

AGENDA

Upper Hunter Mining Dialogue

Joint Working Group - Combined Land Management and Water Meeting

UHMD Resource Centre, Upstairs of the Town Square Shopping Centre
Suite 1, 159 John Street, Singleton NSW 2330

Wednesday 15 March 2017: 10:00 am - 1:00 pm

Land Management		10:00 am
1.	Welcome and Apologies	
2.	Minutes and actions of the previous meeting	5 mins
3.	Grazing Trials	10 mins
4.	Rehabilitation reporting - Plan for 2016 Data Collection	10 mins
5.	Mine Rehabilitation booklet	5 mins
6.	Update on current Land Management projects	5 mins
7.	Other business	5 mins
Combined Session		10:40 am
8.	UHMD 2017 Structure and Membership of JWG's	10 mins
9.	Synoptic Plan Workshop and Rehabilitation Strategy	30 mins
10.	Community Perceptions Survey - Key Findings (Attachment)	20 mins
11.	School Bus Tours	20 mins
12.	Update on communications initiatives	10 mins
13.	Review of the 2016 Annual UHMD Forum (Paper following item)	10 mins
Water Session		12:20 pm
14.	Minutes and actions of previous meeting	5 mins
15.	Hunter River Water Quality Study (Paper following item)	15 mins
16.	Water Accounting Framework - Plan for 2016 Data Collection	10 mins
17.	Update on current Water projects	5 mins
18.	Other business	5 mins

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Agenda Item 3

GRAZING TRIALS - PLANS FOR 2017

Issue

Funding for the Upper Hunter Cattle Grazing Trials currently being undertaken as part of an ACARP project is due to expire at the end of June 2017.

Background

ACARP is a collaborative program that utilises the experience and technical strength of both the coal mining industry and research institutions in solving technical problems and addressing issues of significance to the industry's long term future. The cattle grazing trial currently being undertaken was selected under the Environment sub-category of the Open Cut Committee projects.

The Cattle Grazing Trials have attracted considerable interest from a wide range of stakeholders and the media over the past 20 months.

The final results from the first batches of steers at both Mt Arthur and Hunter Valley Operations showed an advantage in weight, fat cover and value for steers grazing the rehabilitated mine pastures compared to those cattle on undisturbed land. Stage 2 is currently underway and ends in June 2017.

Neil Griffiths (DPI) has suggested that there may be some opportunity for further studies following the completion of the grazing study, including surveying farmer attitudes towards mining, particularly as a result of outcomes of the grazing trials; and experimentation of newer introduced pasture species on rehabilitated land, which would help identify the best pasture species for use in rehabilitation which is intended for grazing.

The announcement seeking research proposals under the 2017 priorities will be made in The Australian newspaper on Saturday, 1 April 2017, with the closing date for proposals on Wednesday, 3rd May.

2017 Calendar - Key dates of note include:

- March - Priority Setting & Strategy Meetings
- April 1 - Call for Proposals (Announcement in Paper and distribution of Newsletter)
- May 3 - Closing Date for Short Proposals
- July - Short Proposal Selection Meetings
- July 28th - Call for Long Proposals
- August 25 - Postgraduate Scholarship applications due
- August 30 - Closing Date for Long Proposals
- October - Long Proposal Selection Meetings
- December (mid) - Researchers advised of Proposal Outcomes

The UHMD has engaged with Mr Griffiths to offer the secretariat's support in progressing an application through the 2017 round of funding.

Recommendation

JWG members are encouraged to provide input that would help inform any potential further project proposals to the UHMD or Mr Griffiths directly.

FOR DISCUSSION

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Agenda Item 4

REHABILITATION REPORTING - PLAN FOR 2016 RESULTS

Issue

Collation and publication for the 2016 rehabilitation reporting from UHMD companies is due to commence shortly.

Background

In 2012 the Joint Working Group developed a set of common principles, agreed to by the region's coal producers, to drive improvements in the speed of rehabilitation and to provide aggregate data to the community about the total amount of land disturbed and rehabilitated. This fulfilled a community desire for timely and easily accessible information.

The principles and commitments developed by the JWG aimed to decrease the periods of time that disturbed areas are left without temporary or final cover to minimise any impacts on the landscape or air quality.

Data exists for the 2012 calendar year onwards. The 2015 rehabilitation reporting figures required further analysis and reconciliation by the UHMD secretariat which has delayed their publication. Further, the individual member site reports are yet to be published on the website, as was undertaken previously. The UHMD secretariat will seek to upload these shortly.

A number of changes to the Upper Hunter Mining Dialogue's participating mines may impact the collation of the 2016 data. Since the 2015 data was collated, Anglo American has ceased its mining operations in NSW and is no longer a member of the NSW Minerals Council. A number of other structural changes and divestments of other companies throughout 2016 may also impact data collection.

The 2015 figures are set out for reference below:

	Rehabilitation	2012 (hectares)	2013 (hectares)	2014 (hectares)	2015 (hectares)
A	Total land area disturbed and not yet rehabilitated at the beginning of the reporting period [4]	17,830	18,098	18,479	20,171
B	Total amount of land newly disturbed within the reporting period	1,163	1,148	1,057	1,424[6]
C	Total amount of land newly rehabilitated[1] within the reporting period (rehabilitation commenced in this period)	895	962	801	856
D	Total land area disturbed and not yet rehabilitated at the end of the reporting period (D = A + B - C)	18,098	18,283	18,736	21,008
E	Total area of rehabilitation at all operations at the end of the reporting period[2]	8,791	9,145	10,023	10781
F	Annual rehabilitation to disturbance ratio (C:B)[3]	0.77	0.84	0.76	0.60
G	Overall proportion of disturbed land rehabilitated (E/(D+E))	32.7%	33.3%	34.9%	33.9%

	Other Land Managed	2012 (hectares)	2013 (hectares)	2014 [5] (hectares)	2015 (hectares)
	Estimate of the total land held as biodiversity offsets	10,973	13,164	22,607	22,773
	Estimate of the total area of land managed for agricultural use (e.g. grazing, cropping, viticulture)	57,533	60,174	44,252	44,632

Notes:

[1] Rehabilitation is defined by the Mining Act 1992 as the treatment or management of disturbed land or water for the purpose of establishing a safe and stable environment.

[2] Row E2013 may not equal Row C2013 + Row E2012 as areas that have been previously rehabilitated, then re-disturbed are excluded from the Total area of rehabilitation of all operations at the end of the reporting period.

[3] The rehabilitation to disturbance ratio indicates how many hectares of rehabilitation are undertaken for each hectare of land disturbed during the year. A ratio of 1 indicates that the area of rehabilitation and disturbance in that year are the same.

[4] Row A(Year) does not necessarily equal Row D (Year -1) because some companies have reconciled their figures and corrected them over time.

[5] There have been substantial changes in the amount of 'Other Land Managed' between 2013 and 2014 because: (i) significant increases in additional offset areas have been established, and (ii) because some of the land previously identified as being used for Agriculture is now being used for mining purposes or biodiversity offsets.

[6] The increase in land newly disturbed in 2015 is predominantly due to the establishment of the Bulga Optimisation project. Exact correlation of disturbance/rehabilitation figures is not always possible. From time to time, sites may be granted additional mining purpose leases over existing infrastructure areas. Companies are required to include pre-existing disturbance within these areas in their rehabilitation reporting obligations. As such, additional disturbance may be reported at the end of the calendar year reporting period that is unable to be reconciled with the actual land that was disturbed and rehabilitated during the period.

Plan for 2016 data:

Member companies will be contacted for their 2016 figures in early April 2017, with a goal to publish these figures to already available yearly data as soon as possible following review by the UHMD secretariat.

Industry members are encouraged to advise of their anticipated timeframes of returning this information to the Dialogue for analysis to assist the Dialogue's efforts in planning for desired release dates.

FOR DISCUSSION

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Agenda Item 5

PROMOTION AND AWARENESS OF MINE REHABILITATION

Issue

NSW continues to progress a collaborative initiative with DRE on mine rehabilitation that focuses on rehabilitation not only in the Upper Hunter, but across NSW.

Background

A booklet outlining the life cycle of a mine, government regulations and best practice examples of mine rehabilitation has been produced as a result of Dialogue advocacy to better promote and raise awareness for mine rehabilitation.

The UHMD secretariat continues to work with DRE to progress the 'Mine Rehabilitation' booklet which is currently in a final draft stage. The booklet features five case studies across NSW, some of which are Dialogue projects.

The remaining case studies collected as part of this activity will be featured in NSWMC's member news, rehabilitation area of the NSWMC website, and as Dialogue case studies where appropriate.

The current draft had the support of the previous Minister for Industry, Resources and Energy, The Hon Anthony Roberts MP, with a foreword from both the Minister and the CEO of NSWMC Stephen Galilee included.

The UHMD secretariat will be briefing the new Minister for Resources, The Hon Don Harwin MLC on the importance of this resource and encourage its publication.

FOR INFORMATION

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Agenda Item 6

UPDATE ON CURRENT LAND MANAGEMENT PROJECTS

Grazing Trials

See Agenda item 3

Rehabilitation reporting

See Agenda item 4

Promotion and Awareness of Mine Rehabilitation

See Agenda item 5

Beneficial reuse of voids

See agenda item 9

FOR INFORMATION

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Agenda Item 8

UHMD 2017 STRUCTURE

Issue

The structure of the UHMD for 2017 was discussed at the end of year Joint Advisory Steering Committee (JASC) and Industry Steering Committee (ISC) meetings in November 2016, with a recommendation that a proposal be put to the Executive Oversight Committee (EOC) for decision at their December 2016 meeting.

Background

A number of concerns had been raised regarding the structure of the UHMD and whether there was a need to reduce either the number of working groups or the frequency of meetings or both, to address a noticeable decline in attendance from participants.

The JASC and EOC were both briefed on the decline in attendance, with EOC deciding it would be best to review the results of the UHMD Community Perceptions Survey before making any final decisions regarding altering the frequency or number of working groups, and to delay implementing any changes until the start of 2017.

The Secretariat proposed that the JASC consider and provide advice on changes to the structure of UHMD Working Groups following significant discussion and feedback and recognition that certain groups had substantial overlap in terms of membership and content. The proposal included:

- Merging the JWG - Water and JWG - Land Management into a single JWG titled 'Land and Water Management' to meet three times a year.
- Continue the JWG - Emissions & Health, but reduce the number of meetings to two times a year.

The JASC decided the Land Management and the Water Joint Working Groups still had enough theme-specific content to justify their status as separate entities, but supported progressing with the following arrangement to minimise the unnecessary duplication of content and increase efficiencies within the Dialogue:

- JWG for Land Management and Water to trial a meeting format (for one year) that incorporates water-specific and land management- specific content, with a joint meeting covering common subject matter in the middle.
- JASC to evaluate the success of the combined JWG meeting trial at the end of 2017.
- Strengthen the role of the JASC in monitoring the progress of communication and awareness related projects like the community resurvey and school mine visits program.
- Maintain the Emissions and Health JWG as a stand-alone entity.

The EOC supported the above JASC recommendations. In addition, the EOC proposed that a paper be submitted to EXCO recommending the disbandment of the EOC in 2017, given that the JASC has now been established as the body with oversight of UHMD projects and therefore the need for an EOC is redundant. Under the recommendation, high-level decisions regarding spending, governance and structural issues would need to be approved through the NSWMC Executive Committee.

Recommendation:

The Working Group note the EOC recommendations.

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Agenda Item 9

SYNOPTIC PLAN AND MINE REHABILITATION UPDATE

Issue

The issue of future land use and the shape of the economy in a post-mining landscape continue to be important topics for the Upper Hunter community in 2017, and mine rehabilitation and closure remains a significant priority for the Dialogue moving forward. Significant progress has been made on progressing a review of the Synoptic Plan since the JASC last met.

Background

The *Synoptic Plan: Integrated landscapes for coal mine rehabilitation in the Hunter Valley (1999)* was produced by the then NSW Department of Minerals Resources to address the form of the post-mining landscape and is still used as a reference point in the planning process despite being considerably out of date. The document requires extensive updating given the numerous projects and extensions which have commenced since its publication. There is considerable discussion at local, regional and state level about diversifying the economic base of the region to facilitate a transition to a post-mining economy when coal production eventually starts to wind-down. NSWMC and the UHMD in particular have been vocal in advocating for a refresh to the Synoptic Plan.

The [Hunter Regional Plan](#), released in October 2016 by the Department of Planning and Environment, referenced the Synoptic Plan in a specific action under Direction 11: Managing the ongoing use of natural resources, which was to review the Synoptic Plan in conjunction with the development of the Upper Hunter Strategic Biodiversity Assessment to ensure best practice rehabilitation and visual impact management for closed mines.

The lack of progress on updating the Synoptic Plan was raised by the community and industry members alike at the 2016 Upper Hunter Mining Dialogue Forum, which centred around the theme of rehabilitation, voids and future planning. At the conclusion of the Forum, Steven Barry from the Department of Planning and Environment acknowledged that the progress had stalled and agreed to hold a community workshop in the Upper Hunter in early 2017 to kick start the Synoptic Plan refresh and determine community expectations on how the process should be undertaken. The workshop provides the Dialogue with a valuable opportunity for engagement in 2017 and onwards as well as demonstrating the value of the Dialogue's advocacy efforts to community participants.

The Department of Premier and Cabinet (DPC) are aware that this is a community priority and have supported the workshop. It is hoped that DPC would play a vital governance role in the early stage of a Synoptic Plan Review.

The UHMD Secretariat has subsequently had regular meetings with representatives from DPC, DPE, DRE and The University of Newcastle to determine capabilities and resources required to host the workshop, as well as explore what content will be included and what shape the workshop will take. NSWMC has modest funding available to assist in venue hire or facilitation costs.

A Synoptic Plan Workshop was expected to take place in late March in Singleton, but has since been postponed until such time that there is agreement from all Government agencies involved on the process and scope of the project. The UHMD secretariat will continue to pursue the workshop and is coordinating a letter of support advocating for the workshop to be held which UHMD members, local government and community groups may utilise.

As part of this process, the UHMD Secretariat continues to advocate for a multi-stakeholder committee to oversee progress on a refresh to the Synoptic Plan and will seek to brief new Ministers and advisors following the recent Cabinet reshuffle.

Other activities:

Industry continues to be active in the areas of mine rehabilitation and mine closure, with the following activities playing a critical role in the 2017 priorities of the NSWMC. These include:

- NSWMC is implementing a mine rehabilitation and mine closure strategy encompassing a number of projects relating to voids, rehabilitation and relinquishment. The strategy covers projects, research and communications activities and many of the strategic goals will involve input from our community members within the Dialogue, such as progressing with future cattle grazing trials, Synoptic Plan refresh, mapping of voids and other research proposals.
- A Mine Rehabilitation and Mine Closure Working Group was established by the NSWMC Environment and Community Committee in late 2016 to develop an industry position on voids and post-mining land use, undertake a gap-analysis of research projects and pursue progress in planning for the final use of mine voids. Many of the key issues considered by this working group will feed into Dialogue-related projects.
- Consideration of the beneficial reuse of voids project and subsequent proposals for ongoing work in this area are currently being considered to determine how the Dialogue may achieve the best value.

Recommendation

That the Working Group note the progress made on the Synoptic Plan refresh and various rehabilitation and mine closure initiatives.

FOR DISCUSSION

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COMMUNITY PERCEPTIONS SURVEY

Issue

The JASC has received a full update on the findings of the Community Perception Survey undertaken towards the end of 2016 by the Hunter Research Foundation. This paper provides a summary of the report provided by researcher Ruth MacLeod.

Background

Following discussion at both the Industry Steering Committee in April 2016 and the Joint Advisory Steering Committee in June 2016, approval was provided by the Executive Oversight Committee for the UHMD secretariat to engage the services of the Hunter Research Foundation (HRF) to conduct an interview based qualitative survey of current and past participants in the UHMD.

The methodology used for the 2016 perception survey involved 40 interviews of approximately 20-30 minutes duration. The interviews contained some quantitative questions to enable comparison of responses. The interviewees were drawn from community (25), industry (5) and other stakeholders (10) (including state and local government). Interviews began in early September and were completed by mid October, with final results of the survey presented at the 2016 UHMD Annual Forum following presentations to the JASC and the ISC.

The final report was delivered in early December 2016 and Ruth McLeod presented key findings at the 2016 Annual UHMD Forum, with a significant amount of interest and questions from attendees. The full report is attached for reference.

Following a request from the JASC, Mrs McLeod presented the findings of the report in more detail at the recent JASC meeting on 2 March 2017, and gave further insight into the key considerations for the Dialogue moving forward, split evenly between the perceptions of the Upper Hunter coal industry overall, and perceptions of the Upper Hunter Mining Dialogue.

1. PERCEPTION OF UPPER HUNTER COAL INDUSTRY

- Equal level of agreement and disagreement with the statement “The coal mines in the Upper Hunter treat everyone with respect and fairness”; mindful of coal mines being seen as a single entity.
- Responses regarding changes in the industry over the past five years indicated a widening gap in the community between those who are supportive of the mining industry and those that support a reduction in mining.
- Consider current concerns nominated about coal mining in the Upper Hunter. Most frequently nominated concerns were:
 - social impacts within the community resulting from changes in the industry and/or responses made by mining companies to the change; impacts included job losses, reduced job security, poor mental health, changes in socio-economic status and declining sense of community
 - future expansion of mining operations and the associated planning and approval processes
 - environmental impacts and the need to address the cumulative impact of these challenges; impacts included water quality and usage, dust and air quality, loss of agricultural land, rehabilitation and voids.
- Concerns related to the social impacts as a result of changes within the mining industry, and future expansion of the industry and associated planning processes were raised more often in the current (2016) research program than in the 2010 survey results.
- Changes required within the Upper Hunter coal industry that were identified by participants:
 - increased rehabilitation works and to address future voids
 - planning for a reduced-mining or post-mining future

- improvements in the planning system for mining licences and expansions
- more honest and realistic conversations between industry and the community including discussion of cumulative impacts of mining operations.
- Findings suggest industry could benefit from reviewing community expectations related to obtaining / maintaining a social licence to operate.

2. PERCEPTION OF THE UPPER HUNTER MINING DIALOGUE

- Seek to engage and support participants; be mindful of:
 - reasons for less involvement partly due to perceptions that the community and environmental concerns being raised were not being heard; and changes in the focus of Joint Working Groups with a broader range of attendees; and
 - potential for negative impacts on community stakeholders who volunteer to be part of the UHMD, including impacts on time and how their involvement may be perceived by other community members. While mentioned by only a small number of participants, it is important to acknowledge that there are some challenges to being involved.
- Raise awareness and market the positives of the UHMD identified, which include:
 - platform for shared conversations which include the mining industry and a broad range of local organisations, and government entities; and
 - industry stakeholders working together towards shared standards and larger area-wide projects.
- Address concerns including:
 - strength of influence of NSW Minerals Council;
 - no longer seen to be achieving practical outcomes; and
 - not achieving broad community engagement.
- Future initiatives suggested by participants included:
 - raise awareness of UHMD and communicate achievements;
 - reconfirm community issues and priorities by engaging key local networks and utilising representative community survey;
 - re-engage local mining companies;
 - review the focus areas for the Joint Working Groups and ensure resourcing to achieve identified goals;
 - advocate for improved regulations and planning processes;
 - identify and/or implement further projects addressing rehabilitation, land management and voids;
 - work with local industries to strengthen the economic diversity of the Upper Hunter; and
 - contribute to strategic planning for the Upper Hunter with a long term focus on a reduced mining or post-mining future for the area.

Recommendation

That the Working Group note the update and consider any actions the UHMD should focus on to enhance the Dialogue's effectiveness and engagement within the Upper Hunter community.

FOR INFORMATION / DISCUSSION

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Agenda Item 11

SCHOOL BUS TOUR PROJECT UPDATE

Issue

Following a pilot program in 2016, the Dialogue is progressing with the School Bus Mine Tours project in 2017, seeking input from community partners to ensure the project is a successful and viable Dialogue initiative.

Background

The School Bus Tours are an Upper Hunter Mining Dialogue Initiative that aim to enhance transparency of mining activities in the district, address general knowledge with respect to mining in the community; and to demonstrate the reality of everyday mining activities and environmental management systems in a balanced way.

The tours have received in-principle agreement from UHMD companies to facilitate tours for all Upper Hunter Y6 and Y10 Students each year, which equates to approximately 2 tours per site per annum, taking into account the capabilities and resources available at each site.

A pilot program was undertaken in late 2016 to help plan for a full tour program. The activities were designed to better inform the program by understanding the interests and knowledge levels of primary and secondary students and to address any logistical planning issues at an early stage. The two key pilot program activities included:

- A pilot tour of 63 years 5 & 6 students visited Mangoola on 24 November 2016, who were required to complete a unit on the coal industry as part of their Science studies.
- A group of eight years 9 & 10 students attended the UHMD Forum on 6 December 2016 where students participated in a separate workshops and wider group discussions.

Key findings from the initial tour and workshop include:

- Regarding the impacts, primary students had little knowledge mostly about power and energy, whereas the secondary students could make broader statements about mining and why it is done.
- Regarding their knowledge of coal, both levels has little knowledge, with primary students more likely to know about power generation, whereas secondary students had more of an idea about steelmaking.
- The beliefs of students regarding environmental impacts of mining was not overly negative at both levels. Primary students were mostly amazed at the scale of mining activities and the equipment used, while secondary students had more of an interest in rehabilitation.
- Primary students were primarily interested in the big equipment, blasting process, rehabilitation and mining careers.
- Secondary students are interested in the virtual reality package, the whole mining process, the concept and scale of underground equipment and careers.
- The ideal group size would be between 20 and 25 to ensure that the tour guide can engage with whole group. Further, future tours should seek to avoid normal blasting times and be postponed in wet or very hot weather.

A project working group is being formed consisting of mine site representatives across various disciplines, research and teaching professionals, and members of the local community, to help provide input into the key messages, preparation and development of tour resources, and provide training sessions. Once the project team is in place, it is planned to progress development of content and material by the second and third quarters of 2017. Additional pilot tours are anticipated to be conducted in the second quarter of 2017, with a view to commencing initial regular tours at the final quarter of 2017.

Rae O'Brien has been working with the UHMD secretariat and industry partners to develop a suite of educational materials which will suit the school's curriculum, incorporating a standardised presentation

that can be delivered across the various Upper Hunter sites, but flexible enough to be adapted to each sites specific conditions. Careful consideration will be given to ensuring a the educational material is balanced so that it provides an explanation of both the impacts and benefits of mining, and demonstrates the importance of the Dialogue working with community and mining to address and lessen impacts wherever possible.

It is hoped that each mine tour would have three components:

1. Pre-Tour classroom tutorial to provide context for the tour - A teacher will deliver either the virtual reality package from UNSW, a video using local content, or a presentation with notes that covers an introduction to what mining is, the impacts it has, the creation of energy and the operating conditions for mining to take place.
2. Tour Route & Key Highlights of Tours - The tours will cover the whole mining process allowing students to see large equipment up close, incorporating a look out stop that oversees the whole process, a demonstration of rehabilitation from start to finish. The key message from this component would be to outline what it takes to mine responsibly and safely. This component would incorporate a worksheet for students to complete along the way.
3. Post Tour classroom exercise to reinforce learnings - This may potentially be a high school activity where teachers can deliver materials that reinforce the learnings from the bus tour covering the complete mining process from start to finish and including approval conditions and other environmental requirements. This is also an opportunity for guest speakers from the various professional backgrounds across industry to share what they do and their role in the mining process.

Recommendation

That the Joint Working Group note the update and suggest appropriate members across industry, research institutions and the community to nominate for the project working group.

FOR INFORMATION

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Agenda Item 12

UPDATE ON COMMUNICATIONS ACTIVITIES

The Upper Hunter Mining Dialogue communications activities continue to focus on key strategies and tactics consistent with the Communications Plan. A number of successful projects and initiatives began in 2016 and it is expected that 2017 will be similarly productive with a range of positive opportunities being delivered.

Key 2017 activities:

- Media plans:
 - The Dialogue arranged for ABC TV Landline journalist Ginny Stein to do a story on the Grazing Trial Project, to be broadcast shortly.
 - Progressing an article to be published in The Land newspaper.
 - A tour of activities across the Upper Hunter with a Newcastle Herald journalist took place at the end of 2016, which is likely to generate several more articles.
 - Articles and photos have also been regularly provided for the industry newspaper @thecoalface.
- Rehabilitation case studies: As part of the wider rehabilitation strategy, some of the rehabilitation case studies we will be putting together involve Upper Hunter mines, which we will also feature on the Dialogue page.
- School bus tours: see agenda item 11

Recent media:

- Water Accounting Framework - On 5 Dec 2016, NBN news ran a short story on the launch of the 2014 and 2015 Water Accounting Framework results. A link to the story is available to watch here: <http://www.nbnnews.com.au/2016/12/05/mine-report-shows-less-hunter-river-water-usage/>
- Upper Hunter Mining Dialogue - On 6 January 2017, the Newcastle Herald published an Ian Kirkwood piece on the changing direction of the Dialogue. It can be viewed here: <http://www.theherald.com.au/story/4384586/cooperating-on-coal-costs/>

2017 events:

The UMHD was present at the Cessnock Show on Friday 24th and Saturday 25th of February. Overall, attendance at the show was poor, and there was not much of an agricultural or market stall component.

The Dialogue will continue to be promoted through industry and community events. The proposed annual calendar of events includes:

Show / Event	Dates	Website
Muswellbrook (Upper Hunter) Show	Fri 31st March to Sat 1st April 2017	Link
Tom Farrell Institute Rehab Conference	Wed 29th, Thurs 30th & Fri 31st March 2017	Link
Total Field Days	Fri 5th, Sat 6th and Sun 7th May 2017	Link
NSWMC HSEC Conference	Mon 14th to Wed 16th August 2017	Link
Broke Village Fair 2017	Sun 10th September 2017	Link
Singleton Show 2017	Fri 22nd to Sat 23rd September 2017	Link

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Agenda Item 13

REVIEW OF THE 2016 ANNUAL UHMD FORUM

Issue

The UHMD Annual Forum was held at the Muswellbrook Race Club on Tuesday 6 December 2016, with approximately 85 attendees across industry, local government, research institutions, government departments and local community groups.

Background

Feedback received following the 2015 Forum suggested that the 2016 Forum not to attempt to cover everything, but instead to focus on several key issues in greater detail. As such, the 2016 Forum centred on the themes of rehabilitation, post-mining use of voids and feedback from a recent survey of community perceptions undertaken by the Hunter Research Foundation. The program is attached.

Key points of note include:

- An overview of the 2016 achievements for the Dialogue was provided, which included establishing the Joint Advisory Steering Committee, engaging with school students and the implementation of the Dialogue communications plan.
- An overview of the JASC's future priorities for the year ahead was provided, which included further advocacy for a synoptic plan and multi-stakeholder voids committee, further development of educative school bus tours, reviewing the community perceptions resurvey work, advancing a proposed water quality study, continuing the grazing trials and delivering a weather forecasting video project.
- Professor Richard Bush from the International Centre for Balanced Land Use at The University of Newcastle provided a keynote address on how collaborative research can help the regional communities within the Dialogue.
- A panel session, chaired by 2NM Stephen Cenatiempo discussed beneficial use of voids post mining. Panelists identified the need for economic diversity within the Upper Hunter, the need for a refresh to the synoptic plan and further research to identify future voids and what benefits could be derived from them, as well as tourism opportunities within the region and how the mining industry could be integrated. There was strong support among participants for a refresh of the Synoptic Plan.
- Stephen Barry from DPE presented an update on DPE's work on developing Guidelines on Environmental and Social Impacts. Stephen has agreed to host a community workshop looking at a final land use strategy (Synoptic Plan) update.
- Students and teachers from St Joseph's and Muswellbrook High School engaged in a workshop to assist with the development of educative resources to further enhance the school bus education tours that industry has been piloting. Feedback from teachers and students was very positive.
- Dr David Blackmore from the Division of Resources and Energy provided an update on the government's rehabilitation and regulatory framework.
- Ruth McLeod from the Hunter Research Foundation presented on the community perceptions survey work undertaken this year and provided community insights into what was working well within the Dialogue and suggested improvements to consider as the Dialogue evolves.
- The JWG Chairs provided an update on the key projects that have progressed in 2016, including the Weather Forecasting Projects, Water Accounting Framework and Grazing Trials.
- The small group discussion amongst attendees to identify future plans for the UHMD appeared to be enthusiastically embraced.

Feedback from Attendees

Anecdotal feedback from a cross section of attendees was generally very positive. A survey was distributed to all participants and the results have been included in an attachment. There were a total of 27 respondents from the approximately 85 attendees giving the survey a 32% response rate. Respondents were asked to rate aspects of the Forum on a scale of 1 to 5 (with 1 being unsatisfactory, and 5 indicating excellent).

Key outcomes from the participant survey were:

- The Forum scored an average rating of 4.04 which is strongly positive.
- Respondents were asked to rate the Forum compared to previous years. 23% thought it was better than previous years and 38% thought it was on par with the previous year. Only 8% of attendees thought it was not as good as the previous year and 31% attended for the first time.
- Those indicating it was better than last years advised this year had a better program and provided opportunities for networking. There was criticism that there was not enough time for attendee questions or contributions, and that high-level personnel in attendance served as an audience instead of engaging them in debate and discussions.
- Speakers were generally well regarded across the board, as was the facilitation of the day.
- Respondents provided some suggestions to consider for the Forum in 2017:
 - Provide more of an overview of the economic climate
 - Less presentations and more workshops
 - More audience questions to discussion panel
 - More discussion time
 - More project updates provided by paper rather than longer talks
 - Perhaps questions could be sent via text throughout the panel discussion
- Networking opportunities were rated as 4.36. To better facilitate networking opportunities respondents provided the following suggestions:
 - An attendance list with areas of expertise and interest to enable attendees to know who will be there on the day.
 - An interactive activity at the start of the day to ignite discussion
 - The involvement of students was great, but it would be good to hear from them and interact.
- Suggested topics for future forums include:
 - Sustainability
 - Final voids, Land uses and Synoptic Plan
 - Rehabilitation
 - What mining is doing for our communities, economic benefits
 - Fatigue management
- Suggested future speakers:
 - Regulators
 - Government/local government
 - Independent researchers
 - Minerals Council of Australia
 - Mine Managers
 - Economic analyst
 - Local anti-mining group

A number of suggestions from the afternoon strategy workshop sessions may be considered for adoption by the Dialogue, as they relate to potential projects. These include:

- Invest in and develop a virtual reality package with local content, mining-related apps (kids, weather, live mine status updates) that can deliver information to school students in an accessible way.
- Mine experts with various professional backgrounds (engineers, geologists, machine operators) to deliver school presentations.
- A research study into the mental and social impacts of shift work.
- Tourism project that delivers a combined industry interactive display and site tours.
- Skills and employment project that identifies the various skills across Upper Hunter industry workers and how these might be applied to the community for future industries post-mining.
- Survey of mine workers to better understand their sentiment
- More cropping trials on mine rehab sites
- Economic diversification project - improving social aspects of towns.
- Buffer zone project

FOR INFORMATION / DISCUSSION

**Joint Working Group - Water and Land Management
15 March 2017**

Agenda Item 15

HUNTER RIVER WATER QUALITY STUDY

Issue

Members of the UHMD have been calling for a study into the water quality of the Hunter River. The EPA has recently expressed interest in such a study to better understand the health of the Hunter River and impact of mine water discharges on the surrounding environment.

Background

The Dialogue's Joint Working Group for Water recognised the need to develop a water quality study and sought the guidance of Professor Richard Bush, Global Innovation Chair at the International Centre for Balanced Land Use at The University of Newcastle (UoN) to discuss potential approaches and scope to river water quality studies. The study would need to be able to quantify the background concentrations metals and metalloids in the Hunter River and the impact of mine water discharges on the receiving environment so they can be considered in the appropriate context.

Professor Bush delivered a draft study proposal at the November 2016 JWG Water meeting. The JWG provided feedback that identified a number of limitations and practical issues which would need to be addressed to improve the rigour of the proposal. The proposal has since been revised (attached as **Appendix A**).

Key features of the study proposal include:

- Sampling to be conducted at a total of 18 locations over 2 days, including 12 locations in the Upper Hunter coal fields, aligning water sampling locations to the major water storages that are used by industry as part of the Upper Hunter Salinity Water Trading Scheme, as well as 6 locations sampled in the Hunter River as a basic reference. Sites will be identified in consultation with the Upper Hunter Mining Dialogue Water Committee.
- The first key tasks include the primary samples collection, water quality analysis and Benthic Sediment Quality Analysis, with specified parameters.
- The second key tasks involve a series of five methods to assess the magnitude and intensity of heavy metal concentration through a cluster analysis, principal component analysis, flux-flow analysis, geo-accumulation index and an enrichment factor.
- This study will provide:
 - A spatial snapshot of heavy metal contents in surface water and sediments for the key coal mine discharge water storages, as well as heavy metal contents in the Upper Hunter River.
 - A preliminary assessment of the relative pollution risk from heavy metals associated with Upper Hunter coal mine discharge water.
 - A recommendation on water quality monitoring and management practices to minimise risk of heavy metal contamination from coal operations.

The UHMD Secretariat has discussed the proposed study with the EPA, who have shown interest in participating in the study. NSWMC met with the EPA, UoN and industry members on Tuesday 28 February 2017 to determine the more technical aspects of what this study might involve and whether EPA would support the proposal and under what conditions. Key outcomes from this meeting included:

- All participants agreed that the proposed study (a joint study overseen by a key research institution, with government, community and industry stakeholders) is a good place to start to determine if there is a problem, and if so, more detailed studies could be explored further.
- The need to include power stations in the scope of the study was addressed and UoN was due to meet with AGL shortly to seek their involvement in the study.
- Data will need to be gathered by industry on their site water testing, as well as available data gathered by the EPA over time. Much of the industry data is already publicly available, but UHMD will need to follow up.
- Given that discharge events are unpredictable, it was suggested that a plan to undertake this testing be developed so that when an event is notified that sampling can take place as soon as possible.

- An Advisory Committee would need to be established to oversee the study consisting of UoN, EPA, industry and UHMD community representatives.
- The UHMD secretariat and industry members discussed who would be appropriate to represent the UHMD on the Advisory Committee and suggested writing to Ken Bray, in his capacity as a representative of the Hunter Valley Water Users Association, to represent the local community.
- The involvement of UoN gives the study legitimacy and independence as research institutions have strict national standards to comply with.
- Prof. Bush will revise the scope further and report back to all participants shortly with indications of an expected timeframe, costings, sampling and modelling strategies and terms of reference governing the Advisory Committee.
- The study is expected to take around 12 weeks, although the testing would require compliance with site health and safety procedures so could add some time.

RECOMMENDATION

That the Committee:

- Review the water quality study proposal and provide feedback on the scope to ensure that the study delivers key strategic outcomes as a Dialogue project.
- Support the nomination of Ken Bray as a member of the study's Advisory Committee.

FOR DISCUSSION

PROPOSAL

ASSESSMENT OF HEAVY METALS IN SURFACE WATER DISCHARGING FROM UPPER HUNTER COAL MINES

AIM

To assess the potential for heavy metal contamination of the Hunter River from coal mines operating in the Upper Hunter.

SPECIFIC OBJECTIVES

Proposed is a preliminary study to quantify pollution potential of heavy metals in waters discharging from Upper Hunter coal mines. The outcomes of this study will provide a basis for evaluating environmental risks from heavy metal contamination from coal operations of the Upper Hunter. The key objects are to:

1. Quantify heavy metals in surface waters and benthic sediments in mine water storages that are used with the Hunter River Salinity Trading Scheme.
2. Evaluate the potential contribution of coal mining to heavy metal contamination of the Hunter River.

BACKGROUND

Coal is a large export commodity for Australia and serves as a major contributor to the national economy. As a primary fuel, power generation by coal produces more than 80% of Australia's electricity supply [1]. Water is a critical resource for the coal industry with an estimated 200 L of fresh water consumed for every tonne of coal produced. In many cases for the Upper Hunter coalfields, it is management of excess water of varying quality that can prove most challenging.

Hunter Salinity Trading Scheme was implemented in the 1990's to minimise cumulative impact of coal mining on water quality of the Hunter River, in particular, to reduce maximum salinity levels. The scheme essentially coordinates the discharge or excess water from mine sites to coincide with flow conditions that keep salt concentrations within an environmentally acceptable range. The capacity to store water and manage discharge against real-time flow conditions are the defining features of this scheme. This scheme has proven useful for managing salinity in the Hunter River.

Nutrients, suspended sediments, algae, organic and inorganic compounds, heavy metals, and bacteria are other potential factors that can affect water quality. Heavy metals, hydrocarbons, salinity and acidity are the common potential contaminants with mining. Technologies and approaches to protect water resources from

contamination by either reducing, containing or treating contamination is core business for the industry and closely regulated by licensing authorities.

Contamination can result from uncontrolled dirty water discharges from mine sites, increased salinity in mine discharge and water management systems and the formation of Acid Mine Drainage (AMD) or alkaline waters on site [2]. 31 coal mine operate in the Hunter Valley and although there is a large dataset on salinity contents in surface water entering the Hunter River from mining [7], there is limited information on the contents of heavy metals. At this stage, heavy metals have not been identified as a major quality parameter of concern associated with coal mining [8] in the Upper Hunter.

APPROACH

The study will use industry and publically available archive data and new primary water quality data to determine the risk of heavy metal contamination to the Hunter River from coal mining. The cumulative impact of mining will be examined by assessing the heavy metal contents and relative potential load to the Hunter River in the major mine water storages used in the Hunter River Salinity Trading Scheme. The project will involve two tasks:

Task 1 - assessment of heavy metal contents against water quality guidelines in the surface water and benthic sediments in coal discharge water storages. 18 locations will be examined as part of this survey. (Addressing Objective 1)

Task 2 - Information from Task 1 will be combined to provide a preliminary assessment of risk for contamination to the Hunter River by heavy metals from the coal operations in the Upper Hunter. If elevated metal contents are identified, the potential for contaminant dispersal will be assessed as part of this task using simple hydrological modelling. (Addressing Objective 2)

Study site:

Sampling will be conducted at 12 locations in the Upper Hunter coal fields, aligning water sampling locations to the major water storages that are used by industry as part of the Upper Hunter Salinity Water Trading Scheme. In addition, 6 locations will be sampled in the Hunter River as a basic reference. Site selection will be identified in consultation with the Upper Hunter Mining Dialogue Water Committee and taking into consideration ease of access to the site and availability of archive data.

A total of 18 locations will be sampled over a period of 2 days. Water and benthic sediments will be collected at the water storage ponds, whereas only water samples will be collected from the Hunter River.

Task 1:

Primary Samples collection:

Duplicate samples of water will be collected at 2/3 depth of the water column from study sites using decontaminated sample containers. Samples will be immediately filtered, chilled and delivered to the laboratory. Non-conservative parameters like pH, temperature, dissolved oxygen and redox will be determined in the field. Five replicated measurements of each of above water quality attributes will be recorded from each site. Conservative parameters will be analysed in the Environmental Analysis Laboratory (EAL). EAL is a NATA (National Association of Testing Authorities) accredited laboratory (Lab. Acc. No. 14960).

Primary data will be complimented with archive data gathered from industry and government sources.

Water quality Analysis

To be tested are the following key parameters:

pH, EC, Total Dissolved Salts (TDS) (calculation); Total Suspended Solids (TSS); Total Nitrogen and Total Phosphorus; Nitrate, Nitrite, Phosphate, Ammonium; Copper, Lead, Cadmium, Zinc, Arsenic, Selenium, Iron, Manganese, Silver, Chromium, Nickel, Aluminium, Mercury; Sodium, Potassium, Calcium, Magnesium, Sulfate, Chloride; Bicarbonate Alkalinity and Total Dissolved Organic Carbon will be measured according to standard methods. This information will be sufficient for basic interpretation of the water geochemistry using speciation modelling.

Benthic Sediment Quality Analysis

To be tested are the following key parameters:

pH, Eh, EC (1:5 water); Available (Calcium, Magnesium, Potassium, Ammonium, Nitrate, Phosphate, Sulfur); Exchangeable (Sodium, Potassium, Calcium, Magnesium, Hydrogen, Aluminium, Cation Exchange Capacity); Available Micronutrients (Zinc, Manganese, Iron, Copper, Boron, Silicon); Total Carbon (TC), Total Nitrogen(TN), Organic Matter, TC/TN Ratio; Basic Colour, Basic Texture; Totals (Sodium, Potassium, Calcium, Magnesium, Sulfur, Phosphorus, Silicon, Cobalt, Molybdenum, Selenium, Zinc, Manganese, Iron, Copper, Boron and Aluminium); Heavy Metals (Silver, Arsenic, Lead, Chromium, Nickel, Cadmium, Mercury). This selection of analysis will be useful for understanding the nature of metal accumulation and potential for mobilisation.

Tasks 2:

Assessment of contamination magnitude and intensity:

A combination of 5 separate methods will be used to assess the magnitude of heavy metal contamination [9-11]:

- Cluster analysis (CA): The CA is performed where similar variables are divided into similar group having similar characteristics to other group without prior assumptions.
- Principal component analysis (PCA): PCA constructs latent variables which are the linear combinations of the original data variables of heavy metal concentration. In PC analyses for heavy metals, latent variables with eigenvalue >10 are considered significant.
- Flux-Flow Analysis (F2A): Metal contamination budget will be estimated according to the analysis data of water and sediment quality, combined with estimated flow and mixing volumes under conditions representative of a discharge event to the Hunter River. Publically available hydrological data for the Hunter and discharge volumes from across the Hunter Salinity Water Trading Scheme will be used to constrain hydrological parameters.
- Geo-accumulation index (Igeo): It is a quantitative measure of metal pollution calculated by the measured content of element and background or pristine value of the element.
- EF (enrichment factor): EF is introduced to assess the soil heavy metal pollution status. Metals and reference metals in the environment and in the reference environment are used.

EXPECTED OUTCOME

1. Spatial snapshot of heavy metal contents in surface water and sediments for the key coalmine discharge water storages.
2. Spatial snapshot for heavy metal contents in the Upper Hunter River.
3. Preliminary assessment of the relative pollution risk from heavy metals associated with Upper Hunter coal mine discharge water.
4. Recommendation on water quality monitoring and management practices to minimise risk of heavy metal contamination from coal operations.

PROJECT TIMEFRAME

TIMEFRAME	Time (weeks)											
	1	2	3	4	5	6	7	8	9	10	11	12
Review of literature and reports	■	■										
Laboratory/field work preparation		■	■									
Field sampling				■	■							
Laboratory analysis						■	■	■	■	■		
Environmental risk assessment								■	■	■		
Draft report preparation									■	■		

occur as single contaminants.

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**Joint Working Group - Water and Land Management
15 March 2017**

Agenda Item 16

WATER ACCOUNTING FRAMEWORK

Issue

A plan for the 2016 collection of data needs to be developed to ensure this Dialogue project delivers relevant, useful and timely results.

Background

The MCA Water Accounting Framework results for the 2014 and 2015 calendar years were published prior to the Annual UHMD Forum on 5 December 2016.

The results and an explanation of the project are outlined on the Dialogue website, with specific links to the documents below:

Year	Type	Link
2014	Simple	http://www.nswmining.com.au/NSWMining/media/NSW-Mining/2014-Simple-Water-Usage-Infographic.pdf
	Detailed	http://www.nswmining.com.au/NSWMining/media/NSW-Mining/2014-Detailed-Water-Usage-Infographic.pdf
2015	Simple	http://www.nswmining.com.au/NSWMining/media/NSW-Mining/2015-Simple-Water-Usage-Infographic.pdf
	Detailed	http://www.nswmining.com.au/NSWMining/media/NSW-Mining/2015-Detailed-Water-Usage-Infographic.pdf

The results generated significant media interest across the Hunter and were featured on an NBN news story (see Agenda item - Update on Communications Initiatives).

The project has significant strategic value as a key Dialogue project as it demonstrates that water used by the member companies is being managed responsibly and that community-driven initiatives such as these can help better inform residents about the impacts of industry on their resources.

It is expected that Dayjil Fincham from Hydro Consulting will undertake this analysis for the 2016 results, given her previous experience in overseeing the technical aspects of this project.

There is some concern that the results are not being published in a timely manner to be as relevant and useful as possible, and that greater efforts should be made to ensure their smooth delivery.

The UHMD secretariat will seek available data for the 2016 calendar year from member companies from April 2017, as most member companies should have completed their annual review data by the end of March 2017.

Recommendation

That the JWG advise the UHMD Secretariat on developing a plan for the collection, analysis and release of the 2016 Water Accounting Framework results.

FOR DECISION

**Joint Working Group - Water and Land Management
15 March 2017**

Agenda Item 16

UPDATE ON CURRENT WATER PROJECTS

Hunter River Water Quality Study

See Agenda item 14

Water Accounting Framework

See Agenda item 15

Engagement with Independent Expert Scientific Committee / Hunter Bioregional Assessment

The Bioregional Assessment Programme (BAP) has released a coal and coal seam gas resource assessment for the Hunter subregion which summarises the known coal and coal seam gas resources and developments as at November 2015. The assessment can be viewed here:

<http://data.bioregionalassessments.gov.au/product/NSB/HUN/1.2>

It is expected that the full Hunter bioregional assessment will be released in May 2017. The Commonwealth Office of Water Science (OWS) has invited coal mining and CSG proponents to attend an Impact and Risk Workshop for the bioregional assessments of the Gloucester and Hunter subregions on Friday 7 April 2017.

This workshop will summarise the key findings of the bioregional assessments, including:

- presentation of the potential hydrological changes associated with coal and coal seam gas development; and
- their assessment of the risks and potential impacts of modelled hydrological change on landscape classes and water-dependent assets.

OWS advises the workshops are aimed at both environmental/approvals staff and senior managers to enable the preview and understand the key findings of the assessment, hear about their approach to communicating the results and enable a conversation on how industry and the government can work together to manage any potential implications of their findings. Further details regarding the BAP can be found here: <http://www.bioregionalassessments.gov.au/>

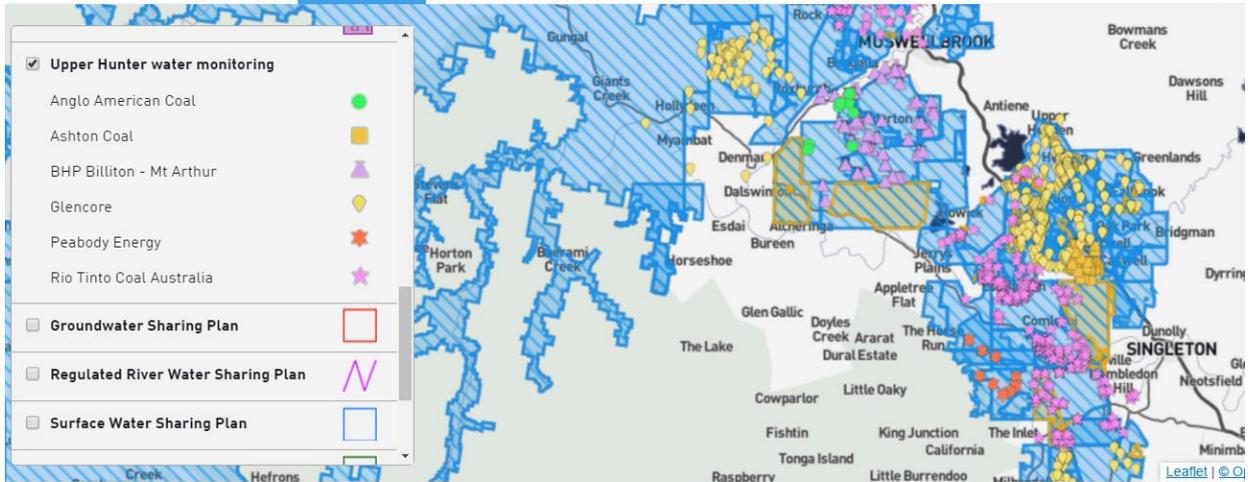
Water Resources Map Project

Several new features have been added to the the Common ground resource based on stakeholder feedback, including the Upper Hunter Dialogue. These features include:

- 8 new map layers:
 - Upper Hunter water monitoring - at 6 sites (Anglo American, Ashton, BHP Billiton - Mt Arthur, Glencore, Peabody Energy and Rio Tinto)
 - Groundwater Sharing Plan
 - Regulated River Water Sharing Plan
 - Surface Water Sharing Plan
 - River catchment
 - Groundwater bore
 - Lot boundary
 - Fossicking district
- Searches by property - Users can search for property boundaries using up-to-date lot/DP (Deposit Plan) or SP (Strata Plan) information from the NSW LPI SIX Portal.
- Improving user experience - Users can hide all resources to view a base map in a simple click and updated information for users on how to use the new features.

A figure is included on the following page highlighting the Upper Hunter Water monitoring sites as displayed on the Common Ground site.

To visit Common Ground and view these updates, please access www.commonground.nsw.gov.au



MAP SHOWS: 228 TITLES

TITLES MAP LEGEND:
 Coal Minerals Petroleum and gas

APPLICATIONS MAP LEGEND:
 Coal Minerals Petroleum and gas

Figure: Sample display of Common Ground’s new water features.