.672	702
2631	34340.367	47264.124	8342.574	-1.93	8340.640	2631
703	34343.996	32573.635	7783.112	-4.60	7778.509	703
704	34348.011	36309.657	8789.908	-0.82	8789.090	704
1544	34359.266	39802.643	8641.887	-3.42	8638.472	1544
1545	34359.928	41338.120	8438.911	-0.61	8438.304	1545

1546	34368.502	40591.681	8591.222	-2.81	8588.415	1546
2632	34376.446	44869.441	8399.576	-1.72	8397.854	2632
1048	34384.352	29775.867	8323.013	0.01	8323.023	1048
2633	34388.733	46972.578	8303.788	-1.94	8301.853	2633
2634	34404.342	45548.131	8337.809	-1.40	8336.411	2634
705	34411.106	33349.135	7816.706	1.08	7817.785	705
2635	34414.688	46608.014	8212.313	-0.48	8211.833	2635
2636	34417.927	47687.213	8415.109	-1.06	8414.045	2636
2637	34433.857	43163.212	7726.389	-0.12	7726.268	2637
1049	34439.682	38231.790	8546.665	-2.79	8543.872	1049
1547	34448.508	38807.386	8667.860	-3.12	8664.736	1547
1548	34463.252	40240.236	8557.771	-2.95	8554.824	1548
1549	34482.183	40966.856	8440.440	-0.03	8440.407	1549
1050	34482.360	37394.863	8698.789	-1.21	8697.579	1050
2638	34485.109	43386.456	7735.057	0.23	7735.282	2638
2639	34487.880	44507.445	8208.483	-0.86	8207.621	2639
1051	34497.720	37083.737	8702.493	-0.15	8702.348	1051
1550	34497.961	39104.723	8677.764	-3.91	8673.853	1550
1052	34499.283	37927.097	8595.923	-0.07	8595.852	1052
2640	34504.853	43665.766	7823.691	1.49	7825.180	2640
1053	34508.018	37623.303	8693.755	-1.25	8692.507	1053
1551	34508.081	41555.351	8394.598	-1.24	8393.355	1551
1054	34514.115	29399.489	8136.301	1.58	8137.883	1054
2641	34518.174	42878.178	7742.326	-0.49	7741.832	2641
2642	34523.242	45104.314	8512.284	-2.36	8509.925	2642
706	34525.048	32870.274	7883.782	0.55	7884.336	706
2643	34525.470	48303.648	8577.490	-1.05	8576.443	2643
707	34537.366	34497.614	7926.540	-1.59	7924.946	707
1552	34542.543	39509.494	8652.319	-3.58	8648.738	1552
708	34546.183	31498.762	7874.792	-0.03	7874.760	708
2644	34551.939	46279.737	8204.833	-4.30	8200.535	2644
709	34562.147	35878.136	8803.082	-0.48	8802.607	709
710	34563.944	34766.174	8064.425	-1.29	8063.134	710
711	34565.635	36735.525	8729.685	-1.44	8728.248	711
2645	34566.563	44134.930	8103.321	1.28	8104.597	2645
712	34577.890	31890.251	7739.725	0.72	7740.446	712
713	34579.616	34124.061	7815.350	-0.96	7814.391	713
2646	34579.736	47354.810	8288.376	-0.96	8287.414	2646
714	34580.487	35334.072	8533.289	-0.67	8532.622	714
2647	34586.378	47728.298	8410.977	-0.74	8410.239	2647
715	34587.594	32551.084	7788.486	0.93	7789.419	715
2648	34589.646	48030.844	8508.906	-1.58	8507.328	2648
716	34594.903	33838.369	7857.110	-1.02	7856.092	716
1553	34599.078	38558.541	8659.600	-3.07	8656.526	1553
1554	34608.540	41259.834	8349.030	0.34	8349.367	1554
717	34614.170	32043.899	7804.484	1.18	7805.663	717
2649	34620.663	46820.255	8195.333	-2.53	8192.802	2649
1055	34622.752	29763.736	8383.089	2.25	8385.339	1055
2650	34649.480	43848.822	7984.492	0.65	7985.147	2650
718	34650.699	35543.950	8662.517	1.05	8663.571	718
2651	34658.899	45497.714	8492.137	-1.18	8490.955	2651
2652	34661.798	44726.822	8381.118	-2.05	8379.067	2652
719	34665.964	33267.195	7918.652	0.84	7919.491	719
720	34670.535	36400.896	8756.059	-1.49	8754.570	720
1555	34673.105	40600.780	8561.261	-2.29	8558.970	1555
2653	34682.034	43001.845	7715.664	-0.33	7715.331	2653
721	34685.821	35029.838	8292.347	-1.71	8290.636	721

1056	34686.148	37944.852	8677.081	-0.57	8676.509	1056
2654	34687.542	47006.370	8215.148	-1.74	8213.404	2654
1556	34703.317	41693.585	8232.875	1.11	8233.990	1556
1557	34711.067	42719.930	7752.022	0.02	7752.047	1557
2655	34718.006	47449.244	8283.098	-1.30	8281.795	2655
2656	34727.518	47186.505	8237.647	-1.65	8236.000	2656
722	34727.677	33566.917	7912.745	1.29	7914.036	722
723	34735.899	31273.167	7991.214	2.63	7993.844	723
1558	34737.176	38862.799	8598.613	-1.43	8597.180	1558
1559	34742.868	40216.735	8448.401	-3.61	8444.794	1559
2657	34753.022	44325.192	8320.225	-2.09	8318.134	2657
2658	34754.877	43399.520	7788.539	-0.26	7788.283	2658
1057	34756.709	30052.741	8562.211	0.68	8562.886	1057
724	34758.771	32007.251	7871.302	-4.54	7866.759	724
2659	34763.565	48001.352	8437.065	-1.51	8435.553	2659
725	34764.307	32308.927	7829.295	-0.60	7828.695	725
1058	34768.869	29527.582	8174.940	0.31	8175.248	1058
1560	34772.949	39940.520	8482.596	-3.43	8479.167	1560
2660	34780.859	45058.583	8543.711	-1.70	8542.006	2660
1561	34785.448	41063.737	8347.658	-0.69	8346.963	1561
726	34791.439	32909.773	7973.991	-1.28	7972.707	726
1059	34803.735	37161.511	8684.250	-1.83	8682.425	1059
2661	34813.246	43103.935	7713.609	-1.16	7712.446	2661
1562	34817.860	39151.256	8527.357	-3.47	8523.888	1562
2662	34824.499	43946.373	8159.692	0.70	8160.397	2662
727	34832.276	34491.560	8096.929	-1.55	8095.384	727
728	34840.931	31131.306	8053.219	NR2012		728
729	34842.675	31777.094	7866.774	-0.26	7866.517	729
730	34849.298	36747.207	8693.849	-0.98	8692.870	730
1060	34850.369	37463.109	8732.787	-2.18	8730.602	1060
1563	34852.530	38317.731	8715.343	-2.61	8712.732	1563
1061	34855.902	37756.061	8752.193	-1.18	8751.008	1061
2663	34862.144	42909.200	7700.054	0.55	7700.608	2663
1564	34862.986	41456.455	8152.249	-0.53	8151.723	1564
2664	34866.693	45357.932	8564.853	-2.37	8562.487	2664
731	34880.244	36161.460	8754.928	-0.54	8754.389	731
732	34884.869	35257.609	8563.735	-0.58	8563.157	732
1565	34886.322	41705.174	8116.564	0.85	8117.410	1565
733	34891.272	35828.925	8797.499	0.04	8797.538	733
1062	34891.860	36941.103	8666.658	-2.04	8664.616	1062
734	34897.369	33171.472	8043.976	1.46	8045.440	734
2665	34899.286	44553.651	8448.737	-1.37	8447.367	2665
735	34900.109	35591.601	8760.148	-0.87	8759.279	735
1063	34904.715	29706.113	8292.857	0.76	8293.613	1063
736	34906.285	34819.351	8363.468	-1.99	8361.482	736
2666	34938.950	43693.590	8040.592	1.44	8042.030	2666
1566	34939.555	39592.807	8482.066	-2.97	8479.092	1566
737	34940.802	32602.684	7892.197	1.23	7893.428	737
2667	34945.356	44829.128	8506.041	-2.51	8503.529	2667
738	34948.109	33755.514	8008.656	-0.43	8008.225	738
2668	34950.356	43473.942	7911.899	1.53	7913.432	2668
1567	34958.943	40426.691	8432.715	-1.02	8431.694	1567
739	34967.610	34062.711	8040.893	-0.06	8040.834	739
1568	34971.853	42421.006	7777.629	0.20	7777.827	1568
2669	34972.590	47470.215	8265.002	-0.49	8264.516	2669
1569	34989.451	41923.363	7993.194	1.15	7994.341	1569
2670	34991.456	43200.606	7766.784	0.71	7767.491	2670

1570	35014.187	41586.549	8054.683	0.65	8055.334	1570
2671	35019.013	45835.432	8512.616	-1.60	8511.013	2671
1571	35020.145	38757.629	8547.607	-3.25	8544.355	1571
1064	35023.200	37273.870	8681.993	-1.62	8680.373	1064
2672	35039.323	45580.995	8546.727	-2.06	8544.665	2672
1572	35043.906	40783.272	8403.970	-0.64	8403.330	1572
1065	35052.255	37544.211	8731.092	-2.24	8728.851	1065
2673	35057.968	45103.822	8516.989	-1.63	8515.363	2673
740	35063.718	32289.411	8000.524	0.06	8000.588	740
1573	35068.284	42769.408	7690.589	-0.38	7690.212	1573
741	35069.048	32879.461	8036.263	0.33	8036.591	741
742	35081.636	31939.594	8010.011	-1.42	8008.589	742
1574	35083.533	39090.751	8465.312	-1.37	8463.939	1574
1575	35085.678	40067.532	8404.755	-0.83	8403.929	1575
743	35098.075	30701.067	8272.936	NR2012		743
744	35098.921	31308.831	7996.749	NR2012		744
1576	35100.262	42178.199	7834.961	0.68	7835.636	1576
745	35103.030	31678.936	7955.165	2.15	7957.312	745
2674	35108.850	42962.785	7710.362	1.60	7711.966	2674
746	35110.664	36449.959	8691.105	-0.29	8690.817	746
1577	35121.932	38011.442	8728.378	-1.64	8726.738	1577
1066	35130.009	30092.481	8619.583	1.64	8621.224	1066
2675	35132.626	47027.965	8388.899	-1.38	8387.523	2675
2676	35141.522	45852.101	8538.644	-2.68	8535.965	2676
1578	35146.546	43167.355	7803.611	-0.73	7802.883	1578
2677	35146.546	43167.355	7803.790	NR2012		2677
747	35149.098	33545.571	8139.637	1.20	8140.842	747
2678	35150.518	43551.518	8085.455	0.74	8086.198	2678
748	35161.900	35064.344	8609.145	-1.57	8607.571	748
1579	35163.871	41898.747	7906.058	-0.72	7905.343	1579
749	35172.196	35889.696	8776.256	0.78	8777.035	749
750	35175.320	34125.653	8127.123	-1.43	8125.689	750
1067	35177.209	29905.264	8486.253	1.54	8487.793	1067
1580	35179.237	38334.334	8696.005	-2.83	8693.172	1580
1581	35200.155	41031.340	8260.443	-0.91	8259.529	1581
2679	35202.224	46423.563	8475.459	-2.09	8473.374	2679
751	35204.737	36190.549	8722.751	0.06	8722.814	751
2680	35207.303	44346.317	8427.086	-0.01	8427.076	2680
2681	35208.428	44588.687	8438.322	0.23	8438.550	2681
1582	35214.968	39376.121	8318.949	-1.71	8317.235	1582
2682	35219.621	46263.726	8499.949	-2.41	8497.540	2682
2683	35220.774	45974.869	8535.025	-3.23	8531.796	2683
752	35222.912	36694.255	8604.698	-1.42	8603.278	752
753	35227.097	35605.454	8790.741	-0.57	8790.172	753
754	35232.293	34879.983	8535.888	-0.35	8535.541	754
755	35232.680	35347.057	8711.277	-0.76	8710.520	755
1583	35236.746	42463.526	7698.876	0.05	7698.926	1583
756	35238.355	33238.067	8250.644	-0.82	8249.821	756
2684	35242.460	44025.054	8353.528	-0.31	8353.220	2684
757	35243.085	34444.664	8190.452	-1.61	8188.846	757
2685	35248.208	45308.020	8487.915	-2.28	8485.638	2685
758	35249.972	32663.114	8062.075	-0.15	8061.927	758
1584	35266.008	40610.596	8392.049	-1.58	8390.470	1584
2686	35274.492	47598.901	8375.237	-0.34	8374.896	2686
2687	35284.680	46558.876	8490.509	-1.67	8488.840	2687
1068	35288.824	37297.404	8666.340	-2.15	8664.193	1068
1069	35292.164	36998.237	8557.822	-1.76	8556.067	1069

759	35294.324	31939.692	8123.972	1.35	8125.326	759
2688	35313.533	44857.200	8412.195	-1.18	8411.013	2688
760	35320.421	32304.662	8102.394	0.63	8103.021	760
1585	35327.965	39710.730	8235.766	0.81	8236.578	1585
1586	35338.560	42882.324	7705.120	-0.07	7705.052	1586
1587	35346.331	38559.751	8609.221	-2.74	8606.477	1587
1588	35362.042	43421.624	8075.995	0.63	8076.628	1588
2689	35365.720	46100.359	8546.485	-1.76	8544.725	2689
1070	35367.156	30016.878	8608.035	2.46	8610.497	1070
2690	35371.994	43703.463	8246.351	-0.88	8245.476	2690
2691	35375.962	43187.917	7875.785	0.47	7876.256	2691
761	35383.032	33736.253	8265.535	3.20	8268.731	761
1589	35388.757	37729.154	8713.503	-1.92	8711.585	1589
1590	35393.549	42120.255	7776.711	0.45	7777.166	1590
1591	35400.292	40226.584	8259.566	0.62	8260.184	1591
762	35429.573	31661.420	8164.779	1.55	8166.329	762
1592	35434.167	41869.466	7763.786	-0.08	7763.705	1592
2692	35438.681	45527.827	8430.098	-1.13	8428.968	2692
2693	35459.997	46820.385	8541.871	-1.98	8539.892	2693
2694	35460.523	44684.496	8315.266	-0.15	8315.114	2694
763	35461.705	36169.144	8696.637	0.08	8696.713	763
764	35465.764	35040.380	8683.578	0.82	8684.402	764
2695	35472.194	46246.068	8552.457	-2.90	8549.558	2695
765	35473.553	34029.349	8319.117	-1.65	8317.463	765
766	35476.742	33183.998	8451.746	-0.21	8451.534	766
1593	35486.756	39604.231	8133.480	-0.56	8132.919	1593
1594	35487.354	38011.160	8654.145	-1.66	8652.481	1594
767	35488.302	31919.626	8231.041	4.48	8235.516	767
1595	35489.082	42569.026	7684.424	0.32	7684.744	1595
768	35492.981	35921.666	8726.823	-0.18	8726.647	768
769	35506.384	31397.719	8189.168	2.35	8191.520	769
770	35506.867	35584.398	8771.934	0.66	8772.596	770
771	35513.147	35287.845	8789.858	-0.76	8789.093	771
772	35516.666	33492.545	8389.465	0.37	8389.832	772
773	35524.617	34796.643	8543.939	-0.03	8543.905	773
1071	35529.380	30049.969	8677.160	1.80	8678.960	1071
1596	35532.188	41451.211	7893.980	-1.26	7892.724	1596
774	35535.378	32903.758	8336.431	-0.18	8336.252	774
1597	35538.444	38348.048	8487.739	-2.13	8485.613	1597
1598	35539.863	43111.290	7778.321	0.16	7778.485	1598
1599	35557.056	39937.022	8063.841	2.55	8066.390	1599
2696	35557.783	44184.028	8286.802	-0.80	8286.007	2696
2697	35558.104	44950.517	8298.637	-0.92	8297.722	2697
775	35558.716	36598.641	8567.259	-2.20	8565.062	775
2698	35559.818	45727.219	8406.603	-1.38	8405.225	2698
1600	35574.819	42328.132	7669.226	0.13	7669.360	1600
776	35577.158	36777.749	8535.145	-1.66	8533.488	776
777	35583.765	32240.938	8284.904	-1.51	8283.399	777
1601	35586.379	41003.006	8047.702	-1.68	8046.020	1601
2699	35588.746	44361.233	8261.903	-0.72	8261.187	2699
778	35592.223	34453.366	8440.363	-0.83	8439.533	778
2700	35606.470	46453.623	8588.227	-2.48	8585.747	2700
1602	35611.485	40607.537	8187.661	0.98	8188.643	1602
779	35622.628	31160.796	8299.620	2.91	8302.532	779
1603	35623.060	37506.118	8641.672	-3.26	8638.414	1603
1604	35630.742	39729.074	8032.486	0.16	8032.642	1604
780	35645.476	32497.774	8316.040	-0.28	8315.765	780

1605	35659.252	38889.357	8475.893	-2.54	8473.357	1605
1072	35668.061	37112.554	8518.352	-3.28	8515.074	1072
781	35672.377	31568.943	8365.293	1.00	8366.295	781
1606	35682.629	42800.401	7706.848	0.74	7707.588	1606
1607	35686.080	39828.638	7986.334	0.85	7987.181	1607
1608	35691.143	43700.114	8068.651	1.76	8070.408	1608
2701	35707.823	46798.852	8619.050	-0.07	8618.976	2701
2702	35716.060	46033.592	8466.561	-2.31	8464.251	2702
1609	35724.377	42133.591	7673.781	-0.34	7673.446	1609
2703	35726.625	45146.571	8263.551	-0.73	8262.817	2703
1610	35746.286	41582.607	7761.904	-0.12	7761.782	1610
1611	35753.336	40912.609	7974.449	1.87	7976.315	1611
782	35754.644	33974.598	8551.051	-0.11	8550.936	782
2704	35761.485	44531.883	8193.828	0.02	8193.852	2704
1612	35769.155	41221.324	7813.197	2.37	7815.565	1612
1613	35770.559	38166.390	8466.797	-2.74	8464.060	1613
2705	35774.285	45631.604	8300.531	-1.52	8299.013	2705
1614	35776.284	41823.554	7716.508	0.09	7716.593	1614
783	35776.458	32942.833	8549.708	0.50	8550.209	783
784	35781.451	34924.771	8642.577	-0.48	8642.095	784
785	35791.189	35928.278	8688.890	-0.75	8688.135	785
786	35793.592	35212.551	8777.261	-0.11	8777.155	786
787	35793.774	33580.333	8616.277	0.12	8616.396	787
788	35795.922	33209.206	8670.643	-0.18	8670.461	788
1615	35800.171	40182.959	8075.780	0.87	8076.653	1615
1073	35801.122	30205.036	8760.018	0.66	8760.682	1073
789	35809.311	34627.597	8585.078	-0.08	8585.000	789
790	35815.988	36380.456	8567.789	-1.19	8566.602	790
791	35823.705	32154.117	8437.927	-0.94	8436.987	791
2706	35832.827	43942.209	8119.071	-1.74	8117.330	2706
792	35837.947	31117.097	8490.104	2.39	8492.494	792
793	35841.815	35597.541	8744.144	-0.04	8744.103	793
794	35844.647	34333.006	8603.283	-0.10	8603.183	794
795	35848.148	31760.290	8504.875	0.15	8505.029	795
1616	35869.142	43361.005	7785.900	0.80	7786.698	1616
1617	35872.196	42488.783	7683.049	-0.10	7682.949	1617
1618	35873.964	39021.054	8415.218	-1.15	8414.072	1618
796	35874.340	36741.438	8509.638	-3.20	8506.436	796
1619	35880.924	38595.308	8284.107	-2.37	8281.736	1619
2707	35893.751	45284.078	8235.865	-0.65	8235.219	2707
1620	35895.323	43011.385	7816.846	-2.43	7814.417	1620
2708	35901.884	46757.621	8698.431	-1.40	8697.034	2708
2709	35904.148	45949.104	8401.808	-1.84	8399.968	2709
797	35933.472	32474.234	8565.225	-3.02	8562.210	797
1621	35936.840	37907.917	8534.062	-3.90	8530.167	1621
2710	35938.999	44133.583	8059.296	0.00	8059.296	2710
2711	35958.658	44776.533	8118.622	-0.20	8118.426	2711
1622	35959.812	37557.129	8512.102	-3.25	8508.856	1622
798	35977.819	30943.024	8551.190	0.97	8552.158	798
2712	35981.222	46456.095	8548.205	-2.03	8546.175	2712
799	35981.921	31492.088	8598.012	0.79	8598.805	799
1623	35990.758	41839.845	7661.097	-0.03	7661.067	1623
1624	35997.070	40489.595	7989.231	1.99	7991.226	1624
800	36006.934	32811.099	8703.471	0.81	8704.282	800
2713	36009.402	45050.902	8171.595	-0.81	8170.784	2713
2714	36011.214	46139.107	8450.305	-2.43	8447.878	2714
1625	36019.172	41157.200	7744.571	0.94	7745.512	1625

1626	36033.807	41414.961	7707.199	-1.78	7705.416	1626
1627	36035.967	37164.549	8446.065	-3.74	8442.326	1627
1628	36042.518	42737.036	7844.296	-1.19	7843.102	1628
801	36044.749	35014.866	8783.288	-0.25	8783.034	801
802	36060.230	31917.312	8641.347	-3.49	8637.858	802
2715	36065.876	44422.274	8103.011	-0.05	8102.958	2715
1629	36077.851	41599.315	7677.866	-2.08	7675.790	1629
1630	36080.052	40773.258	7838.562	5.48	7844.039	1630
803	36081.599	36420.240	8537.085	-1.80	8535.289	803
804	36083.438	33585.577	8765.354	-0.70	8764.651	804
805	36085.913	33232.092	8801.864	-1.45	8800.411	805
2716	36088.000	45513.029	8248.150	-0.97	8247.176	2716
1631	36089.926	43730.654	7879.051	0.89	7879.940	1631
1074	36098.906	30352.972	8811.824	2.38	8814.199	1074
806	36136.218	31684.153	8738.617	-1.32	8737.298	806
807	36137.199	34740.385	8783.927	-0.95	8782.974	807
808	36142.312	32284.424	8694.667	0.65	8695.312	808
1632	36143.688	40013.599	7789.212	1.16	7790.369	1632
809	36147.963	36664.225	8481.222	-3.88	8477.342	809
810	36152.276	35978.141	8632.452	-0.94	8631.508	810
1633	36153.642	42933.431	7994.626	-0.37	7994.257	1633
2717	36166.528	45847.818	8386.155	-2.26	8383.898	2717
811	36170.976	35599.747	8734.680	-0.11	8734.565	811
1634	36174.538	42279.408	7695.380	-0.72	7694.665	1634
812	36183.555	34131.536	8801.947	-1.78	8800.169	812
1635	36188.767	43223.205	7975.579	2.25	7977.831	1635
813	36195.631	35329.037	8764.387	-0.37	8764.018	813
814	36222.682	33883.494	8776.552	-1.96	8774.591	814
815	36232.444	32824.490	8826.416	-0.91	8825.504	815
816	36233.662	34378.700	8799.100	-1.36	8797.744	816
1636	36237.721	39185.847	8176.395	-0.01	8176.387	1636
1637	36238.163	38030.726	8447.317	-3.84	8443.473	1637
1638	36238.197	41777.747	7626.569	0.25	7626.815	1638
2718	36260.651	46501.172	8543.952	-1.10	8542.852	2718
1639	36263.164	42482.930	7811.387	-1.80	7809.586	1639
817	36268.087	36244.227	8563.521	-3.04	8560.484	817
1640	36275.402	41942.252	7650.886	0.33	7651.212	1640
1641	36277.292	38763.648	8018.900	-0.20	8018.696	1641
1642	36277.502	43480.854	8007.938	0.57	8008.509	1642
818	36280.147	32559.155	8796.645	-1.20	8795.441	818
1643	36282.072	41529.424	7661.804	-0.93	7660.871	1643
2719	36294.200	44380.170	8212.555	-0.66	8211.900	2719
1075	36296.417	33359.990	8769.579	-1.53	8768.045	1075
2720	36303.073	46107.880	8463.636	-3.01	8460.626	2720
819	36312.213	31173.487	8827.000	1.54	8828.543	819
1644	36313.497	39477.996	7997.071	2.97	8000.041	1644
1076	36317.688	30497.865	8878.689	2.05	8880.734	1076
1645	36337.875	41330.539	7681.321	-1.31	7680.009	1645
1646	36346.239	40443.801	7784.385	1.40	7785.781	1646
2721	36352.143	44108.404	8034.098	-1.37	8032.725	2721
1647	36358.523	42698.151	7977.268	0.02	7977.287	1647
1648	36373.312	41041.978	7704.698	0.24	7704.942	1648
1649	36374.912	37613.308	8237.187	-2.12	8235.069	1649
1650	36383.640	37182.482	8168.413	-2.46	8165.952	1650
2722	36393.152	44661.370	8275.835	-0.94	8274.895	2722
1651	36413.088	40756.473	7734.174	1.92	7736.094	1651
820	36416.968	32306.640	8809.658	-0.16	8809.498	820

2723	36419.389	45539.662	8381.813	-0.27	8381.543	2723
1652	36421.748	39987.130	7759.461	2.17	7761.632	1652
821	36428.314	33888.851	8773.198	-0.43	8772.772	821
822	36436.416	34214.779	8802.359	-1.34	8801.017	822
823	36442.099	32597.840	8782.134	-1.24	8780.894	823
2724	36443.449	44822.516	8321.737	-1.13	8320.610	2724
824	36446.652	33636.504	8741.973	-0.96	8741.012	824
1653	36448.467	41531.555	7634.942	1.12	7636.058	1653
825	36466.141	30837.671	8928.450	1.46	8929.912	825
826	36468.582	31724.511	8881.091	0.61	8881.698	826
827	36469.266	33040.735	8760.123	-0.44	8759.680	827
1654	36471.852	42176.153	7771.645	-1.25	7770.393	1654
2725	36474.407	45203.949	8339.626	0.07	8339.693	2725
1655	36496.053	42471.668	7961.599	-1.04	7960.559	1655
1656	36502.174	41432.884	7632.036	0.34	7632.375	1656
828	36504.533	33375.905	8714.957	-0.98	8713.980	828
829	36504.755	31993.927	8850.563	0.16	8850.721	829
1657	36507.831	42947.601	8246.038	-1.19	8244.850	1657
830	36512.125	34969.720	8780.638	0.48	8781.114	830
831	36513.288	35904.773	8695.176	-0.80	8694.374	831
832	36517.175	35619.680	8740.097	-1.33	8738.764	832
2726	36517.522	44963.679	8354.727	-0.72	8354.005	2726
833	36518.317	31452.503	8898.490	1.17	8899.658	833
2727	36521.429	46251.533	8544.779	-1.08	8543.698	2727
834	36525.265	36701.664	8463.086	-0.68	8462.406	834
835	36526.675	35333.738	8761.219	-0.56	8760.659	835
836	36534.244	34614.812	8792.696	-0.66	8792.032	836
1077	36535.239	34022.539	8795.171	-1.18	8793.986	1077
1658	36536.064	38300.574	8180.999	-0.20	8180.794	1658
1659	36536.291	43824.900	8132.506	0.04	8132.548	1659
1660	36538.346	41761.545	7645.213	0.47	7645.679	1660
1078	36549.724	30679.385	8955.908	1.00	8956.912	1078
837	36550.795	31237.938	8914.081	0.28	8914.363	837
838	36554.534	36270.287	8562.535	-2.29	8560.244	838
2728	36567.809	45770.133	8494.712	0.06	8494.773	2728
1661	36567.890	43308.494	8226.678	0.18	8226.854	1661
1662	36584.646	41101.582	7676.848	0.14	7676.990	1662
1663	36592.104	39112.406	7926.884	1.25	7928.138	1663
839	36593.865	36593.865	8490.633	1.41	8492.039	839
1664	36598.874	41289.265	7638.197	-1.35	7636.843	1664
1079	36608.663	34370.569	8792.377	-0.65	8791.732	1079
2729	36610.308	45975.697	8543.011	-1.68	8541.333	2729
1080	36610.720	32502.582	8770.185	-2.02	8768.166	1080
2730	36632.162	44437.341	8149.184	-0.63	8148.552	2730
1665	36635.117	42041.538	7791.760	-0.39	7791.371	1665
1666	36641.979	40487.049	7722.693	1.02	7723.718	1666
1081	36658.307	34802.540	8778.801	-0.69	8778.115	1081
1667	36661.666	39840.887	7755.860	1.55	7757.406	1667
1082	36670.503	31807.363	8855.597	0.91	8856.507	1082
1083	36675.165	32222.249	8809.069	0.19	8809.257	1083
1084	36685.379	32857.979	8705.038	-2.21	8702.827	1084
1668	36685.479	42314.086	7937.054	-0.59	7936.464	1668
1085	36691.693	33612.748	8723.206	-1.59	8721.617	1085
1086	36691.716	33403.767	8672.285	-0.01	8672.279	1086
1087	36694.168	35607.102	8729.795	-0.99	8728.806	1087
1088	36696.544	31466.975	8888.301	0.87	8889.171	1088
1669	36703.134	38958.362	7784.030	1.45	7785.479	1669

1670	36710.314	39434.764	7792.578	-0.58	7791.999	1670
1671	36716.337	42958.962	8318.533	-0.79	8317.740	1671
1672	36717.227	40837.582	7681.563	0.14	7681.699	1672
1089	36722.834	35798.913	8702.324	-0.69	8701.632	1089
1090	36727.221	35103.084	8759.858	-0.22	8759.639	1090
1673	36728.718	42711.561	8235.828	0.02	8235.852	1673
1674	36742.688	41186.874	7616.826	1.72	7618.550	1674
2731	36751.276	44112.318	8202.607	-0.91	8201.694	2731
1091	36753.834	33913.775	8789.421	-1.98	8787.440	1091
1092	36755.002	31240.263	8909.989	1.00	8910.988	1092
1093	36759.477	34620.448	8751.888	-0.41	8751.481	1093
1675	36759.703	38025.138	8035.120	-0.24	8034.881	1675
1094	36767.710	31958.915	8833.867	1.18	8835.052	1094
2732	36769.398	45647.317	8504.599	-0.22	8504.375	2732
1095	36775.982	35369.208	8745.368	-0.49	8744.883	1095
1676	36784.253	37536.064	7901.556	-3.02	7898.532	1676
1096	36786.053	33151.307	8658.197	-1.07	8657.127	1096
1677	36796.279	38380.537	7962.335	0.58	7962.912	1677
1678	36797.384	39085.993	7769.546	0.60	7770.144	1678
2733	36801.346	43444.269	8319.641	0.64	8320.276	2733
1097	36802.678	31005.142	8932.537	1.59	8934.131	1097
2734	36811.414	44567.808	8195.356	0.12	8195.474	2734
1679	36817.135	41469.728	7628.373	0.92	7629.292	1679
1680	36818.627	41973.368	7814.374	0.26	7814.636	1680
2735	36831.521	45890.399	8595.056	-0.64	8594.415	2735
1681	36842.610	36073.514	8593.745	0.21	8593.956	1681
1682	36845.426	40098.888	7665.866	0.02	7665.882	1682
1683	36853.544	40496.857	7709.305	1.80	7711.100	1683
1098	36855.446	31709.675	8843.607	1.57	8845.176	1098
2736	36859.550	45358.727	8477.543	-0.40	8477.139	2736
1099	36870.574	34412.862	8703.494	1.38	8704.872	1099
1100	36876.617	32624.617	8686.388	-1.62	8684.765	1100
1101	36905.405	34827.558	8676.417	-0.04	8676.378	1101
1684	36914.840	36345.367	8524.759	-1.05	8523.712	1684
2737	36916.143	45070.934	8385.918	-0.69	8385.226	2737
1102	36916.237	34163.148	8730.217	-0.63	8729.586	1102
1103	36921.692	33502.161	8680.758	0.25	8681.007	1103
1104	36922.498	32271.912	8761.354	0.05	8761.405	1104
1105	36923.115	35556.951	8702.483	0.05	8702.532	1105
1685	36943.109	35780.588	8627.271	0.52	8627.789	1685
1686	36953.248	42249.860	8035.457	-0.73	8034.729	1686
1687	36972.968	41079.910	7595.295	1.94	7597.239	1687
1106	36975.506	35129.865	8698.766	-0.43	8698.333	1106
1688	36980.037	39163.717	7696.007	1.15	7697.154	1688
1689	36985.766	41731.644	7778.449	-0.65	7777.795	1689
1107	36993.819	31975.159	8801.130	0.65	8801.784	1107
1108	37004.308	31260.895	8888.055	1.36	8889.412	1108
1690	37005.180	39501.573	7675.691	0.27	7675.964	1690
2738	37009.872	43587.190	8394.607	-0.35	8394.253	2738
1691	37011.388	39856.921	7663.791	1.85	7665.640	1691
1692	37029.068	36534.224	8448.464	-0.09	8448.369	1692
1109	37031.536	31519.737	8841.814	0.23	8842.043	1109
2739	37034.770	43829.523	8373.184	-1.22	8371.969	2739
1693	37035.123	42458.799	8195.418	-1.96	8193.458	1693
2740	37036.253	45743.459	8626.367	-0.43	8625.938	2740
1110	37047.170	33920.690	8737.804	0.00	8737.804	1110
2741	37047.327	44764.009	8312.180	0.09	8312.267	2741

2742	37051.613	43048.574	8475.056	-0.12	8474.933	2742
2743	37053.443	43264.493	8468.465	-0.78	8467.687	2743
1694	37056.675	36007.343	8550.590	-1.62	8548.966	1694
1695	37065.596	37697.980	7758.325	-1.24	7757.083	1695
1696	37070.991	42040.043	7941.515	-0.03	7941.488	1696
1111	37080.217	32975.498	8609.407	-2.22	8607.183	1111
1112	37081.264	34504.133	8583.038	1.50	8584.538	1112
1697	37092.100	40177.201	7620.614	2.95	7623.561	1697
1698	37097.230	38054.166	7797.923	0.13	7798.054	1698
1699	37106.518	41285.377	7636.232	0.60	7636.828	1699
2744	37111.025	42747.802	8298.487	-0.43	8298.053	2744
1113	37114.101	35347.506	8652.408	-0.14	8652.263	1113
1700	37121.523	36380.959	8469.268	0.04	8469.304	1700
1114	37124.746	31763.190	8793.984	1.17	8795.155	1114
1701	37126.867	41552.589	7723.478	-1.48	7721.994	1701
1702	37128.947	40802.382	7585.552	2.33	7587.881	1702
1703	37136.014	38831.367	7650.325	0.77	7651.091	1703
1704	37142.105	38408.763	7751.906	1.10	7753.004	1704
1705	37142.925	35731.630	8560.644	0.02	8560.664	1705
1115	37150.725	34839.958	8558.466	1.00	8559.464	1115
1116	37185.522	33443.082	8725.759	-2.57	8723.193	1116
1117	37206.558	32177.489	8723.788	-0.35	8723.437	1117
1706	37209.705	36142.528	8490.536	-2.04	8488.500	1706
2745	37212.952	44896.882	8408.330	-0.41	8407.924	2745
2746	37217.970	45439.144	8554.008	-1.14	8552.867	2746
2747	37229.658	44482.994	8322.517	-0.23	8322.292	2747
2748	37236.751	43479.549	8468.824	-0.59	8468.230	2748
1118	37248.705	33718.268	8766.190	-0.85	8765.338	1118
1707	37250.030	35969.041	8500.513	-1.22	8499.297	1707
1119	37255.404	32770.712	8612.571	0.22	8612.787	1119
1708	37261.316	37021.738	8029.018	-2.65	8026.363	1708
1120	37261.886	31502.317	8803.839	1.56	8805.400	1120
2749	37274.571	45139.608	8486.562	-0.49	8486.068	2749
1121	37284.509	35152.674	8565.961	-0.44	8565.523	1121
1122	37285.164	34478.917	8471.073	-1.29	8469.784	1122
1709	37294.719	36658.031	8201.792	-0.09	8201.704	1709
1710	37310.189	41030.887	7627.411	0.27	7627.677	1710
2750	37316.256	43676.014	8479.281	-0.79	8478.496	2750
1711	37320.904	36485.920	8298.775	-0.37	8298.402	1711
2751	37322.052	43361.339	8459.146	0.27	8459.413	2751
1123	37323.109	33200.792	8644.500	-2.16	8642.338	1123
2752	37325.596	43842.119	8464.480	-1.26	8463.218	2752
1124	37326.748	32018.008	8709.931	0.37	8710.299	1124
2753	37328.424	42437.278	8225.256	-0.10	8225.157	2753
1125	37340.651	33886.976	8699.479	-0.37	8699.113	1125
2754	37350.663	44556.124	8381.723	-0.73	8380.990	2754
1712	37352.692	37966.129	7634.777	0.29	7635.071	1712
1713	37356.962	41784.948	7950.175	-0.97	7949.204	1713
2755	37361.859	43132.333	8461.873	-0.41	8461.467	2755
1714	37363.708	36567.886	8198.583	-1.02	8197.565	1714
1126	37376.459	32308.207	8673.457	0.68	8674.139	1126
1715	37384.980	42166.787	8127.836	0.01	8127.849	1715
1716	37389.445	35726.475	8542.392	0.04	8542.428	1716
1127	37395.174	34691.047	8360.612	0.96	8361.568	1127
1128	37398.212	32562.039	8641.763	1.28	8643.041	1128
2756	37399.460	42859.310	8468.075	0.03	8468.109	2756
1717	37406.057	41372.110	7788.111	-1.35	7786.766	1717

2757	37414.146	44873.274	8477.423	-0.47	8476.949	2757
1718	37449.885	38853.241	7592.273	-0.69	7591.580	1718
1719	37453.247	36177.266	8308.249	-1.57	8306.680	1719
1720	37457.750	38399.673	7609.332	-0.24	7609.096	1720
2758	37460.572	44128.461	8460.764	-0.87	8459.896	2758
1129	37475.842	34937.666	8388.128	-0.83	8387.302	1129
1721	37490.312	36470.418	8194.561	-0.11	8194.446	1721
1722	37495.051	36375.919	8228.088	-0.17	8227.918	1722
1723	37510.370	35449.775	8535.122	-1.15	8533.970	1723
1724	37511.329	40811.680	7612.215	0.15	7612.366	1724
2759	37542.091	44625.805	8478.592	-0.38	8478.217	2759
2760	37545.262	45256.592	8578.936	-0.59	8578.343	2760
2761	37548.896	43877.642	8469.303	-0.89	8468.411	2761
2762	37565.635	44364.053	8468.225	-0.42	8467.807	2762
1130	37566.149	33506.991	8723.212	-0.92	8722.293	1130
1131	37566.318	31638.549	8726.545	0.75	8727.294	1131
1725	37568.755	41074.813	7752.267	0.47	7752.735	1725
1132	37574.479	32941.967	8587.828	-0.11	8587.716	1132
2763	37578.102	42611.026	8412.943	-0.47	8412.474	2763
2764	37582.276	43248.935	8377.498	-0.27	8377.223	2764
2765	37587.348	43607.995	8446.502	-0.86	8445.645	2765
1726	37624.598	38197.392	7562.040	1.17	7563.207	1726
1133	37626.765	34337.901	8385.340	0.70	8386.043	1133
1727	37628.826	35174.738	8361.110	-0.68	8360.428	1727
1134	37628.931	32167.211	8637.438	2.11	8639.545	1134
1728	37634.772	35995.819	8324.761	0.27	8325.036	1728
2766	37635.046	43383.419	8386.817	-0.72	8386.101	2766
1729	37642.036	37663.044	7678.751	0.53	7679.281	1729
1730	37654.859	37003.470	7872.291	0.45	7872.737	1730
2767	37659.216	44809.673	8554.366	-1.57	8552.798	2767
1731	37677.899	40674.053	7619.111	0.01	7619.125	1731
2768	37681.175	42758.927	8368.456	-0.48	8367.978	2768
1135	37684.268	31801.352	8674.820	-0.20	8674.621	1135
1136	37686.894	33241.292	8658.340	-0.76	8657.584	1136
2769	37697.544	42344.478	8316.748	-0.68	8316.064	2769
2770	37723.198	44976.397	8587.326	-1.01	8586.314	2770
1137	37729.234	33696.617	8626.381	2.85	8629.235	1137
1138	37731.101	32608.871	8589.122	-0.20	8588.921	1138
1732	37731.269	35835.942	8349.857	-0.89	8348.971	1732
1733	37738.015	41237.457	7982.532	0.76	7983.294	1733
2771	37743.825	42050.254	8249.762	-0.32	8249.439	2771
1734	37746.058	41883.737	8211.153	-1.01	8210.145	1734
1735	37752.419	40945.230	7733.703	-0.47	7733.238	1735
1139	37756.001	34757.599	8151.211	-0.02	8151.195	1139
1140	37762.472	32410.701	8593.692	-0.19	8593.501	1140
1736	37765.665	36137.808	8159.024	0.87	8159.893	1736
1737	37771.034	41582.559	8137.258	0.04	8137.299	1737
1738	37773.567	36554.669	7992.901	-0.85	7992.051	1738
1141	37790.048	34124.858	8392.581	1.07	8393.646	1141
1739	37790.745	38608.896	7509.071	-0.09	7508.979	1739
1740	37792.713	35546.334	8358.480	-0.03	8358.449	1740
2772	37803.030	43947.630	8448.120	-1.09	8447.033	2772
2773	37808.148	43532.180	8379.056	-0.44	8378.612	2773
2774	37817.250	42832.681	8296.227	-0.62	8295.610	2774
2775	37821.430	44655.916	8584.749	-0.63	8584.117	2775
2776	37850.947	44174.175	8447.850	-1.12	8446.732	2776
2777	37854.096	44808.380	8655.700	-0.36	8655.339	2777

1741	37856.226	38226.704	7527.013	0.44	7527.455	1741
2778	37858.101	42528.145	8258.899	-0.31	8258.589	2778
2779	37864.446	44434.858	8498.487	-0.85	8497.640	2779
1142	37895.656	32812.696	8580.434	0.05	8580.484	1142
1742	37901.808	37311.920	7684.745	3.47	7688.219	1742
1143	37902.599	34498.552	8155.749	0.91	8156.654	1143
1743	37920.464	40730.689	7600.948	-0.90	7600.046	1743
1744	37942.292	35912.596	8155.737	-0.64	8155.094	1744
1144	37946.000	32115.275	8510.631	-0.06	8510.574	1144
1745	37948.588	35128.185	8183.038	-0.23	8182.808	1745
1746	37972.418	40975.828	7650.225	1.91	7652.139	1746
1145	37974.555	33252.912	8688.142	-1.66	8686.478	1145
1747	37975.304	37954.209	7545.226	1.66	7546.890	1747
1748	37976.099	38991.817	7593.917	-1.56	7592.360	1748
1749	37982.399	41274.530	7763.573	0.35	7763.919	1749
2780	37982.930	44490.004	8490.787	-0.33	8490.453	2780
2781	37991.683	43688.003	8364.255	-0.92	8363.334	2781
2782	37998.343	42234.236	8176.425	-0.67	8175.755	2782
2783	38004.529	43227.638	8210.248	-0.60	8209.643	2783
1750	38024.968	36932.694	7772.602	0.38	7772.980	1750
2784	38034.701	42850.998	8217.767	0.81	8218.578	2784
1146	38040.875	32964.490	8625.070	-0.57	8624.500	1146
2785	38049.375	41538.341	7873.760	-0.27	7873.487	2785
1751	38054.699	39725.019	7705.356	1.64	7706.995	1751
1752	38059.914	34844.628	7970.009	-0.57	7969.436	1752
1753	38073.332	40073.221	7686.310	1.31	7687.616	1753
1754	38083.116	36383.007	7874.341	0.38	7874.717	1754
1147	38091.686	32348.406	8361.931	-1.30	8360.630	1147
2786	38094.584	41753.368	7956.953	-0.09	7956.859	2786
1755	38096.013	35427.060	8095.181	-0.55	8094.628	1755
1756	38099.520	39396.958	7709.405	0.17	7709.574	1756
2787	38102.483	42540.344	8149.253	-1.31	8147.945	2787
1148	38116.752	34239.471	8156.379	1.13	8157.510	1148
2788	38144.370	43377.121	8236.221	-1.09	8235.127	2788
1757	38148.588	38391.895	7504.044	0.86	7504.900	1757
2789	38164.254	41913.182	7906.294	-0.33	7905.963	2789
1149	38172.261	32723.080	8605.509	-1.65	8603.861	1149
2790	38182.018	43940.002	8298.577	-1.01	8297.570	2790
2791	38183.197	44214.570	8350.892	-1.39	8349.505	2791
2792	38184.168	42291.913	8036.521	-1.37	8035.147	2792
1758	38197.438	40957.108	7586.434	0.04	7586.470	1758
1759	38201.155	37703.283	7481.925	0.00	7481.925	1759
1760	38202.093	38700.281	7600.021	0.26	7600.278	1760
1761	38203.595	35988.008	7958.176	0.22	7958.398	1761
2793	38203.784	42975.617	8136.881	-1.08	8135.804	2793
1762	38215.196	40298.614	7666.905	0.07	7666.971	1762
2794	38231.685	42458.141	8023.849	-1.08	8022.767	2794
1763	38233.923	35647.228	7999.977	-0.79	7999.189	1763
2795	38248.345	42105.664	7953.568	-1.37	7952.194	2795
2796	38252.264	41160.091	7606.984	-0.90	7606.087	2796
2797	38258.428	43602.450	8234.214	-0.96	8233.255	2797
2798	38271.716	44385.691	8417.948	-1.83	8416.114	2798
1764	38274.454	34619.374	7922.242	0.35	7922.588	1764
1765	38278.563	35256.652	7952.453	-0.53	7951.920	1765
1766	38280.665	36588.375	7735.634	1.23	7736.868	1766
1767	38289.945	39806.147	7904.186	0.22	7904.410	1767
1150	38297.057	34008.272	8177.786	2.12	8179.910	1150

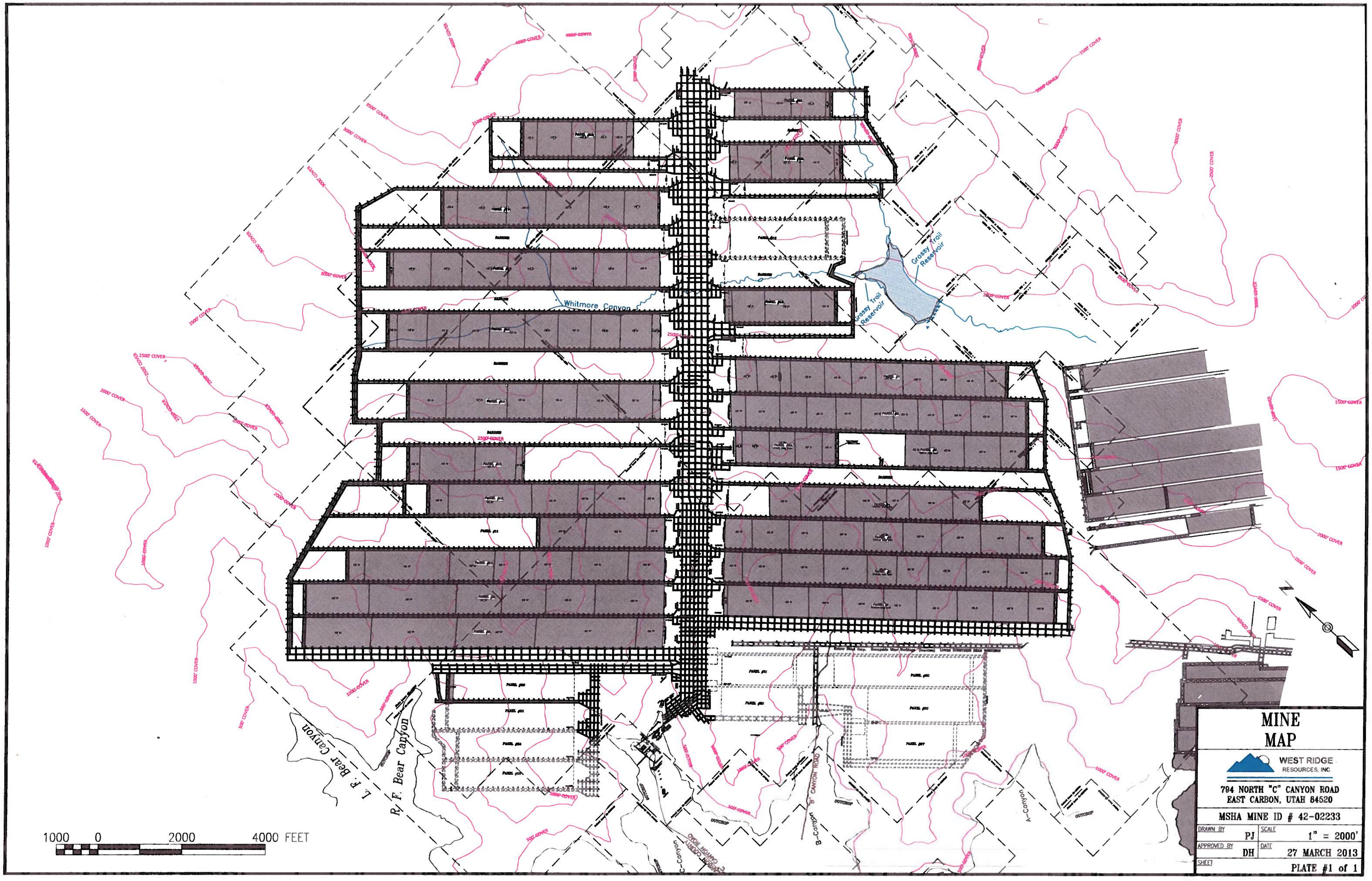
1151	38298.043	33185.876	8556.984	-1.50	8555.481	1151
1768	38302.036	37300.953	7547.779	1.63	7549.410	1768
2799	38302.058	42691.073	8140.296	-1.32	8138.974	2799
1769	38313.461	36316.851	7807.095	0.98	7808.072	1769
1770	38320.850	39680.620	7912.646	-0.08	7912.569	1770
1771	38337.526	36884.868	7694.258	0.56	7694.817	1771
1772	38341.917	39394.525	7846.074	-1.65	7844.424	1772
1773	38354.172	39016.425	7765.680	-0.80	7764.882	1773
1152	38359.614	32549.037	8394.903	-1.56	8393.342	1152
2800	38377.539	43110.459	8011.896	-0.07	8011.822	2800
2801	38383.040	43455.716	8164.352	-1.45	8162.897	2801
1153	38388.469	32827.210	8502.410	-1.38	8501.030	1153
1774	38391.655	40597.129	7641.845	0.25	7642.091	1774
2802	38408.597	42887.432	8023.340	-0.87	8022.468	2802
2803	38410.369	41340.528	7613.695	-0.91	7612.785	2803
2804	38415.028	44069.708	8289.588	-0.41	8289.176	2804
1154	38417.401	33774.982	8148.986	2.39	8151.379	1154
1775	38418.438	38420.227	7566.959	0.51	7567.466	1775
1776	38432.961	34910.957	7788.108	-0.58	7787.524	1776
2805	38434.605	41786.383	7725.019	0.86	7725.882	2805
1777	38436.639	38121.144	7516.340	1.94	7518.277	1777
2806	38451.713	43681.157	8148.534	-1.51	8147.019	2806
2807	38454.072	42101.880	7802.130	0.55	7802.675	2807
2808	38494.978	43181.486	8003.388	-0.84	8002.552	2808
1155	38507.631	33408.707	8263.869	-0.07	8263.802	1155
1778	38512.962	34302.208	7926.437	1.01	7927.445	1778
2809	38515.934	41563.165	7629.123	-1.33	7627.797	2809
2810	38530.180	42377.150	7873.011	-1.08	7871.932	2810
1779	38534.392	36742.231	7629.912	0.90	7630.811	1779
1780	38534.876	35571.650	7842.052	-0.15	7841.904	1780
2811	38554.992	42700.917	7995.659	-0.52	7995.136	2811
1781	38557.366	37492.760	7464.717	0.35	7465.069	1781
1782	38560.783	36219.437	7744.876	-0.09	7744.786	1782
2812	38572.261	40896.846	7650.214	0.37	7650.584	2812
1783	38572.611	38729.936	7765.603	0.24	7765.841	1783
2813	38583.180	43519.376	8040.326	-0.99	8039.334	2813
1784	38591.238	39633.697	8151.097	-0.44	8150.655	1784
1785	38628.367	34668.645	7809.083	-0.31	7808.770	1785
1786	38632.653	35282.100	7758.913	2.81	7761.725	1786
1156	38638.256	33152.293	8226.144	0.69	8226.833	1156
1157	38647.706	32769.533	8285.901	-1.46	8284.441	1157
2814	38650.758	41179.439	7622.413	0.36	7622.773	2814
1787	38661.470	37796.443	7486.333	2.25	7488.583	1787
1788	38663.462	36987.360	7559.882	1.11	7560.987	1788
2815	38668.911	41357.809	7602.431	-0.17	7602.259	2815
1158	38669.615	33741.946	7994.166	1.87	7996.039	1158
2816	38673.909	42071.169	7665.762	-0.82	7664.937	2816
2817	38676.026	43774.588	8180.350	-1.87	8178.482	2817
2818	38679.786	42864.408	7871.633	-1.68	7869.958	2818
1789	38691.593	39390.810	8129.713	-1.25	8128.460	1789
2819	38692.454	43989.973	8256.772	-0.33	8256.445	2819
2820	38695.757	41871.383	7631.250	-1.18	7630.069	2820
1790	38696.254	38520.151	7723.453	0.76	7724.211	1790
2821	38719.572	43426.306	8003.777	-2.60	8001.177	2821
1791	38735.666	39108.643	8146.225	-0.79	8145.437	1791
1792	38736.368	35931.613	7701.450	1.35	7702.795	1792
2822	38753.560	42443.908	7759.680	-0.84	7758.836	2822

2823	38768.121	43162.213	7888.499	-1.44	7887.063	2823
1793	38768.974	34119.651	7871.544	-0.55	7870.991	1793
1794	38773.349	39558.378	8297.383	-0.60	8296.783	1794
1795	38780.645	34569.438	7821.120	0.40	7821.518	1795
2824	38809.649	41624.484	7611.268	-0.70	7610.572	2824
1796	38809.895	38136.424	7631.072	1.06	7632.131	1796
1797	38813.310	37322.057	7450.796	0.42	7451.212	1797
1798	38822.828	38937.593	8146.611	-0.39	8146.216	1798
2825	38822.947	42674.594	7842.993	0.23	7843.224	2825
2826	38824.658	43797.526	8192.243	-1.84	8190.408	2826
1159	38826.937	32954.982	8084.433	0.17	8084.605	1159
1799	38837.657	35063.906	7663.302	1.60	7664.903	1799
1800	38845.173	36559.230	7566.108	0.28	7566.386	1800
2827	38858.053	42200.034	7645.990	-1.33	7644.663	2827
1801	38877.715	38665.067	7848.471	1.35	7849.823	1801
1160	38884.057	33473.817	7944.142	3.88	7948.023	1160
1802	38890.988	35533.009	7634.823	1.13	7635.948	1802
2828	38898.457	43567.728	8138.079	-1.50	8136.581	2828
2829	38903.063	42922.903	7758.092	-0.75	7757.340	2829
2830	38905.558	40833.043	7825.827	-0.13	7825.701	2830
2831	38914.476	43341.474	8053.058	-0.69	8052.372	2831
2832	38920.280	42010.311	7615.912	-0.97	7614.938	2832
2833	38921.847	41800.458	7619.597	-1.79	7617.809	2833
2834	38941.421	42656.140	7764.983	-1.00	7763.979	2834
1803	38956.064	36151.708	7595.574	2.01	7597.579	1803
2835	38965.101	41043.167	7819.776	0.66	7820.438	2835
2836	38976.732	42429.556	7649.255	-0.94	7648.311	2836
2837	38980.577	43125.949	7921.573	-1.38	7920.197	2837
1804	38989.013	37553.335	7496.426	1.39	7497.821	1804
1805	38991.421	36975.114	7483.781	0.06	7483.844	1805
1806	38995.977	35271.458	7583.706	1.55	7585.260	1806
1807	39001.791	34784.796	7690.631	0.50	7691.127	1807
2838	39015.657	41360.785	7770.824	0.09	7770.917	2838
1808	39016.677	39322.725	8359.215	-0.23	8358.989	1808
1809	39017.794	34375.349	7734.153	0.32	7734.469	1809
2839	39020.068	43351.022	7961.057	-0.67	7960.388	2839
1810	39030.616	37886.626	7632.696	0.10	7632.791	1810
2840	39040.220	40645.100	7968.277	-0.41	7967.864	2840
1811	39047.205	38270.641	7749.903	0.64	7750.545	1811
1812	39050.911	35824.485	7577.322	0.82	7578.143	1812
1813	39051.986	33990.264	7785.361	0.10	7785.460	1813
2841	39056.291	43568.591	8011.477	0.29	8011.763	2841
2842	39061.194	42213.642	7647.068	-0.79	7646.277	2842
1161	39089.455	33175.900	7916.981	2.57	7919.553	1161
2843	39116.284	42854.830	7732.149	-1.66	7730.487	2843
1814	39138.146	38989.490	8170.200	0.19	8170.391	1814
1815	39145.853	37156.152	7466.534	-0.21	7466.328	1815
1816	39161.499	38683.397	7932.809	0.39	7933.204	1816
1817	39167.581	36321.162	7492.481	-0.36	7492.122	1817
1818	39176.539	35642.839	7500.817	0.79	7501.611	1818
2844	39180.507	40329.609	8077.534	-0.09	8077.444	2844
2845	39189.007	42604.759	7666.301	-1.24	7665.057	2845
1819	39196.290	39492.965	8457.358	-0.25	8457.107	1819
2846	39216.998	41613.669	7882.058	-0.02	7882.040	2846
1820	39219.901	36726.391	7449.326	1.05	7450.372	1820
2847	39221.217	43145.091	7742.784	-0.51	7742.269	2847
1821	39244.049	34687.690	7673.967	1.50	7675.465	1821

1822	39254.675	37534.919	7543.177	1.97	7545.151	1822
2848	39271.403	42278.203	7661.088	-1.53	7659.555	2848
2849	39275.082	42971.785	7667.200	-1.90	7665.296	2849
1823	39282.730	34299.129	7734.506	1.36	7735.865	1823
2850	39289.421	43317.590	7755.126	0.30	7755.427	2850
2851	39293.425	40676.206	8168.336	-0.53	8167.801	2851
1824	39301.077	35092.458	7626.797	1.26	7628.056	1824
1825	39308.597	36007.241	7474.848	2.48	7477.330	1825
1826	39314.820	37945.439	7741.821	0.51	7742.327	1826
1827	39347.431	39098.230	8289.804	-1.87	8287.933	1827
1828	39348.584	35528.731	7543.791	1.83	7545.621	1828
1829	39364.072	38295.643	8000.480	1.35	8001.829	1829
2852	39368.753	40354.580	8215.234	-0.19	8215.044	2852
2853	39375.231	41842.633	7850.243	-0.08	7850.162	2853
1830	39401.480	35766.055	7460.078	0.98	7461.061	1830
2854	39403.965	42755.212	7660.729	-1.23	7659.495	2854
1831	39409.587	36086.528	7427.053	1.71	7428.767	1831
1832	39419.107	36461.750	7438.615	-0.42	7438.195	1832
2855	39428.426	40998.387	8193.861	-1.24	8192.621	2855
1833	39429.220	36896.833	7445.382	0.85	7446.233	1833
2856	39456.529	43001.514	7666.960	-1.60	7665.356	2856
2857	39486.611	41584.244	8029.871	-2.44	8027.432	2857
2858	39500.692	39362.977	8442.993	0.52	8443.515	2858
2859	39517.148	41269.432	8187.569	-0.69	8186.880	2859
2860	39522.229	43122.708	7668.578	-0.59	7667.988	2860
2861	39524.858	42491.620	7758.482	0.06	7758.537	2861
1834	39526.430	35011.662	7591.548	1.00	7592.545	1834
1835	39536.904	37232.300	7539.658	1.47	7541.132	1835
1836	39547.642	38704.699	8141.275	-0.58	8140.698	1836
1837	39558.753	34419.870	7659.459	-0.26	7659.197	1837
1838	39561.540	35375.185	7510.345	1.89	7512.234	1838
1839	39571.410	37885.926	7802.416	0.44	7802.853	1839
2862	39591.216	39549.913	8483.109	0.04	8483.147	2862
1840	39599.659	36273.710	7432.828	2.62	7435.445	1840
1841	39604.966	34698.373	7621.151	1.99	7623.139	1841
2863	39611.663	42100.179	7730.321	-0.61	7729.709	2863
1842	39615.844	37501.715	7675.271	-0.73	7674.542	1842
1843	39616.053	35775.118	7431.494	1.70	7433.199	1843
1844	39628.460	36023.647	7421.261	1.74	7423.001	1844
2864	39637.961	40610.332	8361.569	1.54	8363.108	2864
1845	39654.873	38295.512	8205.659	0.78	8206.443	1845
1846	39672.441	36600.762	7440.239	0.48	7440.714	1846
2865	39683.532	42304.573	7908.841	-1.80	7907.039	2865
2866	39740.428	40315.108	8418.345	4.36	8422.707	2866
2867	39744.606	41816.153	7823.820	0.03	7823.847	2867
2868	39754.265	42557.012	7921.153	-1.61	7919.539	2868
1847	39756.259	39130.067	8347.846	-0.13	8347.712	1847
1848	39757.684	35533.533	7453.844	1.94	7455.780	1848
1849	39791.461	35208.272	7470.743	2.03	7472.777	1849
1850	39808.874	36944.713	7524.654	-0.62	7524.035	1850
2869	39809.464	39767.565	8498.189	0.59	8498.783	2869
2870	39811.547	41976.859	7783.736	-1.52	7782.220	2870
2871	39816.085	40588.527	8433.336	0.56	8433.893	2871
1851	39819.770	35339.472	7431.141	2.48	7433.624	1851
2872	39827.288	40789.102	8365.742	-0.59	8365.153	2872
2873	39840.097	41430.112	8092.183	-1.18	8091.008	2873
2874	39845.105	39456.014	8445.675	-0.84	8444.838	2874

1852	39850.417	34978.891	7485.996	2.02	7488.014	1852
1853	39868.188	36031.214	7431.220	0.10	7431.317	1853
2875	39870.739	40381.738	8460.011	0.10	8460.114	2875
1854	39883.857	37616.195	7872.253	0.30	7872.557	1854
2876	39905.703	42730.306	7953.568	-0.95	7952.613	2876
1855	39905.938	34660.661	7519.363	0.76	7520.126	1855
1856	39915.455	36301.511	7451.296	2.72	7454.020	1856
1857	39926.676	37283.338	7719.470	0.24	7719.712	1857
2877	39943.191	40161.799	8495.775	-0.24	8495.536	2877
1858	39955.464	38019.223	8164.167	0.28	8164.452	1858
2878	39984.673	42148.146	7994.101	-0.76	7993.342	2878
1859	40004.814	38705.673	8385.317	0.83	8386.142	1859
2879	40024.560	42405.483	8128.642	-1.27	8127.371	2879
1860	40034.001	37050.443	7664.947	-0.04	7664.903	1860
1861	40037.908	36671.659	7488.460	1.44	7489.896	1861
1862	40041.266	35228.102	7448.080	1.81	7449.892	1862
2880	40042.629	40461.864	8447.076	0.29	8447.364	2880
1863	40051.695	35602.210	7408.165	2.21	7410.374	1863
2881	40055.881	39945.726	8497.146	-0.11	8497.039	2881
2882	40063.294	41832.477	7830.561	-0.79	7829.768	2882
2883	40101.534	40769.310	8321.633	-1.04	8320.589	2883
1864	40103.153	35983.888	7434.985	1.25	7436.234	1864
1865	40132.993	37421.877	7975.925	0.41	7976.334	1865
2884	40159.593	42260.457	8129.271	-1.18	8128.089	2884
1866	40193.311	34895.448	7420.791	1.42	7422.211	1866
2885	40214.182	42386.946	8167.557	-2.33	8165.229	2885
1867	40228.320	38360.185	8431.914	0.41	8432.329	1867
1868	40230.907	36424.404	7478.899	2.50	7481.397	1868
2886	40235.328	40213.283	8482.274	0.87	8483.147	2886
1869	40237.352	37798.457	8279.363	0.20	8279.567	1869
1870	40282.437	37146.430	7689.695	0.70	7690.398	1870
1871	40293.457	35264.188	7414.439	2.49	7416.930	1871
1872	40294.576	38149.168	8425.533	-0.60	8424.932	1872
1873	40295.049	36289.900	7501.641	2.46	7504.100	1873
1874	40334.396	36915.441	7546.889	1.77	7548.656	1874
2887	40340.467	42050.168	8121.422	-1.95	8119.476	2887
2888	40355.097	41677.249	7898.332	-2.30	7896.035	2888
2889	40365.464	40823.972	8268.463	-1.46	8267.005	2889
1875	40374.828	35662.543	7431.260	1.45	7432.713	1875
2890	40427.011	41826.701	8021.752	-0.54	8021.212	2890
1876	40453.035	37455.913	7870.126	0.50	7870.626	1876
1877	40454.936	36049.062	7576.022	3.17	7579.190	1877
2891	40496.305	42168.659	8192.692	-2.04	8190.648	2891
1878	40542.559	36635.967	7547.869	3.76	7551.631	1878
1879	40603.273	36378.019	7631.111	4.23	7635.341	1879
1880	40611.863	37936.142	8191.197	0.15	8191.349	1880
2892	40618.088	41564.008	7949.475	-1.59	7947.888	2892
1881	40624.615	37125.342	7626.703	1.96	7628.663	1881
2893	40629.919	41892.893	8151.007	-0.49	8150.517	2893
1882	40638.520	35447.250	7451.531	0.61	7452.138	1882
1883	40638.869	35818.362	7556.338	0.45	7556.791	1883
2894	40748.884	40877.419	8231.358	-0.56	8230.801	2894
1884	40783.943	36201.328	7747.250	1.12	7748.370	1884
2895	40797.569	41465.405	7986.759	-2.63	7984.131	2895
2896	40822.807	41600.321	8073.965	-0.36	8073.604	2896
1885	40863.780	36862.887	7584.256	3.55	7587.810	1885
1886	40873.221	37551.065	7781.960	2.48	7784.443	1886

1887	40893.889	35535.476	7589.823	2.96	7592.788	1887
1888	40946.498	35912.978	7815.946	1.57	7817.511	1888
2897	40997.449	41623.181	8141.768	-0.46	8141.306	2897
2898	41088.912	41371.521	8046.575	-2.64	8043.939	2898
1889	41158.507	37222.819	7602.488	1.48	7603.964	1889
1890	41188.851	36017.377	8028.305	1.73	8030.033	1890



G:\Current Drawings\Mine Maps\West Ridge Mine\WR_MAP2000.dwg, 11x17, 3/27/2013 1:12:48 PM