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9 November 2017

Attention: Aislinn Farnon and Mark Nolan
Glencore United and Yancoal
Via email

Dear Aislinn and Mark

United Wambo Open Cut Coal Project and Hunter Valley Operations Modification 5

Thank you for providing a copy of the communications with the Department of Planning and Environment (DP&E) regarding the potential cumulative air quality impacts of the United Wambo Open Cut Coal Mine (United Wambo) and Hunter Valley Operations Modification 5 (HVO). We have received the following document:

- “United Wambo Open Cut Coal Mine Project and Hunter Valley Operations Modification 5 – Cumulative Air Quality Impact Assessment Peer Review”. Letter from Ramboll to the DP&E, dated 1 November 2017.

The DP&E has requested that United and Yancoal respond to the Ramboll recommendations to resolve three outstanding matters related to the cumulative air quality impact assessment.

This letter has been jointly prepared by Jacobs (consultant to Glencore for the United Wambo project) and Todoroski Air Sciences (consultant to Yancoal for the HVO project). Its purpose is provide the information requested by Ramboll.

Each of the issues raised is set out in grey italics, with the response immediately below.

DP&E also seeks confirmation regarding receptor 307 in the original HVO assessment. Glencore confirms that “receptor” 307 is a shed, and it was therefore not included in the revised cumulative assessment.

Please contact the undersigned if there are any questions regarding this letter.

Yours sincerely

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Yours sincerely

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1. Overburden Density

Please provide justification for the change in overburden density from 2.4t/m³ to 2.1t/m³ in the HVOS inventory. This change has made a significant alteration to the HVOS emissions inventory from the original air quality impact assessment – reducing emissions from overburden haulage and material handling. While this new bulk density value may be appropriate, there should be documented justification provided to support the adoption and changes to the emissions inventory

The previously adopted value of 2.4 t/bcm was used in the original assessment as a conservative, default estimate of the site material density. The HVO emissions inventory was updated to use the site specific material density of 2.1 tonnes per bank cubic metre (t/bcm), as advised by Yancoal's engineers.

In terms of significance, the update to the overburden density value results in a 3.3% reduction in emissions from HVO in this revised assessment, relative to the original assessment. As noted in the Jacobs / Todoroski Air Sciences assessment (18/9/17) the inventory was also updated with the wind erosion factor based on the latest US EPA advice, and as requested by the review, the air dispersion modelling uses different meteorological data. These factors all contribute to the lower emissions, relative to the original assessment.

The adjustment in the material density better reflects actual site conditions while still maintaining conservatism in terms of predicted ground level concentrations off-site, which remain higher than the measured data suggest.

2. Background PM_{2.5} Concentrations

While the RE cumulative review recommended the adoption of the Jerrys Plains OEH monitoring station as the primary resource for “non-modelled” background, it is considered that the collated dataset approach of the joint cumulative assessment is suitably appropriate for analysing cumulative annual average PM₁₀ concentrations.

However, it is considered that more robust justification for the selected the annual PM_{2.5} background is provided Jacobs/TAS.

The average relationship between concurrent PM₁₀ and PM_{2.5} concentrations recorded by the Camberwell OEH monitoring station for 2014 was 0.36. If this ratio is applied to the calculated average PM₁₀ concentration (19.5 µg/m³), the corresponding PM_{2.5} concentration is 6.9 µg/m³.

Using this derived PM_{2.5} background from the measured PM₁₀ concentrations, it is considered that the approach adopted for deriving non-modelled PM₁₀ is applied for annual PM_{2.5}. Specifically, the predicted annual average PM_{2.5} concentrations at the PM₁₀ monitoring locations should be averaged and then subtracted from the annual averaged PM_{2.5} background of 6.9 µg/m³ (similar to Table 3 of the joint cumulative assessment).

The cumulative annual average PM_{2.5} concentrations at each receptor should then be recalculated for this revised non-modelled annual average PM_{2.5}.

It is quite likely that the conclusions of the cumulative analysis will not change significantly if the above approach is applied. However, doing so would better align the cumulative PM_{2.5} with the cumulative PM₁₀ assessment approach and make the cumulative assessment more robust

The review correctly notes that, in the joint cumulative assessment, the column headings in Table 6 are the same as those in Table 5. One of the column headings in Table 6 was incorrectly transcribed, and is now corrected as follows:

- “Other non-modelled sources + MTW (19.5-6.6+MTW)” should read “Other mines plus background (6.0+other mines)”. Where ‘other mines’ represents the predicted contribution from all modelled mines in the joint cumulative assessment except HVO and United Wambo.

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As noted in the joint cumulative assessment (18/9/17) there are no locally available PM_{2.5} data in the area of interest that are representative of the nearest receptor locations. Therefore, the PM_{2.5} concentration had to be estimated on the basis of other data.

Data from Singleton and Muswellbrook were ruled out as these monitoring sites are located in towns, with little in common to the study area in terms of their air shed emission sources. The Camberwell Village monitoring site was identified as the site located in an area most similar to the study area. However, it was also noted that the Camberwell Village monitoring site is located near a heavily trafficked highway (i.e. the New England Highway) and in an area where there is likely to be more anthropogenic emissions due to activity in the village. These factors mean that the Camberwell monitoring site will most likely measure higher PM_{2.5} concentrations relative to the study area. For reasons including these, using the Camberwell data is not considered to robustly represent the locations of interest.

But in any case, using the 0.36 PM_{2.5}/PM₁₀ ratio from Camberwell to derive a PM_{2.5} level of 6.9µg/m³, as suggested by the review, results in a local PM_{2.5} background level of 5.85 µg/m³ after considering the existing project sources that contribute to the local PM_{2.5} levels (i.e. to prevent double counting). Alternatively, taking the PM_{2.5} level to be 0.36 of the local PM₁₀ background level of 12.9 µg/m³ (19.5µg/m³ less 6.6 µg/m³ to prevent double counting), results in a local PM_{2.5} background level of 4.64µg/m³ for this area. Either way, as a higher level of 6.0 µg/m³ was used in the joint cumulative assessment, and the cumulative results meet criteria, there is no clear reason to issue lower revised results in this case.

3. Modelling results - 24-hour average

To better illustrate the potential impacts from the UWOC and HVOS in isolation and combination, the 24-hour average PM₁₀ and PM_{2.5} concentrations should be presented and analysed.

At a minimum, the joint cumulative assessment should present project increment 24-hour average PM₁₀ and PM_{2.5} concentrations; specifically:

- UWOC-only increment;
- HVOS-only increment; and
- Combined (UWOC+HVOS) increment.

Because separated dispersion models were run for the UWOC and HVOS mines, combined incremental concentrations will require the collation of timeseries predictions between Jacobs and TAS at each individual receptor location. Incremental results should be presented in a similar fashion to the annual PM₁₀ and PM_{2.5} in the cumulative assessment letter (i.e. tabular format and isopleth plots).

It is acknowledged that combined increment isopleth plots may be problematic to generate due to the separate dispersion models run, therefore these are not considered as critical as the tabular results

As requested the Project increments of 24-hour average PM₁₀ and PM_{2.5} concentrations have been extracted from the United Wambo and HVO models. For this exercise, the 24-hour averages have been extracted for six locations, representing the nearest privately owned sensitive receptor locations. These locations are:

- 19-77 (in Warkworth Village)
- 16-308, 39-310, 17, 43-312, 320-451 (Moses Crossing area)

Figure 1 of the joint cumulative assessment (18/9/17) shows the location of these receptors.

The results are shown at the end in **Table 1** and **Table 2** for PM₁₀ and PM_{2.5} respectively. As acknowledged by the review, it is not possible to correctly combine maximum short term results from two models, hence short term isopleths for the effect of the two projects combined cannot be presented.

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Figure 1 and **Figure 2** show the predicted 24-hour average PM₁₀ and PM_{2.5} concentrations at the selected locations. The background concentrations represent the measured 24-hour averages at the monitoring site nearest to each receptor. Specifically, the background data assumed for each receptor were as follows:

- AQ01 for receptor 19-77
- AQ04 for receptors 16-308, 39-310, 17, 43-312
- AQ03 for receptor 320-451

The 24-hour averages due to the modelled mining operations represent the predicted incremental change in concentrations. That is, the predicted contribution in the future less the predicted contribution in 2014. This approach avoids double counting when adding prediction data to the measurement data.

In the case of PM_{2.5}, the average assumed background value of 6 µg/m³ was adopted. Again, this assumption was used in the absence of any locally collected PM_{2.5} data.

Figure 1 shows the predicted 24-hour average PM₁₀ concentrations. The relevant criteria is 50 µg/m³. It can be seen from this figure that the models are predicting in the order of 50 days in this year (51 days to be precise) when the background level was below 50 µg/m³ but the combined contribution of United Wambo, HVO and MTW operations increases the PM₁₀ concentration above 50 µg/m³. These events have been interpreted to represent potential additional exceedance days in Warkworth Village. From these predictions, it has been concluded that the combined influences of United Wambo, HVO and MTW are likely to cause adverse 24-hour average impacts in Warkworth Village, to the extent that it would be difficult to reasonably manage impacts down to no additional exceedances. This outcome is consistent with the findings of the original United Wambo and HVO Mod 5 assessments.

For the other locations (16-308, 39-310, 17, 43-312 and 320-451) the predictions suggest that there could be between 0 and 2 additional days above 50 µg/m³ PM₁₀, relative to existing (2014) conditions. **Figure 1** shows that, in all these instances, the “additional exceedance” day could occur when the background level is already close to 50 µg/m³ and the contributions from United Wambo and HVO (and MTW) on these days would be very low, that is, in the order of 5 µg/m³ or less.

It should be noted that the predictions shown in **Figure 1** are similar to the results from historical monitoring in the Moses Crossing and Jerrys Plains areas. For example, in the Moses Crossing area, in the past five years the number of days above 50 µg/m³ has ranged from 0 to 3 days. At Jerrys Plains the number of days above 50 µg/m³ has ranged from 0 to 6 days. Thus the contribution from the Projects is within the range of the typical year to year variability that already occurs in the background dust levels.

Therefore it is concluded that the cumulative effects of both United Wambo and HVO are unlikely to significantly change air quality conditions in the Moses Crossing area, with respect to 24-hour average concentrations. This conclusion was based on worst-case operating years for both United Wambo and HVO. In general, potential impacts in other years would be lower than presented.

For PM_{2.5}, see **Figure 2**, the similar conclusions as for PM₁₀ can be drawn. That is, the combined influences of United Wambo, HVO and MTW may potentially cause some adverse 24-hour average impacts in Warkworth Village but no significant change in air quality would be expected in the Moses Crossing area.

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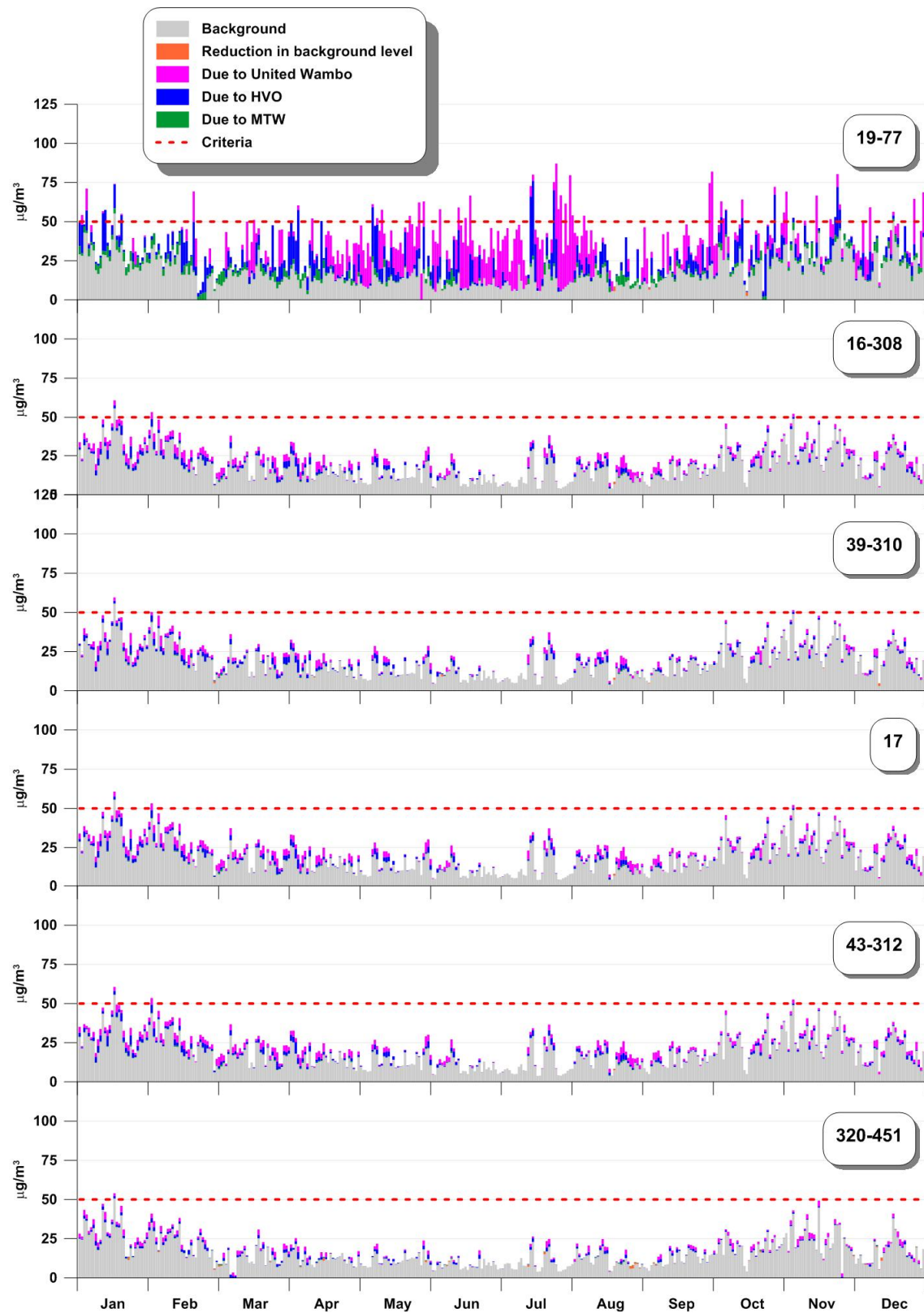


Figure 1 Time series of 24-hour average PM_{10} concentrations at selected locations

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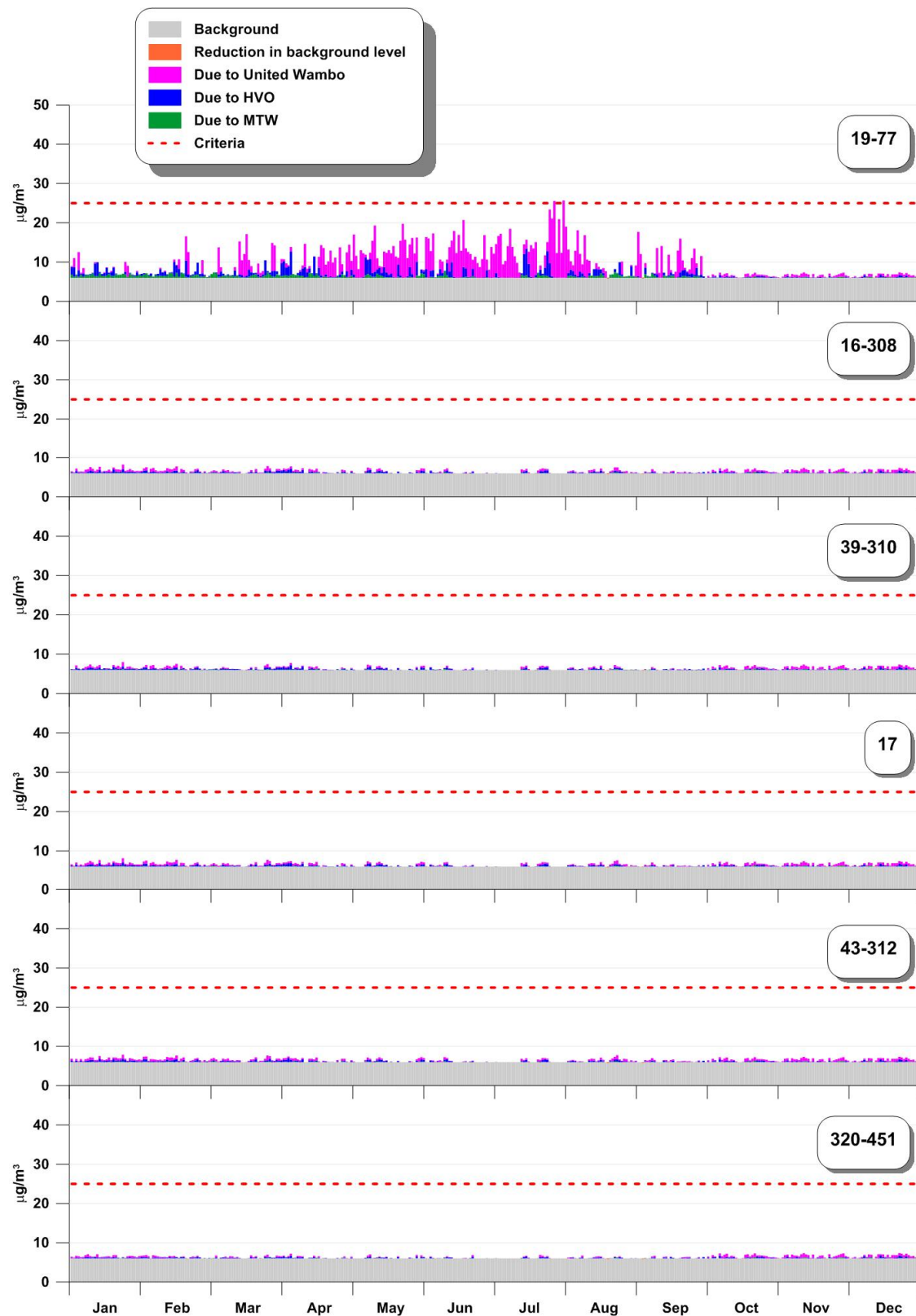


Figure 2 Time series of 24-hour average PM_{2.5} concentrations at selected locations

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Attachment 1: Model Results in Tabular Form

All results are concentrations in micrograms per cubic metre ($\mu\text{g}/\text{m}^3$).

Table 1 Predicted maximum 24-hour average PM_{10} concentrations due to selected operations

Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
314700	6394357	0-99	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	49.7	64.8	40.3
314120	6394634	0-79	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	69.4	57.1	29.9
313389	6386388	C	Private	United Wambo	0.8	5	3.9
313259	6387527	0	Mine Owned (Yancoal)	United Wambo	1.3	6.4	5.5
314589	6386598	D	AGL Energy	United Wambo	0.9	5	7.4
315920	6386135	0	Mine Owned (Yancoal)	United Wambo	0.8	3.8	11.2
316264	6386291	0	Mine Owned (Yancoal)	United Wambo	1.0	3.7	15.9
316321	6386706	0	Mine Owned (Yancoal)	United Wambo	1.2	4	20.9
316040	6387020	0	Mine Owned (Yancoal)	United Wambo	1.3	4.4	20.2
312067	6390410	0	Mine Owned (Wambo)	United Wambo	4.3	10.2	7.4
314570	6394587	0-96	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	57.1	70.9	38.0
314371	6394736	0	Mine Owned (Wambo)	United Wambo	68.3	68.9	34.2
314347	6394888	0-90	Mine Owned (Yancoal) Yancoal	United Wambo HVO	77.9	77.2	34.2
315017	6395104	0-105	Mine Owned (Yancoal) Yancoal	United Wambo HVO	51.5	165.2	47.8
316146	6394315	0	Mine Owned (Yancoal)	United Wambo	34.6	503.1	89.2
318608	6398555	E-122	Private Privately owned	United Wambo HVO	2.5	34.3	13.0
318011	6397794	0-265	Mine Owned (Yancoal) Yancoal	United Wambo HVO	3.6	72.1	18.3
318130	6397356	0-118	Mine Owned (Yancoal) Yancoal	United Wambo HVO	4.3	77.1	19.6
318792	6399220	0-257	Mine Owned (Yancoal) Privately owned	United Wambo HVO	2.8	29.3	10.9
318700	6399350	0	Mine Owned (Yancoal)	United Wambo	2.7	30.3	10.9
317759	6402132	0	Mine Owned (Yancoal)	United Wambo	2.0	23.7	6.9
319611	6403391	F	Private	United Wambo	1.1	10.4	3.3
319745	6404139	0	Mine Owned (Ashton)	United Wambo	0.9	9.2	2.7
315016	6402359	0	Mine Owned (Yancoal)	United Wambo	2.7	64.4	8.1
315206	6402509	0	Mine Owned (Yancoal)	United Wambo	2.5	56.8	7.6
314324	6402357	0	Mine Owned (Yancoal)	United Wambo	3.2	74.2	8.5
313949	6402173	0	Mine Owned (Yancoal)	United Wambo	4.0	84.8	9.5
307462	6400065	0-313	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	18.3	26.3	4.2
306906	6399341	0-306	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	42.4	18.3	3.4
307244	6399249	0-302	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	47.9	21.4	3.6
307143	6399273	0-303	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	47.1	20.4	3.5
303604	6402327	Crown-396	Crown Land Privately owned	United Wambo HVO	5.1	11	2.4
303329	6402615	Crown-386-410	Crown Land Crown owned Crown owned	United Wambo HVO HVO	4.9	11.4	2.3
303337	6402604	Crown	Crown Land	United Wambo	4.9	11.4	2.3
305651	6400600	0-439	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	12.7	14.4	3.0
314465	6394859	0-94	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	73.2	81.1	36.1
307733	6402907	0-467	Mine Owned (Yancoal) Yancoal	United Wambo HVO	8.9	28.4	5.3

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
307840	6403103	0	Mine Owned (Yancoal)	United Wambo	8.7	30.5	5.2
307532	6402321	0-320	Mine Owned (Yancoal) Yancoal	United Wambo HVO	8.8	26.3	5.5
306969	6402070	0-315	Mine Owned (Yancoal) Yancoal	United Wambo HVO	7.9	25.3	5.1
307016	6401319	0	Mine Owned (Yancoal)	United Wambo	10.5	22.4	4.8
309977	6402453	0	Mine Owned (Yancoal)	United Wambo	10.8	94.6	7.0
311206	6390558	0	Mine Owned (Wambo)	United Wambo	3.3	8.2	6.1
315143	6386683	0	Mine Owned (Yancoal)	United Wambo	0.9	4.7	10.4
315060	6386183	0	Mine Owned (Yancoal)	United Wambo	0.8	4.3	7.6
315212	6386299	0	Mine Owned (Yancoal)	United Wambo	0.8	4.3	8.7
315758	6386466	0	Mine Owned (Yancoal)	United Wambo	0.9	4.1	12.9
314336	6392898	0	Mine Owned (Yancoal)	United Wambo	21.5	23	30.9
314201	6393069	0-78	Mine Owned (Yancoal) Yancoal	United Wambo HVO	22.3	22.8	29.4
315908	6390572	0	Mine Owned (Yancoal)	United Wambo	8.7	10.2	66.8
316141	6389566	0	Mine Owned (Yancoal)	United Wambo	5.5	7.4	48.3
307101	6399106	0-304	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	56.9	19.9	3.5
313160	6388755	2	Mine Owned (Yancoal)	United Wambo	2.1	8.2	7.0
313271	6388488	3	Private	United Wambo	1.9	7.8	6.8
312974	6386930	4	Mine Owned (Yancoal)	United Wambo	1.0	5.5	4.1
313163	6388181	4	Mine Owned (Yancoal)	United Wambo	1.7	7.3	6.2
303519	6402664	4	Private	United Wambo	5.2	12.2	2.4
312518	6387011	4	Mine Owned (Yancoal)	United Wambo	1.1	5.4	3.8
313347	6387867	6	Private	United Wambo	1.5	6.9	6.2
312920	6387731	7	Private	United Wambo	1.4	6.5	5.3
313743	6388999	8	Mine Owned (Yancoal)	United Wambo	2.2	8.7	10.2
314482	6394445	Nov-93	Mine Owned (Yancoal) Yancoal	United Wambo HVO	55.9	62.9	36.0
309426	6402046	11	Mine Owned (Yancoal)	United Wambo	12.2	73	6.7
308518	6401341	11-449	Mine Owned (Yancoal) Yancoal	United Wambo HVO	12.0	40.6	6.5
305929	6400010	16-308	Private Privately owned	United Wambo HVO	16.1	14.1	2.9
305825	6400250	17	Private	United Wambo	14.7	14.2	2.9
305736	6400345	18-441	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	13.7	14.2	2.9
314149	6394567	19-77	Private	United Wambo HVO	66.3	56.4	30.0
315587	6393904	22	Mine Owned (Glencore)	United Wambo	37.5	118.8	79.5
310074	6389857	25	Private	United Wambo	1.8	4.9	4.0
306142	6399900	28-309	Mine	United Wambo HVO	19.5	14.4	3.0
306112	6399966	28	Mine	United Wambo	18.9	14.4	3.0
304258	6399106	30	Private	United Wambo	6.2	7.4	1.9
304542	6398538	33	Private	United Wambo	8.3	7.5	2.0
309406	6389457	35	Private	United Wambo	1.3	4	3.2
308673	6389438	35	Private	United Wambo	1.2	4.1	2.9
305790	6399782	39-310	Private Privately owned	United Wambo HVO	14.1	12.9	2.8
305926	6399697	40	Mine	United Wambo	15.7	13.3	2.8
304187	6401020	41-432	Private Privately owned	United Wambo HVO	5.9	9.9	2.3
304400	6400638	41-433	Private Privately owned	United Wambo HVO	6.3	9.5	2.2
303707	6398041	42	Private	United Wambo	5.4	5.8	1.8
305740	6400605	43-312	Private Privately owned	United Wambo HVO	13.4	14.6	3.1
305128	6401582	44-434	Private Privately owned	United Wambo HVO	8.5	13.4	3.2

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
304391	6402029	47-321	Private Privately owned	United Wambo HVO	6.4	12.3	2.8
304406	6398806	48-453	Private Privately owned	United Wambo HVO	7.2	7.5	1.9
303991	6399029	49-459	Private Privately owned	United Wambo HVO	6.0	6.9	1.8
305378	6401082	50	Private	United Wambo	10.4	14	3.1
305371	6401182	50-317	Private Privately owned	United Wambo HVO	10.1	14	3.1
305424	6401054	50-311	Private Privately owned	United Wambo HVO	10.6	14.1	3.1
304009	6402249	52	Private	United Wambo	5.8	11.7	2.6
304164	6402131	52-324	Private Privately owned	United Wambo HVO	6.0	11.9	2.7
304146	6401941	53-431	Private	United Wambo HVO	6.0	11.4	2.6
303990	6402018	54-429	Private Privately owned	United Wambo HVO	5.7	11.2	2.5
305041	6401315	56-436	Private Privately owned	United Wambo HVO	8.6	13.1	3.0
303674	6401773	58-428	Private Privately owned	United Wambo HVO	4.9	9.9	2.3
303709	6401932	59-430	Private Privately owned	United Wambo HVO	5.0	10.3	2.3
303628	6401737	60-427	Private Privately owned	United Wambo HVO	4.9	9.8	2.2
303672	6401711	60	Private	United Wambo	4.9	9.8	2.2
303243	6401558	61	Private	United Wambo	4.5	8.8	2.0
303347	6403156	62-362	Private Privately owned	United Wambo HVO	4.9	13.8	2.3
302823	6401180	65-464	Mine Owned (Doyles Creek) Other mine owned property	United Wambo HVO	4.1	7.3	1.7
303375	6402578	68-411	Private Privately owned	United Wambo HVO	4.9	11.3	2.3
303594	6398843	75-462	Private Privately owned	United Wambo HVO	6.0	6.1	1.7
302335	6404279	95	Private	United Wambo	3.5	11.4	1.8
302215	6404447	95	Private	United Wambo	3.3	11.1	1.8
303155	6403047	98-370	Private Privately owned	United Wambo HVO	4.7	12.9	2.2
303229	6403235	105-360	Private Privately owned	United Wambo HVO	4.7	13.6	2.2
302488	6403896	106-330	Private Privately owned	United Wambo HVO	3.8	12.4	1.9
303563	6402427	107-398	Private Privately owned	United Wambo HVO	5.1	11.2	2.4
303599	6402669	113-389	Private Privately owned	United Wambo HVO	5.3	12.5	2.4
303580	6402686	113-388	Private Privately owned	United Wambo HVO	5.3	12.6	2.4
303461	6402510	115-407	Private Privately owned	United Wambo HVO	5.0	11.3	2.3
303152	6402874	116-372	Private Privately owned	United Wambo HVO	4.7	12.1	2.2
302662	6402765	122-416	Mine Owned (Doyles Creek) Other mine owned property	United Wambo HVO	3.9	10.2	1.9
305207	6401500	133	Private	United Wambo	8.9	13.4	3.2
303057	6403344	135-347	Private Privately owned	United Wambo HVO	4.5	13.4	2.2
302975	6403164	143-346	Private Privately owned	United Wambo HVO	4.5	12.7	2.1
303308	6402357	144-419	Private Privately owned	United Wambo HVO	4.6	10.5	2.2
303082	6403276	146-351	Private Privately owned	United Wambo HVO	4.6	13.3	2.2
302690	6403469	148-335	Private Privately owned	United Wambo HVO	4.2	12.7	2.0
302625	6403418	148-334	Private Privately owned	United Wambo HVO	4.1	12.5	1.9
303357	6402970	150-377	Private Privately owned	United Wambo HVO	5.0	13.2	2.3
303276	6402868	151-375	Private Privately owned	United Wambo HVO	4.9	12.5	2.3
303423	6402758	156-383	Private Privately owned	United Wambo HVO	5.0	12.4	2.3
303381	6402773	156-384	Private Privately owned	United Wambo HVO	5.0	12.4	2.3
303442	6398629	163-458	Private Privately owned	United Wambo HVO	5.8	5.7	1.7
303115	6403298	168-352	Private Privately owned	United Wambo HVO	4.6	13.5	2.2
302218	6402651	170-466	Private Other mine owned property	United Wambo HVO	3.5	9.1	1.7
302999	6403290	171-349	Private Privately owned	United Wambo HVO	4.5	13.2	2.1

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Eastings	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
303257	6402924	174-373	Private Privately owned	United Wambo HVO	4.8	12.7	2.2
303239	6402934	174-371	Private Privately owned	United Wambo HVO	4.8	12.7	2.2
302943	6403133	175-345	Private Privately owned	United Wambo HVO	4.5	12.5	2.1
303130	6403214	180-356	Private Privately owned	United Wambo HVO	4.7	13.3	2.2
303262	6402901	186-374	Private Privately owned	United Wambo HVO	4.9	12.6	2.2
303466	6402612	187-380	Private Privately owned	United Wambo HVO	5.1	11.8	2.3
303127	6398998	188	Mine Owned (Doyles Creek)	United Wambo	5.2	5.5	1.6
302917	6403432	198-337	Private Privately owned	United Wambo HVO	4.4	13.2	2.1
303047	6403238	202-350	Private Privately owned	United Wambo HVO	4.6	13.2	2.1
303302	6402543	204-412	Department of Education and Communities Crown owned	United Wambo HVO	4.8	10.9	2.2
302879	6403079	205-343	Private Privately owned	United Wambo HVO	4.4	12.1	2.1
303399	6402544	206-409	Private Privately owned	United Wambo HVO	4.9	11.2	2.3
303166	6403236	211	Private	United Wambo	4.7	13.5	2.2
303184	6403276	211-355	Private Privately owned	United Wambo HVO	4.7	13.6	2.2
302019	6404601	230-437	Private Privately owned	United Wambo HVO	3.2	10.5	1.6
303365	6402742	240-385	Private Privately owned	United Wambo HVO	5.0	12.1	2.3
302757	6403624	256-336	Private Privately owned	United Wambo HVO	4.1	13	2.0
303205	6403302	261-354	Private Privately owned	United Wambo HVO	4.7	13.7	2.2
303254	6403256	276-361	Private Privately owned	United Wambo HVO	4.7	13.7	2.3
303181	6403017	277-417	Private Privately owned	United Wambo HVO	4.8	12.8	2.2
303007	6403201	277	Crown Land	United Wambo	4.5	13	2.1
303316	6403133	280-363	Private Privately owned	United Wambo HVO	4.8	13.6	2.3
303033	6403315	281-348	Private Privately owned	United Wambo HVO	4.5	13.3	2.1
302773	6404011	281-328	Private Privately owned	United Wambo HVO	4.0	12.3	2.1
303619	6402638	282-390-423	Private Privately owned Privately owned	United Wambo HVO HVO	5.3	12.4	2.4
303611	6402649	282	Private	United Wambo	5.3	12.5	2.4
302830	6403026	283-341	Private Privately owned	United Wambo HVO	4.3	11.8	2.0
302953	6403358	286	Private	United Wambo	4.4	13.2	2.1
302914	6401913	287-425	Private Privately owned	United Wambo HVO	4.1	8.8	1.9
303478	6402864	291-376	Private Privately owned	United Wambo HVO	5.1	13.1	2.4
304801	6398881	320-451	Private Privately owned	United Wambo HVO	7.8	8.4	2.1
302224	6399025	322	Mine Owned (Doyles Creek)	United Wambo	3.9	4.6	1.4
302650	6403523	325-333	Private Privately owned	United Wambo HVO	4.1	12.7	1.9
303536	6402728	326	Private	United Wambo	5.2	12.6	2.4
303573	6402776	326-421	Private Privately owned	United Wambo HVO	5.2	13	2.4
303570	6402708	326	Private	United Wambo	5.2	12.7	2.4
302772	6403528	327-332	Private Privately owned	United Wambo HVO	4.2	13	2.0
303027	6403398	328-338	Private Privately owned	United Wambo HVO	4.5	13.4	2.1
303108	6403168	329	Private	United Wambo	4.7	13.1	2.2
303139	6403141	330-358	Private Privately owned	United Wambo HVO	4.7	13.1	2.2
303207	6403191	332-359	Private Privately owned	United Wambo HVO	4.7	13.5	2.2
303212	6403086	333-367	Private Privately owned	United Wambo HVO	4.8	13.2	2.2
303267	6403082	334-366	Private Privately owned	United Wambo HVO	4.8	13.3	2.3
302769	6402966	335-339	Private Privately owned	United Wambo HVO	4.2	11.3	2.0
302801	6402991	336-340	Private Privately owned	United Wambo HVO	4.2	11.5	2.0
302865	6403056	337-342	Private Privately owned	United Wambo HVO	4.4	12	2.0

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
302913	6403113	338-344	Private Privately owned	United Wambo HVO	4.4	12.4	2.1
304735	6399136	343-452	Private	United Wambo HVO	7.4	8.5	2.1
302500	6401591	343-465	Mine Owned (Doyles Creek) Other mine owned property	United Wambo HVO	3.7	7.6	1.6
303625	6399131	344	Private	United Wambo	5.5	6.3	1.7
304242	6397875	346-456	Private Privately owned	United Wambo HVO	6.4	6.4	1.9
303607	6400693	347	Mine Owned (Doyles Creek)	United Wambo	5.1	7.9	1.9
304348	6397600	348-457	Private Privately owned	United Wambo HVO	5.9	6.3	2.0
301521	6404890	349	Private	United Wambo	2.7	10.1	1.4
301406	6404797	349	Private	United Wambo	2.7	10	1.3
301023	6404866	349	Private	United Wambo	2.4	9.9	1.1
301097	6404799	349	Private	United Wambo	2.4	10	1.2
303158	6402798	352-418	Private Privately owned	United Wambo HVO	4.7	11.8	2.2
303481	6402798	353-422	Private Privately owned	United Wambo HVO	5.1	12.8	2.4
303424	6402691	355-382	Private Privately owned	United Wambo HVO	5.0	12.1	2.3
303328	6402521	356-414-415	Private Privately owned Privately owned	United Wambo HVO HVO	4.8	10.9	2.2
303343	6402502	357-413	Private Privately owned	United Wambo HVO	4.8	10.9	2.2
303346	6402489	358	Private	United Wambo	4.8	10.9	2.2
303686	6402493	362-399	Private Privately owned	United Wambo HVO	5.4	11.9	2.4
303666	6402503	363-397	Private Privately owned	United Wambo HVO	5.3	11.8	2.4
303658	6402525	364-400	Private Privately owned	United Wambo HVO	5.3	11.9	2.4
303634	6402540	365-366-401-402	Private Private Privately owned Privately owned	United Wambo United Wambo HVO HVO	5.3	11.9	2.4
303562	6402483	366-404	Private Privately owned	United Wambo HVO	5.2	11.4	2.4
303608	6402572	367-367-403-405	Private Private Privately owned Privately owned	United Wambo United Wambo HVO HVO	5.3	12	2.4
303589	6402594	368-406	Private Privately owned	United Wambo HVO	5.2	12.1	2.4
303506	6402436	370-408	Private Privately owned	United Wambo HVO	5.0	11.1	2.3
312817	6387567	379	Private	United Wambo	1.3	6.2	5.0
313151	6387268	380	Private	United Wambo	1.2	6	4.9
313579	6386816	381	Private	United Wambo	1.0	5.5	4.9
311979	6386607	382	Private	United Wambo	0.9	4.6	2.7
311133	6386566	383	Private	United Wambo	0.8	3.8	2.0
311448	6386574	384	Private	United Wambo	0.8	4.1	2.2
311060	6386262	386	Private	United Wambo	0.7	3.5	1.8
311421	6386218	388	Private	United Wambo	0.7	3.8	1.9
312703	6386286	397	Private	United Wambo	0.8	4.6	3.0
313264	6386618	400	Private	United Wambo	0.9	5.2	4.0
313406	6386484	400	Private	United Wambo	0.9	5.1	4.1
313476	6386458	401	Private	United Wambo	0.9	5.1	4.1
313267	6386456	402	Private	United Wambo	0.9	5	3.8
318010	6399404	474-162	Private Privately owned	United Wambo HVO	2.6	43	12.8
318010	6399449	474-161	Private Privately owned	United Wambo HVO	2.6	42.4	12.7
319024	6403132	483-471	Private Privately owned	United Wambo HVO	1.5	12.2	4.2
317883	6399178	485-160	Private Privately owned	United Wambo HVO	2.8	48	13.9
317978	6399821	486-256	Private Privately owned	United Wambo HVO	2.3	37.3	11.4
317994	6399960	486	Private	United Wambo	2.2	35.3	10.9
318103	6399611	487-258	Private Privately owned	United Wambo HVO	2.4	38.8	11.9
318114	6399572	487-163	Private Privately owned	United Wambo HVO	2.5	39.1	12.0

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
318028	6399103	487-261	Private Privately owned	United Wambo HVO	2.9	45.9	13.7
318181	6399198	487-260	Private Privately owned	United Wambo HVO	2.8	41.9	13.0
318671	6399230	488	Private	United Wambo	2.8	31.4	11.3
318751	6399233	489	Private	United Wambo	2.8	29.9	11.0
318795	6399314	490-246	Private Privately owned	United Wambo HVO	2.7	28.9	10.7
318879	6399292	491-247	Private Privately owned	United Wambo HVO	2.7	27.6	10.5
318807	6399092	492-244	Private Privately owned	United Wambo HVO	2.7	29.3	11.2
318655	6398582	493-124	Private Privately owned	United Wambo HVO	2.5	33.3	12.8
318658	6398206	495-123	Private Privately owned	United Wambo HVO	2.6	38.4	13.6
312816	6386787	495	Private	United Wambo	1.0	5.3	3.7
318504	6398457	496-120	Private Privately owned	United Wambo HVO	2.5	37.8	13.7
318530	6398040	497-121	Private Privately owned	United Wambo HVO	2.9	44.8	14.6
316545	6398650	500	Mine Owned (Yancoal)	United Wambo	3.7	107.6	16.1
303441	6402666	504-381	Private Privately owned	United Wambo HVO	5.1	12	2.3
314359	6394718	91	Other mine owned property	HVO	67.7	67.4	34.0
315789	6393546	109	Other mine owned property	HVO	31.9	100.2	97.1
316208	6397277	114	Yancoal	HVO	7.0	204.4	31.2
318052	6396001	116	Yancoal	HVO	8.2	121.1	27.5
317982	6397794	117	Yancoal	HVO	3.7	73.3	18.5
318452	6396156	119	Yancoal	HVO	7.2	84.3	22.8
316576	6399022	158	Yancoal	HVO	3.4	93.2	14.6
318110	6396180	165	Yancoal	HVO	7.7	102	25.6
318679	6399194	245	Privately owned	HVO	2.8	31.4	11.4
318211	6397179	259	Yancoal	HVO	4.7	73.3	19.6
311622	6393147	271	Other mine owned property	HVO	17.2	12.6	12.6
306942	6401324	314	Yancoal	HVO	10.6	21.8	4.7
307078	6402503	316	Yancoal	HVO	7.9	23.2	5.1
308525	6401179	319	Yancoal	HVO	12.0	40.7	6.6
304021	6402284	322	Privately owned	HVO	5.8	11.9	2.6
303908	6402342	323	Privately owned	HVO	5.7	11.8	2.6
302367	6403296	325	Privately owned	HVO	3.8	11.4	1.8
302343	6404253	326	Privately owned	HVO	3.5	11.5	1.8
302163	6404341	327	Privately owned	HVO	3.3	11.2	1.7
303132	6403565	329	Privately owned	HVO	4.5	13.6	2.2
302791	6403834	331	Privately owned	HVO	4.1	12.8	2.1
303137	6403310	353	Privately owned	HVO	4.6	13.5	2.2
303096	6403185	357	Privately owned	HVO	4.6	13.2	2.2
303257	6403134	364	Privately owned	HVO	4.8	13.5	2.3
303280	6403103	365	Privately owned	HVO	4.8	13.4	2.3
303224	6403105	368	Privately owned	HVO	4.8	13.3	2.2
303332	6403032	369	Privately owned	HVO	4.9	13.4	2.3
303517	6402907	378	Privately owned	HVO	5.1	13.4	2.4
303559	6402853	379	Privately owned	HVO	5.2	13.3	2.4
303681	6402747	387	Privately owned	HVO	5.3	13.2	2.5
303678	6402583	391-392	Privately owned Privately owned	HVO HVO	5.4	12.3	2.5
303726	6402547	393	Privately owned	HVO	5.4	12.3	2.5
303694	6402565	394	Privately owned	HVO	5.4	12.3	2.5

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
303695	6402649	395	Privately owned	HVO	5.4	12.8	2.5
303492	6402491	420	Privately owned	HVO	5.1	11.3	2.3
303289	6403152	424	Privately owned	HVO	4.8	13.6	2.3
303276	6401567	426	Privately owned	HVO	4.5	8.9	2.0
301417	6404773	438	Privately owned	HVO	2.7	10	1.3
306435	6399488	442	Other mine owned property	HVO	26.3	15.3	3.1
307852	6402955	444	Yancoal	HVO	9.0	29.5	5.3
316079	6403182	445	Other mine owned property	HVO	1.7	34.6	5.6
313816	6404016	446	Other mine owned property	HVO	2.4	46.2	6.8
313521	6401905	447	Yancoal	HVO	4.8	89	10.7
306912	6402169	448	Yancoal	HVO	7.8	25	5.0
308513	6400854	450	Yancoal	HVO	11.7	38.7	6.5
304381	6398349	455	Privately owned	HVO	7.8	7.1	1.9
303092	6398949	461	Other mine owned property	HVO	5.1	5.4	1.6
302224	6398995	468	Other mine owned property	HVO	3.9	4.6	1.4
319005	6401802	472	Privately owned	HVO	1.5	15.7	5.5

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Table 2 Predicted maximum 24-hour average PM_{2.5} concentrations due to selected operations

Eastings	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
314700	6394357	0-99	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	13.6	8.8	6.3
314120	6394634	0-79	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	21.1	7.9	4.9
313389	6386388	C	Private	United Wambo	0.3	1.1	0.9
313259	6387527	0	Mine Owned (Yancoal)	United Wambo	0.5	1.4	1.2
314589	6386598	D	AGL Energy	United Wambo	0.4	1.1	1.5
315920	6386135	0	Mine Owned (Yancoal)	United Wambo	0.3	0.8	2.2
316264	6386291	0	Mine Owned (Yancoal)	United Wambo	0.3	0.8	2.9
316321	6386706	0	Mine Owned (Yancoal)	United Wambo	0.4	0.9	3.8
316040	6387020	0	Mine Owned (Yancoal)	United Wambo	0.4	0.9	3.8
312067	6390410	0	Mine Owned (Wambo)	United Wambo	1.4	2	1.6
314570	6394587	0-96	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	16.7	9.6	6.0
314371	6394736	0	Mine Owned (Wambo)	United Wambo	21.3	9.3	5.5
314347	6394888	0-90	Mine Owned (Yancoal) Yancoal	United Wambo HVO	24.9	10.1	5.5
315017	6395104	0-105	Mine Owned (Yancoal) Yancoal	United Wambo HVO	15.5	21.4	7.6
316146	6394315	0	Mine Owned (Yancoal)	United Wambo	7.9	65	13.8
318608	6398555	E-122	Private Privately owned	United Wambo HVO	0.7	4.7	2.4
318011	6397794	0-265	Mine Owned (Yancoal) Yancoal	United Wambo HVO	0.9	9.4	3.4
318130	6397356	0-118	Mine Owned (Yancoal) Yancoal	United Wambo HVO	1.0	10.1	3.6
318792	6399220	0-257	Mine Owned (Yancoal) Privately owned	United Wambo HVO	0.6	4	2.0
318700	6399350	0	Mine Owned (Yancoal)	United Wambo	0.7	4.2	2.0
317759	6402132	0	Mine Owned (Yancoal)	United Wambo	0.6	3.2	1.3
319611	6403391	F	Private	United Wambo	0.3	1.5	0.6
319745	6404139	0	Mine Owned (Ashton)	United Wambo	0.3	1.3	0.5
315016	6402359	0	Mine Owned (Yancoal)	United Wambo	0.7	8.5	1.5
315206	6402509	0	Mine Owned (Yancoal)	United Wambo	0.7	7.5	1.4
314324	6402357	0	Mine Owned (Yancoal)	United Wambo	0.9	9.8	1.7
313949	6402173	0	Mine Owned (Yancoal)	United Wambo	1.2	11.3	1.9
307462	6400065	0-313	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	2.7	4	1.0
306906	6399341	0-306	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	5.2	2.9	0.8
307244	6399249	0-302	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	5.7	3.3	0.9
307143	6399273	0-303	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	5.6	3.2	0.8
303604	6402327	Crown-396	Crown Land Privately owned	United Wambo HVO	0.9	1.5	0.6
303329	6402615	Crown-386-410	Crown Land Crown owned Crown owned	United Wambo HVO HVO	0.9	1.4	0.6
303337	6402604	Crown	Crown Land	United Wambo	0.9	1.4	0.6
305651	6400600	0-439	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	2.2	2.1	0.8
314465	6394859	0-94	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	22.9	10.6	5.8
307733	6402907	0-467	Mine Owned (Yancoal) Yancoal	United Wambo HVO	2.5	4.1	1.0

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
307840	6403103	0	Mine Owned (Yancoal)	United Wambo	2.4	4.3	1.0
307532	6402321	0-320	Mine Owned (Yancoal) Yancoal	United Wambo HVO	2.5	3.7	1.0
306969	6402070	0-315	Mine Owned (Yancoal) Yancoal	United Wambo HVO	2.1	3.2	0.9
307016	6401319	0	Mine Owned (Yancoal)	United Wambo	2.1	3.3	1.0
309977	6402453	0	Mine Owned (Yancoal)	United Wambo	2.6	12.5	1.4
311206	6390558	0	Mine Owned (Wambo)	United Wambo	1.0	1.6	1.3
315143	6386683	0	Mine Owned (Yancoal)	United Wambo	0.4	1	2.1
315060	6386183	0	Mine Owned (Yancoal)	United Wambo	0.3	1	1.6
315212	6386299	0	Mine Owned (Yancoal)	United Wambo	0.3	1	1.8
315758	6386466	0	Mine Owned (Yancoal)	United Wambo	0.3	0.9	2.5
314336	6392898	0	Mine Owned (Yancoal)	United Wambo	4.9	3.4	5.5
314201	6393069	0-78	Mine Owned (Yancoal) Yancoal	United Wambo HVO	5.5	3.4	4.9
315908	6390572	0	Mine Owned (Yancoal)	United Wambo	2.0	1.7	10.3
316141	6389566	0	Mine Owned (Yancoal)	United Wambo	1.3	1.3	8.3
307101	6399106	0-304	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	6.7	3.1	0.8
313160	6388755	2	Mine Owned (Yancoal)	United Wambo	0.8	1.7	1.4
313271	6388488	3	Private	United Wambo	0.7	1.6	1.4
312974	6386930	4	Mine Owned (Yancoal)	United Wambo	0.4	1.2	0.9
313163	6388181	4	Mine Owned (Yancoal)	United Wambo	0.6	1.5	1.3
303519	6402664	4	Private	United Wambo	0.9	1.6	0.6
312518	6387011	4	Mine Owned (Yancoal)	United Wambo	0.4	1.2	0.8
313347	6387867	6	Private	United Wambo	0.6	1.5	1.3
312920	6387731	7	Private	United Wambo	0.5	1.4	1.2
313743	6388999	8	Mine Owned (Yancoal)	United Wambo	0.8	1.7	2.0
314482	6394445	Nov-93	Mine Owned (Yancoal) Yancoal	United Wambo HVO	16.1	8.6	5.7
309426	6402046	11	Mine Owned (Yancoal)	United Wambo	3.4	9.7	1.2
308518	6401341	11-449	Mine Owned (Yancoal) Yancoal	United Wambo HVO	3.3	5.4	1.2
305929	6400010	16-308	Private Privately owned	United Wambo HVO	2.5	2.3	0.7
305825	6400250	17	Private	United Wambo	2.4	2.2	0.8
305736	6400345	18-441	Mine Owned (Wambo) Other mine owned property	United Wambo HVO	2.3	2.2	0.8
314149	6394567	19-77	Private	United Wambo HVO	19.9	7.8	5.0
315587	6393904	22	Mine Owned (Glencore)	United Wambo	9.2	16.5	11.8
310074	6389857	25	Private	United Wambo	0.6	1	0.9
306142	6399900	28-309	Mine	United Wambo HVO	2.9	2.3	0.8
306112	6399966	28	Mine	United Wambo	2.9	2.3	0.8
304258	6399106	30	Private	United Wambo	1.1	1.3	0.5
304542	6398538	33	Private	United Wambo	1.3	1.3	0.4
309406	6389457	35	Private	United Wambo	0.5	0.8	0.8
308673	6389438	35	Private	United Wambo	0.4	0.7	0.7
305790	6399782	39-310	Private Privately owned	United Wambo HVO	2.1	2.1	0.7
305926	6399697	40	Mine	United Wambo	2.3	2.2	0.7
304187	6401020	41-432	Private Privately owned	United Wambo HVO	1.1	1.5	0.7
304400	6400638	41-433	Private Privately owned	United Wambo HVO	1.2	1.5	0.7

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
303707	6398041	42	Private	United Wambo	0.9	1	0.4
305740	6400605	43-312	Private Privately owned	United Wambo HVO	2.2	2.2	0.8
305128	6401582	44-434	Private Privately owned	United Wambo HVO	1.7	2	0.8
304391	6402029	47-321	Private Privately owned	United Wambo HVO	1.3	1.7	0.7
304406	6398806	48-453	Private Privately owned	United Wambo HVO	1.2	1.3	0.5
303991	6399029	49-459	Private Privately owned	United Wambo HVO	1.0	1.2	0.5
305378	6401082	50	Private	United Wambo	1.9	2.1	0.8
305371	6401182	50-317	Private Privately owned	United Wambo HVO	1.9	2.1	0.8
305424	6401054	50-311	Private Privately owned	United Wambo HVO	1.9	2.1	0.8
304009	6402249	52	Private	United Wambo	1.1	1.6	0.6
304164	6402131	52-324	Private Privately owned	United Wambo HVO	1.2	1.7	0.7
304146	6401941	53-431	Private	United Wambo HVO	1.2	1.7	0.7
303990	6402018	54-429	Private Privately owned	United Wambo HVO	1.1	1.6	0.6
305041	6401315	56-436	Private Privately owned	United Wambo HVO	1.6	2	0.8
303674	6401773	58-428	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
303709	6401932	59-430	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
303628	6401737	60-427	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
303672	6401711	60	Private	United Wambo	0.9	1.5	0.6
303243	6401558	61	Private	United Wambo	0.8	1.3	0.6
303347	6403156	62-362	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302823	6401180	65-464	Mine Owned (Doyles Creek) Other mine owned property	United Wambo HVO	0.7	1.1	0.5
303375	6402578	68-411	Private Privately owned	United Wambo HVO	0.9	1.4	0.6
303594	6398843	75-462	Private Privately owned	United Wambo HVO	1.0	1.1	0.4
302335	6404279	95	Private	United Wambo	0.7	1.5	0.4
302215	6404447	95	Private	United Wambo	0.7	1.4	0.4
303155	6403047	98-370	Private Privately owned	United Wambo HVO	0.9	1.6	0.5
303229	6403235	105-360	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302488	6403896	106-330	Private Privately owned	United Wambo HVO	0.7	1.6	0.4
303563	6402427	107-398	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
303599	6402669	113-389	Private Privately owned	United Wambo HVO	1.0	1.6	0.6
303580	6402686	113-388	Private Privately owned	United Wambo HVO	1.0	1.6	0.6
303461	6402510	115-407	Private Privately owned	United Wambo HVO	0.9	1.4	0.6
303152	6402874	116-372	Private Privately owned	United Wambo HVO	0.9	1.5	0.5
302662	6402765	122-416	Mine Owned (Doyles Creek) Other mine owned property	United Wambo HVO	0.7	1.3	0.5
305207	6401500	133	Private	United Wambo	1.7	2	0.8
303057	6403344	135-347	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302975	6403164	143-346	Private Privately owned	United Wambo HVO	0.8	1.6	0.5
303308	6402357	144-419	Private Privately owned	United Wambo HVO	0.8	1.4	0.6
303082	6403276	146-351	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302690	6403469	148-335	Private Privately owned	United Wambo HVO	0.8	1.6	0.5
302625	6403418	148-334	Private Privately owned	United Wambo HVO	0.8	1.6	0.5
303357	6402970	150-377	Private Privately owned	United Wambo HVO	0.9	1.7	0.6
303276	6402868	151-375	Private Privately owned	United Wambo HVO	0.9	1.6	0.5

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
303423	6402758	156-383	Private Privately owned	United Wambo HVO	0.9	1.6	0.6
303381	6402773	156-384	Private Privately owned	United Wambo HVO	0.9	1.6	0.6
303442	6398629	163-458	Private Privately owned	United Wambo HVO	1.0	1	0.4
303115	6403298	168-352	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302218	6402651	170-466	Private Other mine owned property	United Wambo HVO	0.6	1.2	0.4
302999	6403290	171-349	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303257	6402924	174-373	Private Privately owned	United Wambo HVO	0.9	1.6	0.5
303239	6402934	174-371	Private Privately owned	United Wambo HVO	0.9	1.6	0.5
302943	6403133	175-345	Private Privately owned	United Wambo HVO	0.8	1.6	0.5
303130	6403214	180-356	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303262	6402901	186-374	Private Privately owned	United Wambo HVO	0.9	1.6	0.5
303466	6402612	187-380	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
303127	6398998	188	Mine Owned (Doyles Creek)	United Wambo	0.9	1	0.4
302917	6403432	198-337	Private Privately owned	United Wambo HVO	0.8	1.7	0.5
303047	6403238	202-350	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303302	6402543	204-412	Department of Education and Communities Crown owned	United Wambo HVO	0.9	1.4	0.6
302879	6403079	205-343	Private Privately owned	United Wambo HVO	0.8	1.5	0.5
303399	6402544	206-409	Private Privately owned	United Wambo HVO	0.9	1.4	0.6
303166	6403236	211	Private	United Wambo	0.9	1.7	0.5
303184	6403276	211-355	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302019	6404601	230-437	Private Privately owned	United Wambo HVO	0.6	1.3	0.4
303365	6402742	240-385	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
302757	6403624	256-336	Private Privately owned	United Wambo HVO	0.8	1.6	0.5
303205	6403302	261-354	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303254	6403256	276-361	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303181	6403017	277-417	Private Privately owned	United Wambo HVO	0.9	1.6	0.5
303007	6403201	277	Crown Land	United Wambo	0.9	1.6	0.5
303316	6403133	280-363	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303033	6403315	281-348	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302773	6404011	281-328	Private Privately owned	United Wambo HVO	0.8	1.6	0.4
303619	6402638	282-390-423	Private Privately owned Privately owned	United Wambo HVO HVO	1.0	1.6	0.6
303611	6402649	282	Private	United Wambo	1.0	1.6	0.6
302830	6403026	283-341	Private Privately owned	United Wambo HVO	0.8	1.5	0.5
302953	6403358	286	Private	United Wambo	0.8	1.7	0.5
302914	6401913	287-425	Private Privately owned	United Wambo HVO	0.8	1.2	0.5
303478	6402864	291-376	Private Privately owned	United Wambo HVO	0.9	1.7	0.6
304801	6398881	320-451	Private Privately owned	United Wambo HVO	1.3	1.4	0.5
302224	6399025	322	Mine Owned (Doyles Creek)	United Wambo	0.7	0.8	0.3
302650	6403523	325-333	Private Privately owned	United Wambo HVO	0.8	1.6	0.5
303536	6402728	326	Private	United Wambo	1.0	1.6	0.6
303573	6402776	326-421	Private Privately owned	United Wambo HVO	1.0	1.7	0.6
303570	6402708	326	Private	United Wambo	1.0	1.6	0.6
302772	6403528	327-332	Private Privately owned	United Wambo HVO	0.8	1.6	0.5

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
303027	6403398	328-338	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303108	6403168	329	Private	United Wambo	0.9	1.7	0.5
303139	6403141	330-358	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303207	6403191	332-359	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303212	6403086	333-367	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
303267	6403082	334-366	Private Privately owned	United Wambo HVO	0.9	1.7	0.5
302769	6402966	335-339	Private Privately owned	United Wambo HVO	0.8	1.4	0.5
302801	6402991	336-340	Private Privately owned	United Wambo HVO	0.8	1.5	0.5
302865	6403056	337-342	Private Privately owned	United Wambo HVO	0.8	1.5	0.5
302913	6403113	338-344	Private Privately owned	United Wambo HVO	0.8	1.6	0.5
304735	6399136	343-452	Private	United Wambo HVO	1.2	1.5	0.5
302500	6401591	343-465	Mine Owned (Doyles Creek) Other mine owned property	United Wambo HVO	0.7	1	0.5
303625	6399131	344	Private	United Wambo	0.9	1.1	0.4
304242	6397875	346-456	Private Privately owned	United Wambo HVO	1.1	1.1	0.4
303607	6400693	347	Mine Owned (Doyles Creek)	United Wambo	0.9	1.2	0.6
304348	6397600	348-457	Private Privately owned	United Wambo HVO	1.0	1.1	0.4
301521	6404890	349	Private	United Wambo	0.5	1.3	0.3
301406	6404797	349	Private	United Wambo	0.5	1.3	0.3
301023	6404866	349	Private	United Wambo	0.4	1.3	0.3
301097	6404799	349	Private	United Wambo	0.4	1.3	0.3
303158	6402798	352-418	Private Privately owned	United Wambo HVO	0.9	1.5	0.5
303481	6402798	353-422	Private Privately owned	United Wambo HVO	0.9	1.6	0.6
303424	6402691	355-382	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
303328	6402521	356-414-415	Private Privately owned Privately owned	United Wambo HVO HVO	0.9	1.4	0.6
303343	6402502	357-413	Private Privately owned	United Wambo HVO	0.9	1.4	0.6
303346	6402489	358	Private	United Wambo	0.9	1.4	0.6
303686	6402493	362-399	Private Privately owned	United Wambo HVO	1.0	1.5	0.6
303666	6402503	363-397	Private Privately owned	United Wambo HVO	1.0	1.5	0.6
303658	6402525	364-400	Private Privately owned	United Wambo HVO	1.0	1.5	0.6
303634	6402540	365-366-401-402	Private Private Privately owned Privately owned	United Wambo United Wambo HVO HVO	1.0	1.5	0.6
303562	6402483	366-404	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
303608	6402572	367-367-403-405	Private Private Privately owned Privately owned	United Wambo United Wambo HVO HVO	1.0	1.5	0.6
303589	6402594	368-406	Private Privately owned	United Wambo HVO	1.0	1.5	0.6
303506	6402436	370-408	Private Privately owned	United Wambo HVO	0.9	1.4	0.6
312817	6387567	379	Private	United Wambo	0.5	1.3	1.1
313151	6387268	380	Private	United Wambo	0.5	1.3	1.1
313579	6386816	381	Private	United Wambo	0.4	1.2	1.1
311979	6386607	382	Private	United Wambo	0.3	1	0.6
311133	6386566	383	Private	United Wambo	0.3	0.8	0.5
311448	6386574	384	Private	United Wambo	0.3	0.9	0.5
311060	6386262	386	Private	United Wambo	0.3	0.8	0.4
311421	6386218	388	Private	United Wambo	0.3	0.8	0.5
312703	6386286	397	Private	United Wambo	0.3	1	0.7

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
313264	6386618	400	Private	United Wambo	0.4	1.2	0.9
313406	6386484	400	Private	United Wambo	0.4	1.1	0.9
313476	6386458	401	Private	United Wambo	0.4	1.1	0.9
313267	6386456	402	Private	United Wambo	0.4	1.1	0.9
318010	6399404	474-162	Private Privately owned	United Wambo HVO	0.9	5.9	2.3
318010	6399449	474-161	Private Privately owned	United Wambo HVO	0.8	5.8	2.3
319024	6403132	483-471	Private Privately owned	United Wambo HVO	0.4	1.7	0.8
317883	6399178	485-160	Private Privately owned	United Wambo HVO	0.9	6.5	2.5
317978	6399821	486-256	Private Privately owned	United Wambo HVO	0.8	5.1	2.1
317994	6399960	486	Private	United Wambo	0.8	4.9	2.0
318103	6399611	487-258	Private Privately owned	United Wambo HVO	0.8	5.3	2.2
318114	6399572	487-163	Private Privately owned	United Wambo HVO	0.8	5.4	2.2
318028	6399103	487-261	Private Privately owned	United Wambo HVO	0.9	6.3	2.5
318181	6399198	487-260	Private Privately owned	United Wambo HVO	0.8	5.7	2.4
318671	6399230	488	Private	United Wambo	0.7	4.3	2.1
318751	6399233	489	Private	United Wambo	0.6	4.1	2.1
318795	6399314	490-246	Private Privately owned	United Wambo HVO	0.6	4	2.0
318879	6399292	491-247	Private Privately owned	United Wambo HVO	0.6	3.8	2.0
318807	6399092	492-244	Private Privately owned	United Wambo HVO	0.6	4	2.1
318655	6398582	493-124	Private Privately owned	United Wambo HVO	0.7	4.6	2.4
318658	6398206	495-123	Private Privately owned	United Wambo HVO	0.7	5.1	2.6
312816	6386787	495	Private	United Wambo	0.4	1.2	0.8
318504	6398457	496-120	Private Privately owned	United Wambo HVO	0.7	5.1	2.6
318530	6398040	497-121	Private Privately owned	United Wambo HVO	0.7	5.9	2.8
316545	6398650	500	Mine Owned (Yancoal)	United Wambo	1.2	14.4	2.8
303441	6402666	504-381	Private Privately owned	United Wambo HVO	0.9	1.5	0.6
314359	6394718	91	Other mine owned property	HVO	21.0	9.2	5.4
315789	6393546	109	Other mine owned property	HVO	7.4	14	13.8
316208	6397277	114	Yancoal	HVO	2.0	26.6	6.0
318052	6396001	116	Yancoal	HVO	2.0	15.7	4.8
317982	6397794	117	Yancoal	HVO	1.0	9.6	3.4
318452	6396156	119	Yancoal	HVO	1.7	10.8	4.2
316576	6399022	158	Yancoal	HVO	1.1	12.5	2.6
318110	6396180	165	Yancoal	HVO	1.9	13.3	4.5
318679	6399194	245	Privately owned	HVO	0.7	4.3	2.1
318211	6397179	259	Yancoal	HVO	1.1	9.6	3.6
311622	6393147	271	Other mine owned property	HVO	3.2	2	2.2
306942	6401324	314	Yancoal	HVO	2.0	3.2	0.9
307078	6402503	316	Yancoal	HVO	2.2	3.2	0.9
308525	6401179	319	Yancoal	HVO	3.2	5.5	1.2
304021	6402284	322	Privately owned	HVO	1.1	1.6	0.6
303908	6402342	323	Privately owned	HVO	1.1	1.6	0.6
302367	6403296	325	Privately owned	HVO	0.7	1.4	0.4
302343	6404253	326	Privately owned	HVO	0.7	1.5	0.4

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Easting	Northing	ID	Description	Source	Increment due to United Wambo (Year 6)	Increment due to HVO South (Stage 2)	Increment due to MTW
302163	6404341	327	Privately owned	HVO	0.6	1.4	0.4
303132	6403565	329	Privately owned	HVO	0.9	1.7	0.5
302791	6403834	331	Privately owned	HVO	0.8	1.6	0.5
303137	6403310	353	Privately owned	HVO	0.9	1.7	0.5
303096	6403185	357	Privately owned	HVO	0.9	1.7	0.5
303257	6403134	364	Privately owned	HVO	0.9	1.7	0.5
303280	6403103	365	Privately owned	HVO	0.9	1.7	0.5
303224	6403105	368	Privately owned	HVO	0.9	1.7	0.5
303332	6403032	369	Privately owned	HVO	0.9	1.7	0.5
303517	6402907	378	Privately owned	HVO	1.0	1.7	0.6
303559	6402853	379	Privately owned	HVO	1.0	1.7	0.6
303681	6402747	387	Privately owned	HVO	1.0	1.7	0.6
303678	6402583	391-392	Privately owned Privately owned	HVO HVO	1.0	1.6	0.6
303726	6402547	393	Privately owned	HVO	1.0	1.6	0.6
303694	6402565	394	Privately owned	HVO	1.0	1.6	0.6
303695	6402649	395	Privately owned	HVO	1.0	1.6	0.6
303492	6402491	420	Privately owned	HVO	0.9	1.4	0.6
303289	6403152	424	Privately owned	HVO	0.9	1.7	0.5
303276	6401567	426	Privately owned	HVO	0.8	1.3	0.6
301417	6404773	438	Privately owned	HVO	0.5	1.3	0.3
306435	6399488	442	Other mine owned property	HVO	3.7	2.5	0.7
307852	6402955	444	Yancoal	HVO	2.5	4.3	1.0
316079	6403182	445	Other mine owned property	HVO	0.5	4.7	1.1
313816	6404016	446	Other mine owned property	HVO	0.7	6.3	1.3
313521	6401905	447	Yancoal	HVO	1.4	12.2	2.1
306912	6402169	448	Yancoal	HVO	2.1	3.1	0.9
308513	6400854	450	Yancoal	HVO	3.1	5.7	1.2
304381	6398349	455	Privately owned	HVO	1.3	1.2	0.4
303092	6398949	461	Other mine owned property	HVO	0.9	1	0.4
302224	6398995	468	Other mine owned property	HVO	0.7	0.8	0.3
319005	6401802	472	Privately owned	HVO	0.4	2.2	1.0