

## POWERTECH (USA) INC.

RICHARD E. BLUBAUGH  
Vice President – Environmental  
Health and Safety Resources

November 4, 2010

Office of Federal and State Materials and  
Environmental Management Programs  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

ATTN: Ron Burrows, Project Manager

**Re: Powertech (USA), Inc.'s Responses to the U.S. Nuclear Regulatory Commission (NRC)  
Staff's Verbal and Email Requests for Clarification of Selected Issues Related to the Dewey-Burdock Uranium Project Environmental Review  
Docket No. 40-9075; TAC No. J 00533**

Dear Mr. Burrows:

This letter and the enclosed material are in response to the follow up discussions with Haimanot Yilma in PM-to-PM telephonic conversations on September 8, 2010 and September 24, 2010. Some of the issues are paraphrased below and one is shown as it was addressed in a follow up email (embedded).

### Air Quality Issues

#### Different NOx Emission Factors Response:

*The NRC staff sought clarification on why two different NOx emission factors were used, 0.031 lb/hp-hr in the Supplemental Report and 0.000441 lb/hp-hr in the response to ER RAIs.*

The source of the NOx emission factor (0.031 lb/hp-hr) in the Supplemental Report was taken from AP-42, Compilation of Air Pollutant Emission Factors. EPA has not updated AP-42 to adjust for the mandatory reductions (90%) in NOx emissions that are currently in effect for large diesel engines. Therefore, to better assess the potential impacts of the project on the National Ambient Air Quality Standard for NOx as requested by NRC in RAI AQ-1, Powertech used an emission factor of 0.2 g/hp-hr (0.000441 lb/hp-hr) in the AERMOD model. This emission factor can be found at 40 CFR 86.007-11, *Emission standards and supplemental requirements for 2007 and later model year diesel heavy duty engines and vehicles.*

#### Summation of Fugitive Emissions on ER\_RAI Table AQ 9.1

*The NRC staff sought clarification on why the total fugitive emissions did not match the sum of the individual line item emissions in ER\_RAI Table AQ 9.1.*

The total did not match the sum of the individual line item emissions due to the cumulative effect of the rounding process in the AERMOD model. Corrections have been made and are shown in the revised table (Enclosed (3 pages)).

Inclusion of Emissions from Drilling Disposal Wells

*The NRC staff sought clarification on whether or not the emissions from the drilling of the disposal wells (as proposed in applicant's Class V UIC permit application) were included in the estimate of emissions calculated by AERMOD.*

The fugitive emissions associated with the construction of the proposed Class V UIC wells were not specifically delineated as a separate line item in the applicant's response dated 11 August 2010, for the following reasons: i) the emissions from drill rigs to be utilized in the construction of these Class V wells are similar to the emissions from the smaller drill rigs to be utilized in the construction of the general well field wells (production, injection and monitoring), ii) the Class V drilling activities, expressed in rig hours, constitute a small fraction of the well drilling operations during the construction phase of the project, and iii) the computed emissions described in the applicant's response of 11 August 2010 already overestimates the magnitude of the emissions from drilling operations.

A comparison of typical drilling equipment for general well field use involving wells of less than 1000 ft depth, and typical drilling equipment suitable for drilling to disposal horizons at approximately 3000 ft depths, is shown in Table 1. As indicated in this table, the engine size for the deep (Class V) Taylor brand drill rig is actually smaller than the engine provided on the general well field GEFCO drill rig. Since both engines fall into the same U.S. EPA class of emission sources, the emissions of the two types of rig will be identical at identical power loads.

Table 1: Comparison of drill rigs for general well field and disposal well purposes.

Parameter	General Well Field Drilling Equipment	Class VDrillin g equipment
Size/model	GEFCO Speedstar 30K	Taylor RT 4000M
Mast Height (ft)	35	55
Horsepower rating (hp)	550	425
Gross Vehicle Weight Rating (lb)	68,000	85,900
Particulate matter Emission factor (g/kW-h)	0.20	0.20

An estimate of the total rig hours required for the pre-recovery construction phase portion of the PA has been computed, based on the rig hours required for each of the several different types of holes (delineation, injection, production, monitoring, and disposal). For this estimation, it was conservatively

assumed that each disposal well will require 75 hours of rig time and that only half of the injection and production wells for the first two well fields will be drilled prior to the beginning of recovery operations. The

results of this estimation is that the construction of four (4) Class V wells within the PAA during the construction phase of the project will require drill rig time of 300 hours, which represents approximately 1% of the approximately 26,000 hours of total rig time required for the pre-recovery construction phase.

Within the applicant's response dated 11 August 2010, Table ER-RAI-AQ9.1 presents the emissions from well drilling operations based on thirteen (13) drill rigs, with each rig operating 2600 hours per year, for a total annual rig-time of approximately 34,000 hours, a 28% excess over the computed estimate of drill rig time, as described in the previous paragraph. The estimated emissions from well drilling operations provided in the applicant's 11 August 2010 response to the NRC staff's request for additional information relating to the Dewey-Burdock Environmental Report are therefore judged to be sufficiently large to allow for inclusion of the emissions from the drilling operations associated with the Class V disposal wells.

While the foregoing analysis is based on the drill rig hours required for drilling the various well types, an analysis of the emissions from the various auxiliary drilling equipment (well logging trucks, water trucks, backhoes, etc.) would follow a similar analysis since the use of such equipment can reasonably be expected to be proportional to the hours of operation of the associated drill rig. If required, additional disposal wells up to a total maximum of eight (8) Class V disposal wells will be constructed within the PAA. The additional four (4) wells would be drilled as needed during the recovery and restoration phases; as it is unlikely that all four additional Class V wells would be constructed in any one year, annual emissions from those well constructions can be expected to be less than in the pre-recovery construction phase of the project.

#### **Fuson Isopach: Final Review Version and RAI for Database**

*In a PM-to-PM telephone conference with NRC staff on September 24, 2010, clarification was sought regarding which isopach of the Fuson Formation was the final figure intended for NRC staff review. In addition, NRC staff requested a copy of applicant's database used to generate the figure.*

Email attachment from NRC Staff, September 30, 2010  
Re: Environmental Review; Follow-up Clarifications

*As part of its response to RAI-WR2, PowerTech (USA) Inc. provided electronic and hard copies of an updated isopach map of the Fuson member of the Lakota Formation (Supplemental Exhibit 3.2-3 - Revised). Included in the electronic files are four versions of the isopach map. These electronic files were labeled as:*

- (i) *Exhibit 3.2-3 Fuson Isopach (R644).pdf,*
- (ii) *Exhibit 3.2-3 Fuson Isopach (R645).pdf,*
- (iii) *Exhibit 3.2-3 Fuson Isopach (R646).pdf,*
- (iv) *R641\_Fuson Isopach Exhibit 3.2-3.pdf.*

*Versions R644, R645, and R646 appear to be similar to each other while version R641 appears to be substantially different from the other three files. The hard copy of the isopach map appears to be equivalent to the file "Exhibit 3.2-3 Fuson Isopach (R646).pdf" within the RAI response folder. Staff requires clarification of several aspects of the isopach maps provided and has a request for additional information.*

1. *The isopach map shown in "R641\_Fusion Isopach Exhibit 3.2-3.pdf" contains a greater number of TVA borehole locations/data (shown as black dots) than the isopach map shown in "Exhibit 3.2-3 Fusion Isopach (R646).pdf".*
  - a) *What is the basis for omitting or deleting the TVA borehole locations (shown on R641\_Fusion Isopach Exhibit 3.2-3.pdf) from "Exhibit 3.2-3 Fusion Isopach (R646).pdf"?*
  - b) *Both the TVA and the more recent PowerTech (USA) Inc. data appear to be important in constraining the interpretation of contour lines on the isopach maps. How can versions R641 and R646 have such similar contours given the missing TVA borehole data in version R646?*
  - c) *The 40 ft- contour in Section 3, T7S, R1E (the northwest portion of the Initial Burdock Unit 1) is closed in "Exhibit 3.2-3 Fusion Isopach (R646).pdf", whereas the same contour was left open in "R641\_Fusion Isopach Exhibit 3.2-3.pdf". Which interpretation is correct, and what is the basis for the difference between the two maps?*
  - d) *It is not clear why the applicant has omitted from version R646 several boreholes located in the southwest quadrant of Section 2 (T7S, R1E) and southeast quadrant of Section 3 (T7S, R1E). These boreholes are shown in R641 and appear to be in an area where there is large uncertainty in the thickness of the Fusion member. What is the basis for omitting these data?*
2. *Given that (i) the applicant has noted that the Fusion shale is thinnest in the Burdock area, (ii) there is a higher uncertainty in the thickness of the Fusion shale to the immediate north of the Initial Burdock Mine Unit, (iii) there is convergence of the potentiometric surface of the Fall River and Lakota aquifers in the Burdock area, and (iv) pump tests have indicated the potentially leaky nature of the Fusion shale in the Burdock area, it is important that staff develop a clear independent understanding of the thickness and extent of the Fusion shale in this region to adequately evaluate the potential environmental impacts from ISR activities.*
3. *Therefore, staff requests that the applicant provide the data used to construct isopach maps of the Fusion shale in the Burdock area (the Burdock area includes Sections 1, 2, 3, 10, 11, 12, 14, and 15 of T7S, R1E, and Sections 34 and 35 of T6S, R1E). The data should include that from TVA and PowerTech (USA) Inc. boreholes and any other data PowerTech (USA) Inc. has used to construct isopachs for the Fusion shale in Supplemental Exhibit 3.2-3 – Revised (all versions) and Supplemental Exhibit 3.2-13. An appropriate format for the requested data would include borehole identification numbers, location of boreholes, and the thickness of the Fusion Shale at the designated borehole location.*

**Powertech Response:**

The final version intended for NRC staff review is Exhibit 3.2-3 Fusion Isopach (R646).pdf, which is represented by the hard copy included with the written response as Attachment A. The other 3 versions are drafts that were inadvertently included on the digital file (CD) included with the response.

- 1.a. The difference between the two maps is the underlying base maps. Fusion Isopach Exhibit 3.2-3 (R641) has a base map showing all the historical TVA drill holes, to illustrate the extent of the historic drilling on the project. Since the applicant does not possess all the data from the historic TVA drilling, a representative number (1250) of drill hole logs were selected with a density of data that was deemed to

be sufficient to accurately depict the regional structural and thickness of the various formations and members. Fuson Isopach Exhibit 3.2-3 (R646) has a base map with only the representative drill holes used to create the isopach contours.

1.b. Both versions have similar contours because the same number of data points were used in both versions. The contour version R641 was overlaid on the map showing all historical TVA drill holes, while the contour version R646 was overlaid on a map of just the drill holes used to create the contours shown.

1.c. The applicant believes the interpretation presented in Exhibit 3.2-3 Fuson Isopach (R646) is correct. The open contour was an oversight and was corrected based on a review of the data surrounding the open contour and best professional judgment.

1.d. The basis for omitting from version R646 several boreholes located in the southwest quadrant of Section 2 (T7S, R1E) and southeast quadrant of Section 3 (T7S, R1E) is that Powertech has no drill hole logs (thus no data points) for those historic drill holes shown on map R641.

2. No response requested.

3. The requested data is provided herewith as Attachment A of Response to RAI ER\_WR-3. Due to the privileged and confidential nature of the data, Powertech requests the NRC staff to consider the data attached as response to the "RAI Clarifications for RAI-WR2(2)" as Privileged and Confidential under 10 CFR Sections 2.390(a) (4) and (9). Toward this end and in compliance with 10 CFR Section 2.390, an affidavit has been prepared and is enclosed with this submittal.

We trust this information addresses the requested clarifications and data from NRC's Environmental Review staff. Please contact us at your convenience should you have additional questions or need further clarification regarding our previous submittals.

Respectfully yours,



Richard E. Blubaugh  
VP – Environmental Health & Safety Resources

Enclosures

cc: Amy Thurlkill  
Mark Hollenbeck  
Wallace Mays  
R. F. Clement

**POWERTECH (USA) INC.**

**AFFIDAVIT OF Richard E. Blubaugh**

**Vice President – Environmental Health & Safety Resources**

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- 1. My name is Richard E. Blubaugh and I am the Vice President of Environmental, Health and Safety Resources for Powertech (USA) Inc. (Powertech). I am authorized to execute this affidavit on behalf of Powertech and may bind to the statements contained herein;**
- 2. Powertech (USA) Inc. has submitted a license application to the United States Nuclear Regulatory Commission (NRC) requesting authorization to construct and operate its proposed uranium in situ leach recovery (ISR) project known as the Dewey-Burdock Project in Fall River and Custer Counties in the State of South Dakota;**
- 3. As a part of the NRC staff review of the aforementioned license application, Powertech submitted an affidavit pursuant to 10 CFR § 2.390(a) requesting that NRC withhold certain data and information from public disclosure;**
- 4. During the course of its review of Powertech's license application, NRC Staff issued several requests for additional information (RAIs) to which Powertech is required to respond. Additional RAIs often result from NRC Staff's review of the initial RAI responses which typically are referred to as "open items/issues;"**
- 5. With its responses to the clarification RAIs presented by NRC staff in its email of 9/30/2010 with the subject of "RAI Clarifications for RAI-WR2 (2)," Powertech submitted data and information that qualify for withholding from public disclosure pursuant to 10 CFR Sections 2.390(a)(4) and (a)(9);**
- 6. The data provided in response to the NRC staff "RAI Clarifications for RAI-WR2(2)" is proprietary under 10 CFR Section 2.390(a)(4) as it is a portion of the database used for the economic valuation and mine planning for the proposed Dewey-Burdock Project;**
- 7. The data is also geological in nature and was acquired from proprietary drill hole logs and, thus, is considered privileged and confidential under 10 CFR 2.390(a)(9);**
- 8. Pursuant to NRC regulations, Powertech has marked the pages of the data responding to the 9/30/2010 "RAI Clarifications for RAI-WR2(2)" with the statement: "10 CFR Section 2.390; Privileged and Confidential;"**

9. For the following reasons, Powertech asserts that the aforementioned portion of its response to “RAI Clarifications for RAI-WR2(2)” should be withheld from public disclosure as privileged and confidential information:
- i. The data contained in the response have been held in confidence by Powertech due to its part in the business and economic modeling used by Powertech to evaluate the Dewey-Burdock Project. Due to the extreme sensitivity of this information, Powertech does not provide such information to public or private entities;
  - ii. The data contained in the above-mentioned portion of the responses are customarily held in confidence by businesses and other organizations seeking to protect information related to the economic modeling aspects of the development of uranium projects such as the Dewey-Burdock Project;
  - iii. The data contained in the above-mentioned response are being transmitted to the NRC Staff in confidence. Indeed, any such data shown to NRC Staff were only revealed in a non-public context;
  - iv. The data regarding the Fusion Isopach listed in Powertech’s response to “RAI Clarifications for RAI-WR2 (2)” are not available in any public sources;
  - v. Release of the data and information contained in the above-mentioned response to “RAI Clarifications for RAI-WR2 (2) may cause substantial harm to Powertech and its shareholders should competitors and/or opponents of the proposed Dewey-Burdock Project attempt to reinterpret and publish the data for the purpose of negatively affecting the licensing and permitting or economic valuation of the proposed Dewey-Burdock Project;
  - vi. Powertech fully understands that withholding the designated data and information does not deprive any independent party from inspecting the confidential information under the terms of an appropriate NRC protective order issued either in the context of a National Environmental Policy Act (NEPA) review process or in an administrative hearing/proceeding before the Atomic Safety and Licensing Board (ASLB).

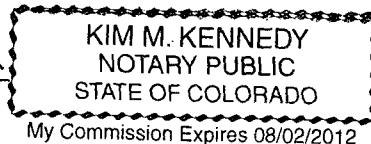
*Richard E. Blubaugh*  
Richard E. Blubaugh, Vice President  
Powertech (USA), Inc.

State of Colorado              )  
                                      )ss.  
County of Arapahoe            )

The foregoing Affidavit was subscribed, sworn and acknowledged before  
me this 4th day of November, 2010, by Richard E. Blubaugh, as Vice  
President of Powertech (USA) Inc., a South Dakota corporation.

Witness my hand and official seal.

*Kim M. Kennedy*  
Notary Public



My commission expires: 8/2/2012

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
CAT1	1028330	444666	3256.3	3297.3	41
DB071027	1032785	430841	3309.6	3344.6	35
DB07111	1035258	431257	3382	3411	29
DB071114C	1035206	429768	3392	3453	61
DB071115	1034986	429771	3382	3444	62
DB07112	1035155	431270	3385	3408	23
DB07119	1035745	432693	3354.4	3387.4	33
DB0712	1039369	433840	3625.3	3683.3	58
DB07293	1019904	446513	2961.2	3014.2	53
DB080106	1043742	433344	3736	3785	49
DB081118	1035037	429981	3384	3455	71
DB081119	1035092	430024	3375	3448	73
DB08152	1028524	427261	3128	3179	51
DB083211	1020339	443666	2957	3016	59
DB0851	1020684	437010	2937	2994	57
DB71111C	1035087	429992	3388.310059	3452.310059	64
DRA1	1040743	434895	3702.969971	3753.969971	51
DRA10	1039111	438225	3674.760254	3719.760254	45
DRA11	1039942	437050	3701.030029	3749.030029	48
DRA13	1041720	433698	3751.5	3805.5	54
DRA18	1041901	433654	3762.010254	3814.010254	52
DRA2	1040851	434877	3723.580078	3756.580078	33
DRA24	1041746	433365	3745.689941	3806.689941	61
DRA29	1041018	434696	3691.080078	3736.080078	45
DRA30	1041190	434549	3698.52002	3751.52002	53
DRA31	1041227	434592	3731.560059	3779.560059	48
DRA33	1037258	437557	3548.239746	3586.239746	38
DRA34	1036458	437194	3477.840332	3525.840332	48
DRA36	1038084	438015	3598.379639	3650.379639	52
DRA39	1035911	437031	3438.539795	3485.539795	47
DRA45	1039051	437842	3658.159668	3712.159668	54
DRA46	1040734	434851	3708.969971	3745.969971	37

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DRA7	1039757	437331	3691.510254	3736.510254	45
DRA8	1039657	437509	3696.469971	3741.469971	45
DRA9	1039236	438138	3664.399902	3715.399902	51
DRJ100	1038754	438242	3642.050049	3692.050049	50
DRJ102	1038211	438162	3617.780029	3652.780029	35
DRJ103	1038152	438492	3621.810059	3670.310059	49
DRJ104	1037399	439226	3591.149902	3617.149902	26
DRJ105	1038200	438211	3617.780029	3667.780029	50
DRJ106	1039061	437655	3661.710205	3701.710205	40
DRJ107	1039075	437586	3671.77002	3721.77002	50
DRJ109	1040521	436084	3708.889893	3753.889893	45
DRJ110	1039081	437767	3655.159668	3712.159668	57
DRJ111	1039041	437616	3659.710205	3698.710205	39
DRJ112	1039064	437497	3666.77002	3704.77002	38
DRJ113	1039279	437250	3659.199951	3686.699951	28
DRJ114	1039086	437341	3640.379639	3698.379639	58
DRJ116	1038836	438176	3648.169922	3703.169922	55
DRJ118	1038191	438749	3613	3668	55
DRJ169	1035652	439230	3474.280029	3514.280029	40
DRJ171	1035708	439234	3475.280029	3516.280029	41
DRJ175	1035749	439114	3473.310059	3512.310059	39
DRJ49	1041022	434808	3743.189941	3787.189941	44
DRJ50	1040890	434703	3720.659668	3751.659668	31
DRJ54	1041478	434245	3756.27002	3792.27002	36
DRJ56	1038642	438878	3690.129639	3734.129639	44
DRJ57	1038934	438761	3703.77002	3754.77002	51
DRJ58	1038898	439189	3710.039795	3757.039795	47
DRJ59	1039506	437872	3687.080078	3739.080078	52
DRJ60	1038550	439480	3700.149902	3719.649902	20
DRJ62	1038236	438592	3617.810059	3670.810059	53
DRJ63	1038528	439118	3668.419922	3711.419922	43
DRJ64	1038142	438304	3604.260254	3662.260254	58

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DRJ66	1038422	439563	3669.379639	3715.379639	46
DRJ67	1038521	439546	3677.149902	3724.149902	47
DRJ68	1038607	439462	3683.530029	3723.530029	40
DRJ73	1037951	434320	3557.669922	3607.669922	50
DRJ75	1038305	434619	3570.659668	3628.659668	58
DRJ79	1038238	435144	3574.930176	3627.930176	53
DRJ80	1038251	435529	3578.659668	3628.659668	50
DRJ81	1038405	434739	3580.949951	3639.949951	59
DRJ82	1038371	435315	3577.210205	3632.210205	55
DRJ84	1038275	434483	3589.590332	3629.590332	40
DRJ85	1038311	435025	3574.669922	3630.669922	56
DRJ86	1038307	435226	3574.210205	3627.210205	53
DRJ87	1038323	435416	3580.310059	3632.310059	52
DRJ90	1037602	438720	3579.850098	3629.850098	50
DRJ91	1037005	439064	3552.739746	3599.739746	47
DRJ94	1037894	438378	3592.300049	3649.300049	57
DRJ95	1038127	438143	3603.159668	3647.159668	44
DRJ96	1038911	438091	3651.330078	3704.330078	53
DRJ97	1038013	438327	3613.649902	3661.649902	48
DRJ98	1037711	438661	3581.239746	3637.239746	56
DRJ99	1038173	438272	3610.260254	3662.260254	52
DRM1	1036592	439249	3539.909668	3589.909668	50
DRM10	1037626	438602	3535.850098	3573.850098	38
DRM11	1037607	438823	3593.449951	3626.449951	33
DRM12	1037551	439047	3594.289795	3639.289795	45
DRM16	1040575	435477	3680.870361	3719.870361	39
DRM17	1040428	435668	3669.860107	3723.860107	54
DRM2	1037695	438247	3616.310059	3649.310059	33
DRM20	1040577	435216	3698.780029	3742.780029	44
DRM22	1040540	435424	3688.430176	3730.430176	42
DRM25	1040539	435639	3663.800049	3712.800049	49
DRM26	1040487	435791	3658.919922	3708.919922	50

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DRM27	1040261	436740	3733.050049	3764.050049	31
DRM28	1040527	435683	3663.800049	3709.800049	46
DRM29	1040523	435754	3668.199951	3709.199951	41
DRM30	1040528	435821	3651.199951	3706.199951	55
DRM33	1040350	436566	3720.139893	3757.139893	37
DRM34	1040082	436802	3695.649902	3740.649902	45
DRM35	1040410	436452	3708.370361	3749.370361	41
DRM36	1040815	434838	3697	3744	47
DRM37	1040047	436861	3700.780029	3739.780029	39
DRM38	1040274	436671	3720.060059	3765.060059	45
DRM4	1038300	434050	3577.289795	3620.289795	43
DRM40	1040558	435982	3678.889893	3723.889893	45
DRM41	1040468	435682	3676.860107	3721.860107	45
DRM43	1040537	435525	3676.870361	3718.870361	42
DRM44	1040473	435746	3679.919922	3718.919922	39
DRM48	1040125	436830	3714.649902	3753.649902	39
DRM53	1041141	434539	3682.899902	3770.899902	88
DRM54	1041064	434621	3729.159668	3772.159668	43
DRM55	1040282	436867	3713.72998	3763.72998	50
DRM56	1040312	436650	3717.060059	3767.060059	50
DRM8	1037834	438499	3587.689941	3642.689941	55
DRS38	1039872	437194	3693.469971	3738.469971	45
DRS40	1040411	436515	3719.22998	3758.22998	39
DRS42	1040551	435848	3666.560059	3715.560059	49
DRS43	1040491	435630	3683.860107	3734.860107	51
DRS45	1040415	436398	3711.370361	3756.370361	45
DRS46	1040436	436254	3718.030029	3763.030029	45
DRS47	1040328	436424	3707.389893	3742.389893	35
DRS48	1040223	436663	3712.689941	3735.189941	23
DRS49	1040287	436606	3722.060059	3769.060059	47
DRS50	1040358	436486	3712.139893	3747.139893	35
DRS51	1040422	436330	3721.030029	3757.030029	36

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DRT18	1040109	436540	3702.610107	3749.610107	47
DRT19	1040051	436662	3714.710205	3747.710205	33
DRT20	1040228	436593	3722.689941	3758.689941	36
DRT21	1040022	436908	3711.780029	3750.780029	39
DRT22	1040128	436900	3709.780029	3754.780029	45
DRT23	1040451	436144	3711.300049	3760.300049	49
DRT24	1040833	436008	3731.350098	3774.350098	43
DRT25	1040918	435759	3735.149902	3783.149902	48
DRT27	1040746	435308	3733.870361	3772.870361	39
DRT28	1040746	435308	3722.25	3770.25	48
DRT29	1040738	434972	3706.539795	3749.539795	43
DRT30	1040219	436833	3734.050049	3765.050049	31
DRT32	1040841	435120	3716.639893	3758.639893	42
DRT33	1038796	438625	3646.139893	3689.139893	43
DRT38	1038739	438622	3669.210205	3704.210205	35
DRT4	1039669	437464	3693.850098	3739.850098	46
DRT5	1039465	437668	3694.260254	3732.260254	38
DRT6	1039449	437919	3684.080078	3737.080078	53
DRT79	1040154	436840	3717.439941	3766.439941	49
DRT83	1038910	438521	3622.27002	3697.27002	75
DRW1	1039103	437603	3647.710205	3700.710205	53
DRW15	1039457	437982	3684.780029	3727.780029	43
DRW2	1039175	437504	3677.330078	3714.330078	37
DRW23	1039012	437943	3666.25	3700.25	34
DRW29	1039565	437755	3707.090332	3756.090332	49
DRW31	1039503	437775	3680	3728	48
DRW32	1039510	437720	3704.050049	3734.050049	30
DRW33	1039475	437594	3702.260254	3725.260254	23
DRW34	1039516	437658	3687.510254	3732.510254	45
DRW36	1039560	437524	3686.510254	3731.510254	47
DRW37	1039606	437497	3688.510254	3728.510254	40
DRW39	1039717	437347	3692.850098	3738.850098	46

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DRW4	1039218	437393	3654.760254	3709.760254	55
DRW40	1039629	437551	3686.510254	3733.510254	47
DRW41	1039773	437462	3702.090332	3745.090332	43
DRW42	1039793	439308	3696.949951	3741.949951	45
DRW43	1039810	437183	3694.469971	3741.469971	47
DRW5	1039332	437302	3660	3711	51
DWA101	1023221	443935	3036.419922	3086.419922	50
DWA102	1024697	442717	3084.300049	3139.300049	55
DWA103	1023972	443543	3040.100098	3105.100098	65
DWA104	1023142	444118	3032.469971	3084.469971	52
DWA105	1025121	443178	3085.370117	3128.370117	43
DWA106	1024042	443724	3050.26001	3095.26001	45
DWA107	1024966	443273	3092.449951	3137.449951	45
DWA108	1024201	443840	3058	3100	42
DWA109	1024601	443756	3091.199951	3131.199951	40
DWA110	1024403	443836	3058.070068	3108.070068	50
DWA111	1024006	443897	3044.679932	3089.679932	45
DWA112	1024577	443950	3074.800049	3116.800049	42
DWA113	1023620	444201	3041.310059	3086.310059	45
DWA114	1021971	445698	2984.969971	3037.969971	53
DWA117	1019197	444202	2934.719971	2964.719971	30
DWA119	1019350	444285	2938.23999	2983.23999	45
DWA120	1019619	443846	2944.439941	2997.439941	53
DWA122	1019355	444109	2938.149902	2981.149902	43
DWA124	1020724	443810	2968.879883	3020.879883	52
DWA125	1019164	444308	2930.949951	2957.949951	27
DWA128	1019277	444356	2936.350098	2966.350098	30
DWA131	1018987	444372	2931.679932	2976.679932	45
DWA132	1019098	444224	2929.290039	2995.290039	66
DWA134	1022583	454283	3135.429932	3200.429932	65
DWA135	1021517	454591	3141.820068	3178.820068	37
DWA136	1021930	454081	3131.949951	3191.949951	60

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DWA138	1019530	443910	2940.76001	2990.76001	50
DWA139	1019420	444337	2938.23999	2978.23999	40
DWA140	1018819	444511	1919	1958	39
DWA141	1019645	443939	2935	2991	56
DWA142	1019005	444475	2931.679932	2976.679932	45
DWA147	1020037	443563	2947.139893	3002.139893	55
DWA149	1022684	443983	3006.580078	3059.580078	53
DWA150	1022159	444007	2995.030029	3058.030029	63
DWA151	1022674	443293	3006.659912	3056.659912	50
DWA152	1023016	443393	3017.330078	3062.330078	45
DWA154	1023563	443567	3039.330078	3089.330078	50
DWA155	1023460	443499	3024.330078	3079.330078	55
DWA156	1023455	443616	3011.340088	3073.340088	62
DWA159	1022428	449496	3046.100098	3096.100098	50
DWA161	1023373	447499	3065.360107	3123.360107	58
DWA162	1022284	449571	3040.290039	3107.290039	67
DWA163	1023225	449452	3096.409912	3148.409912	52
DWA164	1023524	447745	3078.51001	3136.51001	58
DWA165	1022252	447668	3021	3073	52
DWA166	1023579	449500	3098.02002	3148.02002	50
DWA167	1023735	447561	3072.060059	3137.060059	65
DWA168	1024556	449944	3134.25	3189.25	55
DWA169	1023754	449568	3107.639893	3153.639893	46
DWA170	1023887	447653	3087.939941	3150.939941	63
DWA171	1024365	449862	3135.969971	3185.969971	50
DWA172	1024738	449964	3120.22998	3177.22998	57
DWA174	1024055	447517	3090.659912	3142.659912	52
DWA175	1023882	449691	3102	3172	70
DWA176	1024321	451845	3154.580078	3226.580078	72
DWA177	1024221	452192	3157.810059	3229.810059	72
DWA178	1024270	452416	3158.47998	3226.47998	68
DWA179	1024438	452657	3167.840088	3233.840088	66

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DWA180	1024309	452967	3173.280029	3238.280029	65
DWA181	1024421	452080	3172.340088	3237.340088	65
DWA182	1024302	452567	3168.23999	3243.23999	75
DWA183	1024462	453419	3188	3210	22
DWA184	1023992	450509	3131.97998	3180.97998	49
DWA185	1023998	450720	3132.800049	3177.800049	45
DWA186	1024167	452418	3151.189941	3214.189941	63
DWA187	1024203	452974	3158.280029	3238.280029	80
DWA188	1024215	451909	3152.5	3202.5	50
DWA192	1020803	444657	2962.560059	3017.560059	55
DWA195	1020519	443323	2955.610107	3015.610107	60
DWA196	1022114	445667	2965.360107	3045.360107	80
DWA199	1024326	454108	3211	3281	70
DWA21	1022919	443569	2969.48999	3022.48999	53
DWA40	1025094	443325	3091	3136	45
DWA55	1023972	443248	3045	3095	50
DWM10	1027545	442513	3198.959961	3243.959961	45
DWM11	1027154	442550	3180.409912	3238.409912	58
DWM12	1026358	442721	3137.429932	3190.429932	53
DWM15	1027769	442527	3188.030029	3246.030029	58
DWM16	1026193	442742	3134.199951	3185.199951	51
DWM17	1027086	442025	3175.540039	3225.540039	50
DWM2	1025418	443008	3101.219971	3146.219971	45
DWM20	1027656	442675	3199.629883	3247.629883	48
DWM21	1027512	442738	3186.3	3234.3	48
DWM3	1027233	442246	3168.129883	3227.129883	59
DWM34	1024830	442235	3077.290039	3131.290039	54
DWM35	1024092	443538	3045.389893	3101.389893	56
DWM4	1026791	442339	3164.179932	3224.179932	60
DWM41	1024375	454209	3219.300049	3288.300049	69
DWM42	1024560	453407	3162.969971	3249.969971	87
DWM43	1024421	454168	3218.300049	3284.300049	66

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fusion thickness
DWM44	1024515	453570	3719	3754	35
DWM45	1024348	454672	3219.97998	3284.97998	65
DWM5	1027379	441970	3165.330078	3222.330078	57
DWM57	1020834	443958	2971.060059	3021.060059	50
DWM6	1026996	442151	3168.5	3234.5	66
DWM7	1026921	442405	3158.73999	3214.73999	56
DWM8	1026479	442519	3136.23999	3188.23999	52
DWM9	1027213	442083	3179.469971	3226.469971	47
DWT11	1028617	449994	3385.850098	3435.850098	50
DWT13	1018363	444511	2917.459961	2968.459961	51
DWT14	1019053	443128	2940.77002	2978.77002	38
DWT15	1018711	444491	2917.629883	2957.629883	40
DWT16	1019357	443324	2937.290039	2991.290039	54
DWT2	1025157	442498	3086.570068	3147.570068	61
DWT24	1020320	443451	2951.919922	3001.919922	50
DWT25	1022086	443847	2988.120117	3042.120117	54
DWT27	1020162	443294	2949.590088	2998.590088	49
DWT32	1022193	446899	3001.919922	3055.919922	54
DWT34	1022825	447050	3032.77002	3084.77002	52
DWT36	1023172	447000	3040.340088	3086.340088	46
DWT47	1022500	446051	3015.300049	3087.300049	72
DWT48	1025864	444053	3129.600098	3165.600098	36
DWT50	1024820	442967	3091.310059	3146.310059	55
DWT51	1025690	443863	3129.51001	3166.51001	37
DWT52	1025618	443728	3111.639893	3152.639893	41
DWT53	1025849	443900	3139.389893	3169.389893	30
DWT54	1025654	443575	3110.47998	3156.47998	46
DWT55	1025818	443603	3132.030029	3174.030029	42
DWT56	1025524	443222	3114.040039	3164.040039	50
DWT57	1025217	442957	3072.679932	3131.679932	59
DWT58	1025586	443405	3117.129883	3165.129883	48
DWT60	1023373	447499	3100.429932	3145.429932	45

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
DWT61	1025475	443831	3105.850098	3149.850098	44
DWT62	1025432	442922	3082.77002	3138.77002	56
DWT63	1025217	443136	3072.929932	3129.929932	57
DWT65	1018916	444528	2931.419922	2971.419922	40
DWT66	1026508	442389	3146.919922	3195.919922	49
DWT68	1026683	442329	3157.100098	3219.100098	62
DWT69	1027534	442357	3184.100098	3247.100098	63
DWT70	1027138	442287	3172.709961	3222.709961	50
DWT72	1018932	444193	2924.070068	2955.070068	31
DWT73	1019153	444117	2934.290039	3001.290039	67
DWT75	1019954	443564	2949.649902	2986.649902	37
DWT77	1019834	443738	2949.879883	2995.879883	46
DWT78	1019421	443762	2936.459961	2986.459961	50
DWT79	1022407	443564	2995.429932	3039.429932	44
DWT8	1019489	444391	2956.320068	2992.320068	36
DWT80	1019609	443713	2950.929932	3005.929932	55
DWT81	1020676	443673	2966.669922	3019.669922	53
DWT85	1019025	442918	2932	2975	43
DWT86	1019228	443036	2922.840088	2978.840088	56
DWT90	1018228	444228	2915.300049	2971.300049	56
DWT92	1028373	440800	3197	3247	50
DWT97	1021967	454023	3130.610107	3187.610107	57
DWT98	1024368	454160	3215.300049	3290.300049	75
DWT99	1021876	453964	3111.449951	3174.449951	63
ELA1	1021826	443585	2986.280029	3034.280029	48
ELA101	1019704	442010	2952.719971	2997.719971	45
ELA108	1021415	444780	2974.800049	3028.800049	54
ELA109	1021497	445037	2977	3026	49
ELA110	1021262	444336	2978	3033	55
ELA19	1021327	445330	2975.530029	3030.530029	55
ELA2	1021451	443536	2992.379883	3037.379883	45
ELA20	1021206	444676	2973.219971	3035.219971	62

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
ELA21	1021249	445091	2971.399902	3026.399902	55
ELA22	1021201	444492	2971.590088	3031.590088	60
ELA23	1021115	445204	2967.629883	3023.629883	56
ELA24	1021003	444402	2972.51001	3027.51001	55
ELA25	1021081	445013	2978.459961	3028.459961	50
ELA26	1021171	444867	2982.570068	3035.570068	53
ELA27	1021012	444793	2966.620117	3024.620117	58
ELA28	1020909	444276	2972.5	3022.5	50
ELA29	1020962	443731	2968.629883	3023.629883	55
ELA3	1021378	443462	3006.689941	3036.689941	30
ELA30	1021233	445250	2977.830078	3032.830078	55
ELA32	1021919	446067	2983.169922	3033.169922	50
ELA33	1021101	443707	2971.639893	3023.639893	52
ELA34	1020924	444893	2964.669922	3014.669922	50
ELA35	1021107	443816	2972.639893	3027.639893	55
ELA36	1021321	443375	2986.689941	3036.689941	50
ELA37	1020858	444591	2961.379883	3015.379883	54
ELA38	1021219	443431	2980.360107	3030.360107	50
ELA39	1021726	443781	2978.120117	3023.120117	45
ELA4	1022017	443583	2981.780029	3028.780029	47
ELA40	1021670	443512	2992.76001	3042.76001	50
ELA41	1020236	442875	2946.540039	2996.540039	50
ELA42	1021071	444174	2970.620117	3025.620117	55
ELA43	1021655	443965	2988.25	3043.25	55
ELA44	1021261	444905	2979.810059	3029.810059	50
ELA45	1021172	443509	2980.939941	3028.939941	48
ELA46	1021641	443377	2992.73999	3037.73999	46
ELA48	1020867	444020	2974.790039	3024.790039	50
ELA49	1021565	443298	2994.360107	3039.360107	45
ELA5	1021331	443276	2986.620117	3036.620117	50
ELA50	1021848	443475	2986.719971	3038.719971	52
ELA52	1021905	443737	2985.379883	3034.379883	49

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
ELA53	1021764	443865	2974.810059	3024.810059	50
ELA54	1021723	443306	2997.399902	3046.399902	49
ELA55	1020964	443624	2971.48999	3021.48999	50
ELA56	1021581	443698	2989.699951	3037.699951	48
ELA57	1021469	443766	2984.469971	3044.469971	60
ELA6	1021443	443363	2995.02002	3047.02002	52
ELA60	1021827	443401	2991.719971	3040.719971	49
ELA61	1021479	443915	2989.330078	3043.330078	54
ELA62	1021517	443388	2988.02002	3037.02002	49
ELA63	1021920	443435	2991.719971	3036.719971	45
ELA64	1021237	443726	2979.689941	3031.689941	52
ELA65	1020850	443379.5	2964.310059	3017.310059	53
ELA66	1021588	445055	2985.699951	3040.699951	55
ELA67	1021173	444339	2977.219971	3032.219971	55
ELA70	1020944	443948	2972.810059	3023.810059	51
ELA71	1021805	445209	2973.159912	3038.159912	65
ELA72	1021690	444868	2981.040039	3043.040039	62
ELA73	1021562	444720	2977.120117	3034.120117	57
ELA75	1021764	445048	2976.629883	3028.629883	52
ELA76	1021185	444195	2975.620117	3032.620117	57
ELA77	1021016	444238	2975.540039	3029.540039	54
ELA78	1020963	444817	2963.620117	3019.620117	56
ELA79	1021689	445735	2967	3023	56
ELA80	1021915	445386	2981.449951	3034.449951	53
ELA82	1021173	445173	2972.629883	3033.629883	61
ELA83	1021768	444714	2979.27002	3036.27002	57
ELA84	1022046	446048	2987.25	3047.25	60
ELA85	1021588	445364	2976.51001	3029.51001	53
ELA86	1021914	445271	2980.100098	3037.100098	57
ELA87	1021501	444486	2979.149902	3037.149902	58
ELA88	1021918	444912	2987.280029	3037.280029	50
ELA89	1021918	445500	2989.959961	3047.959961	58

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
ELA90	1020397	442821	2947.540039	2995.540039	48
ELA91	1020375	442630	2949.52002	3006.52002	57
ELA92	1019872	442186	2943.75	2998.75	55
ELA93	1019943	442298	2946	2996	50
ELM 100	1015918	445915	2899	2946	47
ELM 101	1016843	445110	2895	2952	57
ELM 91	1015725	445122	2880	2930	50
ELM 92	1017740	446180	2929	2981	52
ELM107	1020916	445007	2968.080078	3022.080078	54
ELT 15	1017424	444794	2898	2952	54
ELT 27	1016396	445568	2905	2945	40
ELT1	1020736	442632	2971.610107	3016.610107	45
ELT13	1021671	443659	2991.699951	3036.699951	45
ELT16	1021837	443798	2981.379883	3030.379883	49
ELT40	1021054	442650	2964.5	3015.5	51
ELT46	1020693	443223	2954.320068	3010.320068	56
FBA5	1034864	429533	3374.810059	3437.810059	63
FBA6	1035305	429894	3392.360107	3467.360107	75
FBJ34	1035793	430117	3420.02002	3460.02002	40
FBJ35	1035455	429960	3411.889893	3466.889893	55
FBM10	1038326	429584	3539.989746	3606.989746	67
FBM101	1035070	429730	3386.75	3451.75	65
FBM104	1036923	429881	3492.239746	3527.239746	35
FBM106	1036745	429914	3485.830078	3520.830078	35
FBM11	1038158	429480	3544.350098	3614.350098	70
FBM111	1036876	429563	3490.610107	3529.610107	39
FBM12	1038106	429397	3547.800049	3617.800049	70
FBM120	1037889	429112	3536.760254	3597.760254	61
FBM125	1038117	429331	3547.800049	3614.800049	67
FBM126	1038013	429382	3544.010254	3604.010254	60
FBM127	1037950	429359	3544.010254	3599.010254	55
FBM13	1037668	430009	3511.030029	3549.030029	38

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
FBM130	1037794	429262	3532.379639	3582.379639	50
FBM131	1038167	429352	3543.22998	3612.22998	69
FBM133	1038323	429303	3552.840332	3611.840332	59
FBM135	1038398	429323	3540.97998	3610.97998	70
FBM136	1038462	429296	3552.800049	3627.800049	75
FBM137	1038518	429253	3547	3611	64
FBM14	1037892	429979	3517.260254	3573.260254	56
FBM140	1038463	429223	3554.800049	3622.800049	68
FBM142	1038281	429270	3557.840332	3621.840332	64
FBM144	1037949	429296	3549.810059	3600.810059	51
FBM145	1038001	429283	3539.810059	3609.810059	70
FBM147	1038464	429176	3564.399902	3623.399902	59
FBM148	1038385	429221	3553.840332	3618.840332	65
FBM15	1037527	429981	3508.210205	3553.210205	45
FBM150	1038055	429296	3577.189941	3610.189941	33
FBM151	1038192	429304	3548.489746	3615.489746	67
FBM152	1036397	430485	3443.569824	3478.569824	35
FBM155	1036342	430179	3442.030029	3477.030029	35
FBM158	1035973	429907	3418.289795	3460.289795	42
FBM159	1035859	429915	3409.760254	3457.760254	48
FBM164	1035873	429818	3417.760254	3462.760254	45
FBM174	1036517	430117	3464.550049	3500.550049	36
FBM18	1037562	429805	3508.260254	3558.260254	50
FBM180	1036214	430052	3427.930176	3465.930176	38
FBM181	1036591	430054	3464.949951	3504.949951	40
FBM187	1036816	429826	3483.409668	3522.409668	39
FBM19	1037497	429731	3484.22998	3559.22998	75
FBM194	1037794	432410	3502.560059	3565.560059	63
FBM195	1034772	429751	3375.659668	3435.659668	60
FBM196	1035203	429614	3392.139893	3462.139893	70
FBM197	1035280	429717	3399.090332	3469.090332	70
FBM198	1035754	430086	3415.370361	3456.370361	41

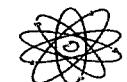
Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
FBM2	1038061	429750	3531.969971	3600.969971	69
FBM20	1037437	429630	3510.27002	3555.27002	45
FBM201	1037229	429314	3511.75	3549.75	38
FBM22	1038252	430189	3511.47998	3578.47998	67
FBM23	1038420	430306	3517.360107	3582.360107	65
FBM24	1038464	430395	3513.850098	3575.850098	62
FBM25	1038332	430470	3509.010254	3571.010254	62
FBM26	1038347	430564	3501.010254	3562.010254	61
FBM27	1038165	430669	3503.300049	3568.300049	65
FBM29	1038544	429719	3546.030029	3601.030029	55
FBM3	1038127	429794	3526.969971	3596.969971	70
FBM30	1038432	429586	3543	3596	53
FBM32	1038319	429405	3548.22998	3618.22998	70
FBM33	1038261	429305	3545.489746	3615.489746	70
FBM34	1038191	429527	3544.350098	3607.350098	63
FBM35	1038231	429679	3536.909668	3606.909668	70
FBM36	1038078	429472	3532.739746	3602.739746	70
FBM37	1038268	429489	3539.550049	3609.550049	70
FBM38	1038128	429711	3537.969971	3606.969971	69
FBM39	1038036	429703	3531.969971	3606.969971	75
FBM4	1038147	429901	3522.110107	3602.110107	80
FBM50	1036680	429994	3480.039795	3515.039795	35
FBM53	1036413	430134	3443.409668	3477.409668	34
FBM58	1036173	430186	3438.620361	3481.620361	43
FBM6	1038203	429602	3536.909668	3601.909668	65
FBM68	1035790	429769	3417.260254	3471.260254	54
FBM7	1038040	430015	3513.419922	3590.419922	77
FBM70	1035756	429731	3414.260254	3474.260254	60
FBM8	1038249	429613	3534.909668	3604.909668	70
FBM81	1035399	429742	3408.350098	3461.350098	53
FBM84	1035286	429865	3403.360107	3462.360107	59
FBM90	1035115	429688	3390.75	3460.75	70

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
FBM93	1035086	429875	3390.22998	3455.22998	65
FBM94	1035071	429826	3391.22998	3458.22998	67
FBM98	1035123	430229	3400.360107	3442.360107	42
FBM99	1035073	429918	3387.22998	3450.22998	63
FBR41	1038206	429894	3532.110107	3596.110107	64
FBR42	1038293	429778	3534.719971	3604.719971	70
FBR43	1038034	429832	3525.539795	3594.539795	69
FBR44	1036040	430082	3436.469971	3473.469971	37
FBR46	1035855	430130	3424.02002	3463.02002	39
FBR47	1035808	430184	3417.02002	3457.02002	40
FBR49	1035397	430398	3400.669922	3435.669922	35
FBR50	1035267	430484	3389.930176	3424.930176	35
FBR51	1038385	429696	3536.719971	3606.719971	70
FBR52	1035844	430225	3421.97998	3456.97998	35
FBR54	1036586	430777	3422.870361	3477.870361	55
FBR56	1037002	429702	3494.22998	3529.22998	35
FBR57	1034733	430288	3365.72998	3424.72998	59
FBR59	1036763	430588	3447.569824	3482.569824	35
FBR60	1036594	430636	3445.600098	3480.600098	35
FBR61	1036809	430819	3453	3486	33
FBR62	1036830	430504	3470.510254	3491.510254	21
FBR63	1036834	430646	3453.569824	3505.569824	52
FBR64	1036652	430822	3440.590332	3479.590332	39
FBR65	1037481	431749	3478.199951	3533.199951	55
FBR66	1037045	429798	3489.719971	3527.719971	38
FBR67	1037095	429670	3499.139893	3535.139893	36
FBR68	1037367	431792	3456.930176	3509.930176	53
FBS1	1038514	431869	3536.600098	3602.600098	66
FBS103	1035046	430255	3386.360107	3420.360107	34
FBS105	1035047	430097	3386.340332	3451.340332	65
FBS106	1034932	430317	3375.139893	3421.139893	46
FBS107	1034942	430266	3377.430176	3427.430176	50

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
FBS108	1034686	430339	3369.569824	3424.569824	55
FBS109	1038620	431177	3519.52002	3582.52002	63
FBS11	1038514	431869	3539.560059	3600.560059	61
FBS110	1038616	431101	3517.52002	3583.52002	66
FBS111	1038606	431042	3513.580078	3577.580078	64
FBS112	1038574	430859	3511.699951	3573.699951	62
FBS115	1034149	430149	3376.169922	3419.169922	43
FBS119	1034936	430063	3378.169922	3443.169922	65
FBS12	1038455	431889	3532.409668	3597.409668	65
FBS121	1034795	430028	3374.219971	3431.219971	57
FBS123	1034724	430108	3367.430176	3428.430176	61
FBS124	1034714	430048	3368.870361	3428.870361	60
FBS128	1034664	429962	3368.870361	3431.870361	63
FBS129	1034732	429950	3371.870361	3431.870361	60
FBS13	1038393	431949	3529.069824	3592.069824	63
FBS136	1035298	430158	3394.110107	3445.110107	51
FBS137	1035371	430216	3398.330078	3443.330078	45
FBS138	1035357	430289	3397.330078	3437.330078	40
FBS14	1038342	431844	3518.629639	3582.629639	64
FBS140	1035348	430437	3394.930176	3429.930176	35
FBS141	1035292	430329	3393.930176	3429.930176	36
FBS143	1035185	430468	3379.930176	3414.930176	35
FBS144	1035105	430430	3382.510254	3421.510254	39
FBS145	1035038	430405	3378.510254	3422.510254	44
FBS146	1034904	430467	3367.350098	3400.350098	33
FBS147	1034838	430507	3368.030029	3409.030029	41
FBS148	1034783	430459	3366.030029	3403.030029	37
FBS152	1034721	430531	3357.649902	3395.649902	38
FBS155	1034905	430615	3367.649902	3397.649902	30
FBS156	1034884	430556	3362.350098	3397.350098	35
FBS157	1034759	430572	3366.430176	3411.430176	45
FBS158	1034794	430760	3373.489746	3408.489746	35

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fusion thickness
FBS16	1038278	431792	3520.159668	3585.159668	65
FBS160	1035374	430097	3389.110107	3449.110107	60
FBS161	1035412	430146	3397.569824	3447.569824	50
FBS162	1035575	430262	3410.840332	3450.840332	40
FBS167	1038138	431438	3504.489746	3566.489746	62
FBS168	1038247	431563	3506	3573	67
FBS169	1038287	431598	3512.539795	3578.539795	66
FBS17	1038181	431740	3515.969971	3579.969971	64
FBS170	1038441	431671	3521	3585	64
FBS171	1038147	431298	3516.659668	3580.659668	64
FBS172	1038212	431461	3512	3576	64
FBS173	1038016	431418	3489.72998	3565.72998	76
FBS174	1038059	431077	3487.370361	3562.370361	75
FBS175	1038064	430959	3494.909668	3564.909668	70
FBS176	1038162	430759	3496.280029	3566.280029	70
FBS178	1038511	430297	3516.360107	3579.360107	63
FBS179	1038464	430331	3515.850098	3579.850098	64
FBS18	1038097	431650	3515.780029	3576.780029	61
FBS182	1038644	431527	3524	3589	65
FBS183	1038042	430866	3492.379639	3563.379639	71
FBS184	1038514	431710	3522.289795	3586.289795	64
FBS186	1038506	431635	3522.810059	3587.810059	65
FBS188	1038585	431564	3523.75	3583.75	60
FBS19	1038007	431535	3502.060059	3569.060059	67
FBS190	1038282	430496	3505.010254	3570.010254	65
FBS191	1038132	430616	3504.02002	3569.02002	65
FBS192	1038592	430238	3523.960205	3583.960205	60
FBS196	1038138	431595	3508.330078	3576.330078	68
FBS197	1038290	431644	3510.539795	3575.539795	65
FBS2	1038637	431730	3530.800049	3595.800049	65
FBS20	1038246	431690	3512.330078	3576.330078	64
FBS200	1038083	431027	3491.909668	3559.909668	68

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
FBS201	1037999	431111	3497.439941	3564.439941	67
FBS21	1038445	431819	3529.289795	3592.289795	63
FBS23	1038329	431680	3518.539795	3584.539795	66
FBS24	1038194	431967	3511.930176	3580.930176	69
FBS25	1038180	431607	3511.330078	3579.330078	68
FBS26	1038120	431514	3507.449951	3573.449951	66
FBS27	1038085	431409	3502.72998	3568.72998	66
FBS28	1038028	431324	3500.72998	3565.72998	65
FBS3	1038618	431790	3529.47998	3594.47998	65
FBS30	1038040	431141	3500.370361	3568.370361	68
FBS31	1038028	431035	3494.909668	3564.909668	70
FBS32	1038045	430935	3493.379639	3561.379639	68
FBS34	1038093	430735	3501.610107	3568.610107	67
FBS35	1038160	430449	3491.430176	3556.430176	65
FBS36	1038521	431945	3539.460205	3601.460205	62
FBS37	1038590	431998	3541.460205	3610.460205	69
FBS39	1037934	431346	3497.97998	3567.97998	70
FBS4	1038450	431939	3534.409668	3599.409668	65
FBS40	1037910	431445	3499.060059	3566.060059	67
FBS43	1037733	431368	3514.449951	3554.449951	40
FBS49	1038118	431707	3509.389893	3575.389893	66
FBS5	1038482	431559	3521.370361	3589.370361	68
FBS50	1038078	431824	3512.379639	3579.379639	67
FBS51	1037974	431795	3508.969971	3573.969971	65
FBS52	1037918	431773	3502.969971	3566.969971	64
FBS53	1037966	431745	3503.969971	3572.969971	69
FBS54	1037955	431698	3493.969971	3559.969971	66
FBS55	1037935	431826	3499.629639	3569.629639	70
FBS56	1037909	431723	3491.969971	3556.969971	65
FBS58	1037887	431816	3496.550049	3567.550049	71
FBS59	1037681	431867	3486.789795	3551.789795	65
FBS6	1038546	431372	3528.210205	3593.210205	65



Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
FBS60	1037630	431777	3480.860107	3548.860107	68
FBS61	1037595	431733	3479.860107	3546.860107	67
FBS62	1037555	431671	3479.050049	3554.050049	75
FBS63	1037534	431615	3477.050049	3537.050049	60
FBS64	1037481	431609	3477.129639	3539.129639	62
FBS65	1037541	431780	3472.860107	3534.860107	62
FBS66	1037180	429870	3503.639893	3538.639893	35
FBS67	1037232	429793	3511.010254	3546.010254	35
FBS68	1037366	429711	3513.830078	3553.830078	40
FBS69	1037262	429687	3498.830078	3543.830078	45
FBS7	1038666	431381	3534.52002	3599.52002	65
FBS70	1037287	429581	3504.639893	3546.639893	42
FBS74	1037143	429453	3507.330078	3539.330078	32
FBS76	1037250	429377	3504.75	3547.75	43
FBS77	1036085	429952	3431.189941	3466.189941	35
FBS79	1036172	429996	3432.930176	3472.930176	40
FBS8	1038623	431268	3525.949951	3584.949951	59
FBS80	1036209	429947	3442.930176	3477.930176	35
FBS84	1036353	430064	3430.620361	3468.620361	38
FBS85	1036435	430090	3441.409668	3479.409668	38
FBS86	1036501	430188	3442.560059	3477.560059	35
FBS9	1038590	431746	3524.47998	3589.47998	65
FBS95	1038577	431233	3520.949951	3578.949951	58
FBT157	1038429	432401	3536.139893	3600.139893	64
FBT158	1038226	432326	3522.5	3592.5	70
FBT159	1038312	432367	3529.689941	3594.689941	65
FBT161	1038223	432216	3522.189941	3590.189941	68
FBT162	1038230	432394	3522.5	3597.5	75
FBT163	1038310	432470	3528.590332	3605.590332	77
FBT164	1038395	432553	3542.439941	3608.439941	66
FBT165	1038487	432603	3552.319824	3617.319824	65
FBT167	1038244	432145	3516.739746	3580.739746	64

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
FBT168	1038494	432334	3539.139893	3603.139893	64
FBT169	1038477	432205	3537.659668	3598.659668	61
FBT170	1038206	430617	3498.300049	3563.300049	65
FBT171	1038405	432296	3536.659668	3599.659668	63
FBT175	1038211	430405	3504.370361	3569.370361	65
FBT176	1038101	430566	3503.02002	3570.02002	67
FBT177	1038567	430308	3519.960205	3578.960205	59
FBT178	1038261	432023	3521.930176	3585.930176	64
FBT179	1038464	430331	3543.919922	3601.919922	58
FBT180	1034934	430164	3376.169922	3426.169922	50
FBT182	1037703	433143	3497.860107	3561.860107	64
FBT184	1038617	432307	3538.090332	3603.090332	65
FBT187	1035955	430158	3426.319824	3466.319824	40
FBT190	1038691	432380	3547.449951	3611.449951	64
FBT191	1038580	432515	3546.810059	3610.810059	64
FBT192	1038466	430232	3523.360107	3589.360107	66
FBT193	1038478	429640	3543	3619	76
FBT194	1038660	432488	3551.719971	3621.719971	70
FBT195	1038531	430389	3515.379639	3580.379639	65
FBT196	1038606	430332	3512.379639	3575.379639	63
FBT197	1038534	430238	3525.960205	3588.960205	63
FBT198	1036498	430285	3432.560059	3467.560059	35
FBT200	1038703	432704	3561.210205	3626.210205	65
FBT201	1038262	431972	3516.930176	3580.930176	64
FBT202	1037701	430071	3509.649902	3554.649902	45
FBT203	1037752	429968	3509.030029	3550.030029	41
FBT205	1036089	430700	3413.319824	3456.319824	43
FBT207	1036035	430278	3422.989746	3462.989746	40
FBT210	1036313	430425	3421	3463	42
FBT47	1035125	431658	3376.409668	3402.409668	26
FBW1	1038499	429601	3542	3614	72
FBW2	1038548	429548	3548.27002	3621.27002	73

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fusion thickness
FBW3	1038515	429135	3562.039795	3629.039795	67
FBW4	1038376	429137	3553.97998	3619.97998	66
FBW5	1038062	429242	3543.189941	3620.189941	77
FBW7	1037325	429146	3526.239746	3558.239746	32
FBW8	1037529	429569	3514.090332	3562.090332	48
IHA12	1040347	432027	3608.02002	3675.02002	67
IHA13	1040144	432469	3627.97998	3689.97998	62
IHA18	1039681	432402	3610.649902	3667.649902	57
IHA19	1040367	432366	3624.189941	3689.189941	65
IHA20	1040278	432432	3617.189941	3680.189941	63
IHA21	1040396	431871	3594.72998	3661.72998	67
IHA22	1040436	431924	3608.72998	3678.72998	70
IHA23	1040360	432312	3616.489746	3683.489746	67
IHA24	1040404	432262	3622.97998	3689.97998	67
IHA25	1040417	432157	3621.389893	3691.389893	70
IHA26	1039888	432514	3636.930176	3671.930176	35
IHA27	1039710	432348	3608.649902	3668.649902	60
IHA28	1040401	431959	3619.159668	3683.159668	64
IHA29	1040734	431767	3616.370361	3680.370361	64
IHA30	1040870	431564	3627.069824	3686.069824	59
IHA33	1039633	432084	3580.789795	3641.789795	61
IHA34	1039352	431847	3570.120361	3634.120361	64
IHA35	1039741	432289	3597.680176	3660.180176	63
IHA36	1040504	431838	3614.72998	3678.72998	64
IHA37	1038842	431261	3525.739746	3589.739746	64
IHA38	1038840	431225	3525.739746	3587.739746	62
IHA39	1038703	430959	3521.689941	3579.689941	58
IHA40	1038788	431045	3517.310059	3585.310059	68
IHA41	1038830	431081	3524.210205	3586.210205	62
IHA43	1040994	431614	3630.27002	3692.27002	62
IHA44	1041030	431538	3616.310059	3677.310059	61
IHA47	1041782	431250	3655.5	3719.5	64

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
IHA53	1041790	431161	3643.899902	3703.899902	60
IHA56	1042014	431136	3657.180176	3701.180176	44
IHA57	1041639	431187	3636.629639	3697.629639	61
IHA58	1041647	431241	3658.330078	3716.330078	58
IHA59	1041871	431105	3643.899902	3702.899902	59
IHA7	1041112	432613	3670.899902	3729.899902	59
IHA9	1040978	432687	3657.510254	3718.510254	61
IHJ13	1041413	431537	3637.300049	3697.300049	60
IHJ15	1041193	431490	3618.039795	3676.039795	58
IHJ21	1041172	431434	3650.050049	3714.050049	64
IHJ28	1039345	432359	3586.72998	3648.72998	62
IHJ31	1039596	432279	3592.319824	3652.319824	60
IHJ37	1040123	432545	3619.539795	3675.539795	56
IHJ38	1040083	432462	3621.539795	3684.539795	63
IHJ40	1040161	432583	3623.550049	3683.550049	60
IHJ42	1039340	432528	3588.550049	3651.550049	63
IHJ49	1039335	432589	3586.460205	3649.460205	63
IHJ51	1039374	432636	3586.460205	3647.460205	61
IHJ55	1039387	433034	3588.710205	3660.710205	72
IHM100	1038640	429414	3555.560059	3609.560059	54
IHM101	1038954	429942	3542.289795	3611.289795	69
IHM102	1038998	430069	3538.629639	3603.629639	65
IHM103	1038871	430275	3524.550049	3589.050049	65
IHM104	1038798	429076	3564.590332	3635.590332	71
IHM106	1038698	429131	3554.199951	3625.199951	71
IHM111	1040495	432094	3616.389893	3684.389893	68
IHM113	1040487	432149	3612.389893	3688.389893	76
IHM114	1040231	432100	3585.789795	3662.789795	77
IHM118	1039742	432105	3590.610107	3657.610107	67
IHM122	1039661	432146	3589.610107	3647.610107	58
IHM123	1039701	432245	3604.680176	3669.680176	65
IHM124	1039739	432502	3609.139893	3667.139893	58

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fusion thickness
IHM125	1039723	432384	3607.649902	3662.649902	55
IHM126	1039591	432057	3585.580078	3650.580078	65
IHM127	1039563	431873	3585.550049	3649.550049	64
IHM128	1039499	431860	3580.090332	3645.090332	65
IHM129	1039400	431927	3574.090332	3636.090332	62
IHM130	1039518	431970	3586.580078	3651.580078	65
IHM131	1039994	432391	3616.030029	3681.030029	65
IHM133	1040477	431790	3616.409668	3683.409668	67
IHM134	1040399	431781	3611.409668	3670.409668	59
IHM137	1041038	432648	3669.899902	3726.899902	57
IHM138	1040779	431709	3628.100098	3693.100098	65
IHM139	1040758	432274	3657.399902	3722.399902	65
IHM141	1040821	432476	3656.189941	3719.189941	63
IHM142	1040906	432443	3650.840332	3725.840332	75
IHM82	1038619	429806	3539.030029	3610.030029	71
IHM83	1038663	429910	3542.659668	3582.659668	40
IHM84	1038728	429967	3546.77002	3616.77002	70
IHM89	1038963	430203	3547.550049	3603.550049	56
IHM92	1038580	429107	3562.039795	3632.039795	70
IHM93	1038665	429103	3564.159668	3635.159668	71
IHM94	1038741	429100	3559.159668	3635.159668	76
IHM95	1038754	429178	3566.159668	3636.159668	70
IHM96	1038724	429248	3555.199951	3620.199951	65
IHM97	1038674	429177	3562.159668	3637.159668	75
IHM98	1038663	429257	3551.199951	3622.199951	71
IHM99	1038693	429332	3556.72998	3622.72998	66
IHR100	1040392	432104	3608	3678	70
IHR101	1040667	432170	3622.949951	3695.949951	73
IHR102	1040353	432255	3616.489746	3683.489746	67
IHR103	1040082	432356	3606	3670	64
IHR104	1039932	432456	3605.239746	3670.239746	65
IHR106	1040733	432082	3639.949951	3705.949951	66

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
IHR107	1040630	432236	3625.539795	3697.539795	72
IHR108	1039889	432023	3629.680176	3668.680176	39
IHR111	1039832	432068	3610.710205	3652.710205	42
IHR112	1041023	432796	3665.860107	3733.860107	68
IHR113	1041109	432805	3675.860107	3731.860107	56
IHT107	1040554	432308	3624.539795	3690.539795	66
IHT112	1040279	432329	3622.189941	3685.189941	63
IHT159	1039400	431981	3574.639893	3639.639893	65
IHT168	1039402	432453	3591.72998	3653.72998	62
IHT169	1039413	432347	3593.399902	3653.399902	60
IHT174	1039374	432289	3582.870361	3642.870361	60
IHT176	1039362	432405	3586.72998	3645.72998	59
IHT193	1039324	432322	3587.72998	3645.72998	58
IHT196	1039385	432563	3588.550049	3647.550049	59
IHT202	1039457	432707	3593.97998	3653.97998	60
IHT209	1039386	432907	3592.580078	3651.580078	59
IHT214	1039486	432956	3592.069824	3657.069824	65
IHT98	1040374	431824	3598.25	3670.25	72
IHW1	1038592	429478	3537.27002	3619.27002	82
IHW10	1038937	431395	3528.560059	3593.560059	65
IHW11	1039105	431650	3547.129639	3615.129639	68
IHW13	1039292	431828	3567.120361	3632.120361	65
IHW14	1039344	431916	3567.120361	3630.120361	63
IHW19	1039391	431878	3575.090332	3633.090332	58
IHW2	1038581	429415	3555.560059	3621.560059	66
IHW3	1038589	429321	3547.560059	3618.560059	71
IHW4	1038722	429901	3536.659668	3607.659668	71
IHW5	1038705	431025	3514.689941	3578.689941	64
IHW6	1038769	431096	3522.210205	3587.210205	65
IHW7	1038875	431234	3523.739746	3587.739746	64
IHW8	1038942	431295	3520.330078	3587.330078	67
IHW9	1039054	431443	3533.719971	3599.719971	66

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
KLA1	1030777	437479	3188.01001	3251.01001	63
KLA10	1030481	435713	3166	3208	42
KLA11	1030674	435271	3134.709961	3192.709961	58
KLA12	1030917	436093	3151.76001	3201.76001	50
KLA13	1030812	436441	3166.72998	3214.72998	48
KLA14	1030799	436119	3153.72998	3206.72998	53
KLA15	1030563	435211	3144.060059	3194.060059	50
KLA2	1030548	437602	3168	3230	62
KLA3	1030778	436997	3187.580078	3252.580078	65
KLA4	1030735	437304	3181.939941	3250.939941	69
KLA5	1030943	437126	3195.639893	3263.639893	68
KLA6	1030528	437791	3182.429932	3242.429932	60
KLA7	1030749	436840	3161.810059	3236.810059	75
KLA8	1030618	437196	3177.090088	3239.090088	62
KLA9	1030749	436387	3171.72998	3231.72998	60
NDT1	1017574	447407	2941.9	3004.9	63
PA101	1031981	430803	3261.429932	3291.430176	30
PA102	1031903	430935	3252.76001	3312.760254	60
PA103	1031356	431405	3225.449951	3281.449951	56
PA104	1031239	431726	3190.350098	3259.350098	69
PA105	1031260	431267	3219.429932	3273.429932	54
PA106	1032026	430888	3259.590088	3323.590332	64
PA107	1031817	431060	3247.23999	3309.239746	62
PA108	1031776	431195	3235.570068	3303.569824	68
PA111	1032052	430984	3248.840088	3314.840332	66
PA113	1032157	431033	3258.120117	3289.120361	31
PA114	1031822	431137	3244.959961	3306.960205	62
PA115	1031319	431671	3216.780029	3263.780029	47
PA116	1032228	430948	3260.120117	3289.120361	29
PA117	1031412	433015	3166.550049	3202.550049	36
PA118	1031334	432860	3168.330078	3221.330078	53
PA119	1031514	433053	3171.719971	3204.719971	33

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PA12	1031241	431769	3199.350098	3264.350098	65
PA120	1031366	433109	3167.02002	3208.02002	41
PA121	1031236	432704	3163.030029	3228.030029	65
PA122	1032182	430843	3263.840088	3324.840332	61
PA124	1031854	430461	3242.399902	3284.399902	42
PA125	1031722	430322	3242.389893	3306.389893	64
PA126	1031686	429849	3241.77002	3304.77002	63
PA127	1031079	430651	3212.290039	3277.289795	65
PA128	1031133	430751	3202.469971	3270.469971	68
PA13	1031142	431344	3195.969971	3265.969971	70
PA130	1031357	430873	3223.189941	3293.189941	70
PA131	1032272	430804	3269.97998	3325.97998	56
PA132	1031529	429313	3250.629883	3299.629639	49
PA133	1031876	430765	3253.429932	3311.430176	58
PA134	1031847	430631	3249.169922	3312.169922	63
PA136	1031072	430574	3215.290039	3282.289795	67
PA137	1032451	430903	3271.330078	3332.330078	61
PA14	1031187	431263	3201.850098	3278.850098	77
PA141	1030980	430574	3209.699951	3279.699951	70
PA142	1031127	430612	3208.280029	3273.280029	65
PA17	1031125	430689	3210.469971	3272.469971	62
PA18	1031131	430825	3201.120117	3267.120117	66
PA19	1031351	429166	3237.879883	3294.879639	57
PA20	1031252	429329	3239.580078	3294.580078	55
PA21	1031384	429255	3243.969971	3293.969971	50
PA22	1031551	429760	3237.889893	3297.889893	60
PA23	1031457	430184	3226.340088	3294.340332	68
PA28	1031036	428499	3221.879883	3266.879883	45
PA29	1033082	429238	3288.989746	3358.989746	70
PA30	1032993	429181	3281.050049	3349.050049	68
PA31	1032865	429088	3288.350098	3348.350098	60
PA32	1032759	429025	3268.23999	3338.239746	70



Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PA33	1033006	429073	3289.050049	3359.050049	70
PA34	1032011	428409	3260.330078	3310.330078	50
PA36	1031798	428170	3238.639893	3292.639893	54
PA37	1031948	428009	3246.449951	3297.449951	51
PA39	1031550	427699	3222.73999	3277.739746	55
PA41	1032842	428786	3267.530029	3333.530029	66
PA45	1032391	428605	3256.080078	3316.080078	60
PA46	1032234	428564	3251.679932	3310.680176	59
PA47	1032127	428480	3256.340088	3316.340332	60
PA48	1031723	428083	3231.100098	3281.100098	50
PA50	1033357	429260	3316.360107	3376.360107	60
PA52	1033326	429306	3314.699951	3383.699951	69
PA55	1031764	427877	3235.360107	3283.360107	48
PA57	1031428	428068	3217.540039	3275.540039	58
PA58	1031179	427783	3202.820068	3261.820068	59
PA7	1031157	433141	3151.780029	3200.780029	49
PA78	1031426	427262	3211.280029	3268.280029	57
PA9	1031757	431034	3244.23999	3304.239746	60
PM10	1031252	427416	3200.360107	3259.360107	59
PM100	1033379	429171	3313.610107	3374.610107	61
PM11	1031194	427461	3200.830078	3257.830078	57
PM12	1031092	427441	3189.719971	3251.719971	62
PM13	1031013	427483	3186.719971	3246.719971	60
PM131	1031344	429404	3241.580078	3294.580078	53
PM14	1030918	427523	3186.5	3247.5	61
PM148	1033266	428866	3305.129639	3369.129639	64
PM15	1030562	427857	3197.050049	3252.050049	55
PM157	1031183	433196	3164.899902	3214.899902	50
PM158	1031346	432056	3186.090088	3247.090088	61
PM159	1032551	433100	3198.100098	3253.100098	55
PM16	1030936	427832	3194.959961	3252.959961	58
PM160	1031218	433096	3160.780029	3205.780029	45

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PM163	1033900	429148	3164.330078	3219.330078	55
PM164	1032453	433110	3207.399902	3252.399902	45
PM165	1031239	432936	3166.330078	3219.330078	53
PM170	1032056	432737	3194.899902	3238.899902	44
PM171	1032423	433019	3214.189941	3257.189941	43
PM173	1032404	433182	3199.399902	3243.399902	44
PM177	1032350	433258	3206.300049	3252.300049	46
PM178	1031152	432964	3159.860107	3222.860107	63
PM18	1030702	428019	3189.879883	3251.879883	62
PM187	1032461	432433	3215.550049	3262.550049	47
PM189	1030898	428085	3200	3254	54
PM19	1030562	427857	3176.669922	3236.669922	60
PM190	1030865	428184	3200.320068	3254.320068	54
PM2	1031894	428515	3252.169922	3308.169922	56
PM20	1030375	427878	3176.550049	3232.550049	56
PM203	1031280	427734	3199.77002	3273.77002	74
PM204	1031385	427600	3206.379883	3266.379883	60
PM205	1031037	427766	3199.100098	3258.100098	59
PM206	1031928	427889	3247.26001	3294.260254	47
PM207	1032885	428412	3267.120117	3336.120361	69
PM208	1033084	428412	3281.189941	3350.189941	69
PM209	1031880	427921	3241.26001	3293.260254	52
PM21	1030428	428049	3179.709961	3239.709961	60
PM211	1031413	427681	3212.129883	3267.129883	55
PM212	1031450	427598	3215.379883	3273.379883	58
PM214	1032051	428089	3248.929932	3298.930176	50
PM215	1032080	427795	3247.219971	3301.219971	54
PM216	1032228	428315	3255.669922	3314.669922	59
PM22	1030599	428163	3188.879883	3245.879883	57
PM23	1030719	428165	3189.879883	3245.879883	56
PM24	1030811	428132	3187.139893	3248.139893	61
PM25	1031442	427743	3220.129883	3255.129883	35

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PM27	1031353	427559	3215.120117	3271.120117	56
PM29	1031011	427590	3191.129883	3253.129883	62
PM3	1031885	428324	3255.22998	3305.22998	50
PM30	1031134	427760	3204.820068	3263.820068	59
PM32	1030886	428278	3207.320068	3260.320068	53
PM33	1030775	428455	3208.879883	3257.879883	49
PM37	1030984	428800	3241.97998	3274.97998	33
PM38	1031405	428870	3249.649902	3292.649902	43
PM39	1031495	429046	3241.370117	3290.370361	49
PM40	1031352	429111	3250.879883	3294.879639	44
PM41	1031128	429054	3247.719971	3289.719971	42
PM44	1031434	429482	3244.879883	3302.879639	58
PM47	1033058	428717	3290.149902	3351.149902	61
PM48	1032209	428193	3250.98999	3312.989746	62
PM49	1034151	429245	3337.689941	3397.689941	60
PM5	1031317	427699	3206.77002	3264.77002	58
PM50	1031790	427616	3227	3285	58
PM55	1032700	428507	3259.820068	3328.819824	69
PM56	1033629	429216	3324.850098	3393.850098	69
PM57	1033907	429190	3328.899902	3383.899902	55
PM58	1032928	428548	3274.870117	3344.870361	70
PM59	1032610	428392	3272.26001	3329.260254	57
PM60	1032128	428040	3242.320068	3305.319824	63
PM61	1032658	428332	3271.110107	3329.110107	58
PM62	1032025	427885	3238.72998	3298.72998	60
PM63	1032730	428347	3260.110107	3330.110107	70
PM65	1032706	428295	3274.98999	3333.989746	59
PM68	1033799	429256	3334.389893	3400.389893	66
PM69	1032571	428333	3268.26001	3324.260254	56
PM7	1031330	427613	3205.120117	3264.120117	59
PM70	1032349	428374	3266.26001	3322.260254	56
PM71	1032813	428359	3262.540039	3331.539795	69

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PM74	1032599	428464	3268.399902	3325.399902	57
PM75	1032454	428512	3265.639893	3320.639893	55
PM77	1031055	427711	3195.100098	3258.100098	63
PM78	1031492	427457	3223.580078	3281.580078	58
PM8	1031372	427482	3204.429932	3262.429932	58
PM81	1030984	427758	3197.100098	3256.100098	59
PM85	1030984	427701	3193.649902	3251.649902	58
PM86	1031214	427743	3194.820068	3260.820068	66
PM87	1031040	427793	3198.100098	3257.100098	59
PM88	1031231	427608	3204.639893	3263.639893	59
PM89	1031344	427764	3202.77002	3261.77002	59
PM9	1031301	427463	3194.469971	3252.469971	58
PM90	1030884	427772	3183.649902	3244.649902	61
PM91	1031109	427570	3195.129883	3255.129883	60
PM92	1031350	427671	3205.120117	3263.120117	58
PM93	1031662	427940	3231.5	3283.5	52
PM94	1031380	427883	3219.860107	3270.860107	51
PM95	1031501	427907	3214.72998	3275.72998	61
PM96	1031008	427436	3179.719971	3245.719971	66
PM99	1033481	429266	3308.830078	3380.830078	72
PR1	1034066	429058	3309.560059	3385.560059	76
PS13	1032612	428532	3264.399902	3324.399902	60
PS14	1032741	428401	3271.540039	3331.539795	60
PS19	1033458	429067	3325.610107	3384.610107	59
PS2	1031417	427861	3212.860107	3273.860107	61
PS20	1033319	429213	3314.360107	3379.360107	65
PS25	1033192	428868	3294.949951	3357.949951	63
PS26	1033441	429160	3316.610107	3379.610107	63
PS3	1031575	427941	3220.810059	3279.810059	59
PS33	1033361	429101	3318.300049	3379.300049	61
PS34	1033421	429224	3315.830078	3378.830078	63
PS35	1033302	429137	3315.300049	3376.300049	61

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PS37	1033369	429244	3313.830078	3389.830078	76
PS4	1031761	427949	3238.870117	3290.870361	52
PS41	1032823	428650	3278.5	3333.5	55
PS42	1032946	428681	3288.189941	3342.189941	54
PS43	1033134	428812	3292.949951	3356.949951	64
PS46	1033262	428937	3313.319824	3372.319824	59
PS47	1032883	428700	3282.189941	3337.189941	55
PS49	1031100	427637	3191.129883	3267.129883	76
PS5	1031875	427776	3239.379883	3293.379639	54
PS50	1030863	427852	3188.959961	3249.959961	61
PS51	1030697	427919	3185.060059	3242.060059	57
PS53	1030705	428075	3191.879883	3244.879883	53
PS54	1031230	428991	3250.719971	3289.719971	39
PS55	1031302	428887	3226.120117	3280.120361	54
PS56	1031275	429069	3233.879883	3290.879639	57
PS58	1031210	429044	3239.719971	3286.719971	47
PS59	1031200	428923	3230.070068	3288.069824	58
PS63	1031086	428838	3233.439941	3276.439941	43
PS65	1031120	428796	3235.310059	3278.310059	43
PS66	1031080	428748	3220.97998	3275.97998	55
PS67	1031018	428754	3216.97998	3271.97998	55
PS9	1032024	427956	3267.570068	3298.569824	31
PT109	1030846	428074	3188.139893	3251.139893	63
PT110	1030886	428337	3210.26001	3264.26001	54
PT113	1030939	428437	3208.949951	3260.949951	52
PT117	1031663	431255	3241.580078	3296.580078	55
PT122	1031099	427720	3200.100098	3260.100098	60
PT125	1030725	427937	3183.879883	3248.879883	65
PT127	1030924	428150	3190.659912	3263.659912	73
PT128	1030840	428245	3194.139893	3251.139893	57
PT129	1031438	428899	3224.649902	3288.649902	64
PT130	1031333	428774	3235.129883	3290.129639	55

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PT131	1031613	428083	3223.100098	3284.100098	61
PT132	1030693	427399	3169	3232	63
PT133	1031704	428026	3231.5	3282.5	51
PT134	1031101	426976	3184.639893	3252.639893	68
PT135	1031288	428715	3233.129883	3286.129639	53
PT136	1031421	428940	3224.550049	3291.550049	67
PT137	1031353	429502	3196.939941	3259.939941	63
PT138	1030971	427928	3195.870117	3257.870117	62
PT139	1031268	427656	3205.120117	3262.120117	57
PT140	1037816	428981	3541.350098	3595.350098	54
PT141	1037784	428949	3534.350098	3592.350098	58
PT142	1034534	429214	3355.530029	3412.530029	57
PT143	1030820	427381	3178.72998	3241.72998	63
PT144	1033703	429233	3331.850098	3384.850098	53
PT148	1032493	428257	3262.209961	3317.210205	55
PT149	1031173	427502	3196.830078	3254.830078	58
PT150	1031096	427492	3190.719971	3252.719971	62
PT151	1031043	427499	3180.719971	3246.719971	66
PT153	1031711	427967	3230.5	3282.5	52
PT154	1031760	428025	3230	3284.870361	55
PT156	1032940	428899	3274.159912	3340.159668	66
PT157	1032151	428172	3240.070068	3304.069824	64
PT158	1031995	428320	3251.330078	3307.330078	56
PT159	1032975	428824	3281.159668	3342.159668	61
PT161	1031933	427940	3243.449951	3295.449951	52
PT162	1032454	428259	3252.75	3316.75	64
PT163	1033900	429148	3319	3382	63
PT164	1032405	428411	3261	3314	53
PT165	1032381	428334	3255	3312	57
PT166	1032730	428470	3256.820068	3326.819824	70
PT167	1033142	428670	3293.379639	3355.379639	62
PT168	1032277	428335	3255.189941	3319.189941	64

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
PT169	1033340	429063	3315.300049	3378.300049	63
PT170	1033221	429052	3308.370361	3364.370361	56
PT171	1033198	428899	3292.949951	3354.949951	62
PT172	1033124	428724	3301.379639	3356.379639	55
PT173	1034093	429091	3330.560059	3389.560059	59
PT174	1031449	427891	3210.860107	3268.860107	58
PT176	1031541	427644	3217.459961	3271.459961	54
PT178	1031705	427866	3225.159912	3281.159668	56
PT179	1031466	427685	3214.129883	3254.129883	40
PT180	1031588	427684	3223.73999	3275.73999	52
PT181	1031604	427782	3220.73999	3273.73999	53
PT182	1031951	427983	3241.449951	3294.449951	53
PT183	1031719	427918	3232.159912	3283.159668	51
PT184	1031488	427849	3208.72998	3273.72998	65
PT186	1031659	428106	3228.100098	3283.100098	55
PT189	1031450	427422	3205.629883	3266.629883	61
PT30	1030716	427858	3177.060059	3239.060059	62
PT31	1030657	427856	3178.060059	3242.060059	64
PT47	1030771	428070	3190.139893	3247.139893	57
PT48	1030926	428520	3203.949951	3266.949951	63
PUA2	1019716	441191	2940.629883	2992.629883	52
PW3	1037560	429032	3532.47998	3582.47998	50
RONA1	1033684	430661	3317.610107	3382.610107	65
RONA100	1033783	430030	3325.430176	3385.430176	60
RONA101	1033656	429671	3312.719971	3377.719971	65
RONA102	1033505	429349	3317.949951	3387.949951	70
RONA103	1033296	429775	3303.830078	3368.830078	65
RONA104	1033316	429476	3305.72998	3370.72998	65
RONA107	1033360	429676	3295.939941	3370.939941	75
RONA108	1033290	429354	3297.699951	3375.699951	78
RONA109	1033419	429443	3312.689941	3374.689941	62
RONA110	1033347	429373	3311.699951	3377.699951	66

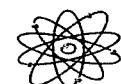
Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
RONA112	1033701	430032	3323.340332	3387.340332	64
RONA116	1033662	429542	3322.629639	3380.629639	58
RONA117	1033527	429521	3313.120361	3378.120361	65
RONA118	1033317	429546	3300.72998	3365.72998	65
RONA120	1033741	429666	3324.719971	3382.719971	58
RONA13	1034636	430552	3372.649902	3432.649902	60
RONA15	1033431	430619	3303.850098	3368.850098	65
RONA2	1033805	430646	3328.080078	3388.080078	60
RONA20	1033147	430545	3301.010254	3351.010254	50
RONA25	1032954	430489	3291.539795	3351.539795	60
RONA26	1033717	429810	3320.310059	3380.310059	60
RONA27	1033804	429818	3327.52002	3390.52002	63
RONA34	1033694	429718	3321.27002	3386.27002	65
RONA35	1033263	430508	3298.419922	3360.419922	62
RONA36	1033268	430606	3294.620361	3360.620361	66
RONA38	1033619	430680	3315.370361	3385.370361	70
RONA39	1033342	429729	3298.830078	3363.830078	65
RONA40	1033268	429682	3305.939941	3370.939941	65
RONA41	1032655	430359	3275.719971	3342.719971	67
RONA42	1033618	430639	3317.370361	3376.370361	59
RONA43	1033867	430648	3328.080078	3390.080078	62
RONA44	1034333	430677	3347.090332	3417.090332	70
RONA46	1034344	430515	3354.960205	3414.960205	60
RONA47	1034249	430489	3344.439941	3407.439941	63
RONA49	1033563	430552	3325.840332	3373.840332	48
RONA5	1033528	430689	3303.280029	3368.280029	65
RONA50	1033460	430555	3308.080078	3368.080078	60
RONA51	1033741	429985	3334.340332	3392.340332	58
RONA52	1033848	429926	3326.52002	3390.52002	64
RONA53	1034025	430571	3333.080078	3404.080078	71
RONA59	1032960	429556	3290.449951	3355.449951	65
RONA61	1033416	429653	3312.850098	3372.850098	60

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fusion thickness
RONA63	1033523	429570	3311.27002	3373.27002	62
RONA65	1033222	429382	3293.710205	3367.710205	74
RONA66	1033118	429587	3296.25	3361.25	65
RONA68	1033526	429656	3312.27002	3376.27002	64
RONA69	1033459	429725	3305.030029	3369.030029	64
RONA70	1033340	429421	3334.699951	3374.699951	40
RONA71	1033339	429629	3300.939941	3370.939941	70
RONA73	1033257	429575	3302.939941	3370.939941	68
RONA74	1033431	429862	3319.739746	3367.739746	48
RONA75	1033105	429449	3295.939941	3360.939941	65
RONA80	1033623	429376	3322.949951	3387.949951	65
RONA81	1033459	429385	3312.199951	3374.199951	62
RONA82	1033639	429674	3317.719971	3380.719971	63
RONA83	1033377	429320	3312.199951	3382.199951	70
RONA85	1033732	429513	3335.629639	3385.629639	50
RONA86	1033488	429482	3309.689941	3369.689941	60
RONA87	1033426	429594	3302.850098	3369.850098	67
RONA88	1033364	429579	3320.939941	3365.939941	45
RONA89	1033576	429783	3316.52002	3376.52002	60
RONA90	1033674	429774	3316.27002	3378.27002	62
RONA91	1033446	429778	3309.030029	3369.030029	60
RONA92	1033532	429825	3311.060059	3371.060059	60
RONA95	1033390	429516	3299.689941	3369.689941	70
RONA96	1033556	429492	3318.120361	3378.120361	60
RONA97	1033544	429438	3315.949951	3380.949951	65
RONA98	1033375	429885	3303.739746	3365.739746	62
RONA99	1033649	429728	3314.27002	3376.27002	62
RONM1	1033453	430230	3308.239746	3370.239746	62
RONM2	1033537	430054	3316.47998	3384.47998	68
RONM3	1033644	429892	3320.310059	3382.310059	62
RONM4	1033672	429847	3320.310059	3381.310059	61
RONM5	1033735	429770	3320.27002	3384.27002	64

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
RONR1	1033750	429413	3328.300049	3390.300049	62
SMSM1	1024384	455462	3255.600098	3328.600098	73
SMSM10	1024363	455998	3270.919922	3329.919922	59
SMSM2	1024151	455038	3229.070068	3294.069824	65
SMSM3	1024410	455657	3254.850098	3327.850098	73
SMSM4	1024359	455825	3262.560059	3335.560059	73
SMSM5	1024315	455017	3213.629883	3301.629639	88
SMSM6	1024332	454787	3216	3289	73
SMSM7	1023996	456204	3259.310059	3323.310059	64
SMSM8	1024270	456049	3265.350098	3324.350098	59
SMSM9	1024128	456198	3270.959961	3325.960205	55
SNDM 6	1015289	446271	2886	2944	58
SNDT3	1015864	447130	2973.4	3021.4	48
SNDT5	1014492	448967	2958.6	2995.6	37
TRM26	1035635	440907	3540.419922	3589.419922	49
TRM28	1035435	440708	3533.719971	3578.719971	45
TRM29	1036474	439983	3563.350098	3612.350098	49
TRM30	1036927	439924	3596.260254	3633.260254	37
TRM32	1035402	440554	3530.439941	3570.439941	40
TRM33	1035602	440997	3543.870361	3589.870361	46
TRM34	1036770	439913	3580.649902	3625.649902	46
TRM35	1037052	440038	3598.659668	3623.659668	25
TRM36	1035360	440454	3505.300049	3550.300049	45
TRM37	1035580	440850	3528.370361	3579.370361	51
TRM38	1035605	441152	3547.430176	3588.430176	41
TRM42	1037024	439849	3585.409668	3636.409668	51
TRM44	1035519	440727	3527.370361	3577.370361	50
TRM45	1035459	440600	3522.439941	3566.439941	44
TRM46	1035192	440491	3519.139893	3569.139893	50
TRR10	1036830	439925	3582.649902	3623.649902	41
TRR11	1036818	439868	3573.649902	3624.649902	51
TRR13	1037460	439749	3610.909668	3657.909668	47

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fuson thickness
TRR14	1037455	439857	3614.530029	3654.530029	40
TRR15	1037435	439980	3627.210205	3666.210205	39
TRR16	1037512	440063	3620.409668	3663.409668	43
TRR17	1037517	440179	3624.719971	3676.719971	52
TRR18	1037643	439982	3637.760254	3686.760254	49
TRR19	1037382	440141	3632.939941	3674.939941	42
TRR2	1034430	439921	3475.889893	3505.889893	30
TRR20	1037580	440022	3614.409668	3664.409668	50
TRR22	1037416	440345	3635.439941	3687.439941	52
TRR23	1037299	440369	3622.340332	3669.340332	47
TRR24	1037228	440283	3619.539795	3664.539795	45
TRR3	1034322	439931	3467.189941	3497.189941	30
TRR5	1036866	440243	3571.739746	3647.739746	76
TRR6	1036723	440228	3573.899902	3645.899902	72
TRR7	1036821	440050	3588.460205	3635.460205	47
TRR8	1034332	439804	3443.840332	3472.840332	29
TRR9	1036760	439847	3562.280029	3617.280029	55
TRS1	1035693	442385	3612.550049	3667.550049	55
TRS10	1036270	441854	3609.550049	3657.550049	48
TRS11	1036228	441935	3594.810059	3646.810059	52
TRS12	1036325	441904	3601.139893	3655.139893	54
TRS13	1036408	442031	3629.340332	3675.340332	46
TRS14	1035954	442533	3620.819824	3676.819824	56
TRS15	1036434	441937	3610.100098	3658.100098	48
TRS16	1036461	441975	3617.100098	3668.100098	51
TRS17	1036385	441466	3609.010254	3642.010254	33
TRS2	1035830	442381	3615.039795	3670.039795	55
TRS21	1036648	441104	3612.330078	3645.330078	33
TRS22	1036493	441287	3597.840332	3643.840332	46
TRS23	1036319	441658	3593.340332	3642.340332	49
TRS25	1036299	441702	3593.340332	3642.340332	49
TRS26	1036344	441582	3597	3646	49

Hole ID	state plane east	state plane north	Elev bottom	Elev top	Fusion thickness
TRS27	1036319	441734	3590.550049	3638.550049	48
TRS28	1036255	441675	3586.340332	3633.340332	47
TRS3	1035851	442251	3611.419922	3661.419922	50
TRS4	1035719	442292	3604.360107	3663.360107	59
TRS5	1035799	442227	3603.080078	3655.080078	52
TRS6	1035766	442025	3589.930176	3640.930176	51
TRS7	1035895	441946	3598.399902	3640.399902	42
TRS8	1036012	441967	3601.069824	3643.069824	42
TRS9	1036168	441887	3597.810059	3642.810059	45
TRT103	1036739	441697	3608.319824	3655.319824	47
TRT109	1036646	441701	3604.319824	3653.319824	49
TRT112	1036549	442094	3628.75	3674.75	46
TRT124	1037967	440129	3674.580078	3720.580078	46
TRT125	1037933	439954	3671.110107	3718.110107	47
TRT31	1036767	441795	3613.489746	3666.489746	53
TRT37	1037307	441623	3656.010254	3693.010254	37
TRT52	1037376	441741	3653.939941	3690.939941	37
TRT53	1037417	441855	3665.669922	3700.669922	35
TRT59	1037429	442216	3649.330078	3689.330078	40
TRT61	1036985	442562	3664.72998	3708.72998	44
TRT65	1036909	442549	3667.72998	3710.72998	43
TRT69	1037486	441678	3667.219971	3701.219971	34
TRT73	1036717	441753	3605.669922	3657.669922	52
TRT78	1037006	441684	3645.120361	3681.120361	36
TRT80	1037061	441601	3631.819824	3658.819824	27
TRT82	1036649	441943	3641.659668	3691.659668	50
TRT83	1036592	442048	3626.75	3667.75	41
TRT84	1036548	441787	3607.439941	3653.439941	46
TRT91	1036418	442257	3646.439941	3690.439941	44



**ER\_RAI Table A09.1**  
**Powertech (USA) Inc.**  
**Dewey-Burdock Project**

Annual Fugitive Dust Estimates

Construction Phase	Activity	Emission Vehicle	Number of Vehicles	Annual Hours (hours)	Round Trip Distance Traveled (miles/trip)	Travel Frequency (trips/year)	Mean Vehicle Speed (mph)	PM <sub>2.5</sub>				PM <sub>10</sub>				PM <sub>30</sub> (TSP)*				EF			Ef <sub>ext</sub>			Emissions				
								k	a	c	d	C	k	a	c	d	C	k	a	c	d	C	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>30</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>30</sub>		
								lb/VMT	-	-	-	lb/VMT	lb/VMT	-	-	-	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	tons/yr	tons/yr	tons/yr	
Earthworks Construction	Scraper	3	433	2167	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.26	2.62	6.45
	Bulldozer	1	433	2167	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.09	0.87	2.15
	Compactor	1	433	2167	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.09	0.87	2.15
	Motor Grader	1	433	2167	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.09	0.87	2.15
	Heavy Duty Water Truck (1,500 gal)	2	1040	15600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	2.18	21.80	53.66
	Fueling Truck	1	130	650	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.03	0.26	0.65
	Light Duty pickup	3	173	2600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	0.54	5.45	13.42
Facilities Construction	Crane	2	347	NA - trailered	NA	NA																								
	Welding Equipment	8	1040	NA - trailered	NA	NA																								
	Forklift	2	1040	15600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	2.18	21.80	53.66
	Man lift	4	1040	2080	1	2	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	0.7	1.7	0.05	0.5	1.3	0.21	2.12	5.22
	Heavy Duty Diesel Truck	2	1040	15600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	2.18	21.80	53.66
Well Field/Electrical Construction 1	Light Duty Truck	10	520	7800	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	5.44	54.51	134.15
	HDPE Fusion Equipment	2	1040																											
	Trackhoe	1	1040	5200	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.21	2.10	5.16
	Backhoe	1	1040	5200	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.21	2.10	5.16
	Welding Equipment	1	520	NA - trailered	NA	NA																								
	Electrical Pole Truck	2	693	10400	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	1.45	14.54	35.77
	Motor Grader	1	347	1733	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.07	0.70	1.72
Drilling	Forklift	1	1040	15600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	1.09	10.90	26.83
	Light Duty Truck	6	1040	15600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	6.53	65.41	160.98
	Truck Mount Rotary Drill Rig, Diesel Truck	13	2600	60	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.001	0.01	0.03	
	Heavy Duty Water Truck (1,500 gal)	13	1040	15600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	14.15	141.72	348.80
Well Field/Electrical Construction 2	Backhoe	1	2080	10400	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.42	4.20	10.33
	Forklift	2	2080	31200	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5															

**ER\_RAI Table A09.1**  
**Powertech (USA) Inc.**  
**Dewey-Burdock Project**
**Annual Fugitive Dust Estimates**

Operations Phase	Activity	Emission Vehicle	Number of Vehicles	Annual Hours (hours)	Round Trip Distance Traveled (miles/trip)	Travel Frequency (trips/year)	Mean Vehicle Speed (mph)	PM <sub>2.5</sub>				PM <sub>10</sub>				PM <sub>30</sub> (TSP)*				EF			EF <sub>ext</sub>			Emissions				
								k	a	c	d	C	k	a	c	d	C	k	a	c	d	C	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>30</sub>	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>30</sub>		
				lb/VMT	-	-	-	lb/VMT	-	-	-	lb/VMT	-	-	-	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	lb/VMT	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr	tons/yr		
Drilling*	Truck Mount Rotary Drill Rig, Diesel Truck	13	2600	0.04	260	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.01	0.1	0.1
	Heavy Duty Water Truck (1,500 gal)	13	1040	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	4.01	40.2	88.8
	Backhoe	1	2080	17	260	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.18	1.8	4.4
	Forklift	2	2080	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	0.62	6.2	15.2
	Cementer (gas)	4	2080	NA - trailered	NA	NA																								
	Logging Truck	4	2080	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	1.23	12.4	30.4
	Light Duty Truck	15	520	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	4.63	46.3	114.0
CPP Operations	Man Lift	1	208	NA - paved surface	NA	NA																								
	Welding Equipment	1	624	NA - paved surface	NA	NA																								
	Forklift	1	1040	NA - paved surface	NA	NA																								
	Forklift	1	1092	NA - paved surface	NA	NA																								
	Light Duty Truck	8	1560	17	520	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	4.93	49.4	121.6
	Light Duty Vehicles	4	2184	17	364	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	1.73	17.3	42.6
	Resin Hauling Semi - Truck	1	1040	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	0.31	3.1	7.6
SF/WF Operations	Pump pulling truck	4	1560	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	1.23	12.4	30.4
	Motor Grader	1	416	17	52	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1.1	2.6	0.08	0.8	2.0	0.04	0.4	0.9
	Logging Truck	1	2080	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	0.31	3.1	7.6
	Light Duty Truck	2	8736	17	2184	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	5.18	51.9	127.7
	Light Duty Vehicles	2	1560	17	260	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	0.62	6.2	15.2
Product Transport	Diesel Semi with Trailer to transport product	1	208	17	26	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	1.9	4.6	0.14	1.4	3.4	0.03	0.3	0.8
Worker Commuting	Light Duty Vehicles	60	164	26	250	40	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.3	3.0	7.5	0.23	2.3	5.6	45	449	1106

Totals (t/yr): 70 700 1723

N/A - Not Applicable

Surface Material Sat Content

32.1

Surface Material Moisture Content

10.4

Days per year with 0.01 inch precipitation (AP-42 Fig. 13.2-1)

90

\* PM30 is assumed equal to TSP as per AP-42 Section 13.2.2



POWERTECH (USA) INC.

ER\_RAI Table AQ9.1  
Powertech (USA) Inc.  
Dewey-Burdock Project

Annual Fugitive Dust Estimate

Decommissioning Phase	Activity	Emission Vehicle	Number of Vehicles	Annual Hours	Round Trip Distance Traveled	Travel Frequency	Mean Vehicle Speed	PM <sub>2.5</sub>					PM <sub>10</sub>					PM <sub>25</sub> (TSP)*					EF			El <sub>ext</sub>			Emissions						
				(hours)	(miles/trip)	(trips/year)	(mph)	k	a	c	d	C	k	a	c	d	C	k	a	c	d	C	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>25</sub>	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	tons/yr	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>25</sub>	tons/yr
								-	-	-	-	Ib/VMT	-	-	-	-	Ib/VMT	-	-	-	-	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	Ib/VMT	tons/yr	PM <sub>2.5</sub>	PM <sub>10</sub>	PM <sub>25</sub>	tons/yr
Earthwork	Scraper	3	867	4333	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	3	0.08	0.8	2.0	0.5	5	13					
	Motor Grader	1	867	4333	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	3	0.08	0.8	2.0	0.2	2	4					
	Compactor	1	867	4333	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	3	0.08	0.8	2.0	0.2	2	4					
	Bulldozer	1	867	4333	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	3	0.08	0.8	2.0	0.2	2	4					
	Hydraulic Excavator	2	650	3250	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	3	0.08	0.8	2.0	0.2	2	4					
	Backhoe	2	650	3250	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	3	0.08	0.8	2.0	0.3	3	6					
	Loader	1	650	6500	1	10	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	2	4	0.11	1.1	2.6	0.4	4	9					
	Tractor	1	650	3250	1	5	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	3	0.08	0.8	2.0	0.1	1	3					
	Fueling Truck	1	520	7800	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	2	5	0.14	1.4	3.4	0.5	5	13					
	Light Duty Truck	2	650	9750	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	2	5	0.14	1.4	3.4	1.4	14	34					
Demolition	Crane	1	693	NA - trailerd	NA	NA																													
	Welding/Cutting Equipment	4	693	NA - trailerd	NA	NA																													
	Man Lift	4	693	1387	1	2	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.1	1	2	0.05	0.5	1.3	0.1	1	3					
	Forklift	3	693	10400	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	2	5	0.14	1.4	3.4	2.2	22	54					
	Heavy Duty Truck (Diesel)	4	347	5200	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	2	5	0.14	1.4	3.4	1.5	15	36					
	Light Duty Truck	5	693	10400	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	2	5	0.14	1.4	3.4	3.6	36	89					
Worker Commuting	Light Duty Vehicles	5	1040	15600	1	15	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.2	2	5	0.14	1.4	3.4	5.4	55	134					
	Light Duty Vehicles	15	164	26	250	40	0.18	1	0.2	0.5	0.0004	1.8	1	0.2	0.5	0.0005	6	1	0.3	0.5	0.00047	0.3	3.0	7.5	0.23	2.3	5.6	11.2	112	276					
																								Totals (t/yr):			28	281	691						

N/A - Not Applicable

**N/A - Not Applicable**

### **Surface Material Moisture Content**

Days per year with 0.01 inch precipitation (AP-42 Fig. 13.2.2-1)

\* PM30 is assumed equal to TSP as per AP-42 Section 13