APPENDIX 1

Complete submissions and response table

Submission No.	Submission From	Topic	Item No.	Submission Comment	API Response	Addressed in Report
1	OEPA, Terrestrial Ecosystems Branch	Flora and vegetation	1.01	There is sufficient information within the PER and supporting documents to assess the environmental impact of the proposal on flora and vegetation factors. However one of the key limitations of the PER document is that the regional floristic information provided in the flora and vegetation studies does not seem to be adequately translated into the PER document.	Refer to item 2.24	
1	OEPA, Terrestrial Ecosystems Branch	Appendices – Flora and Vegetation Studies	1.02	Information provided within the majority of the flora and vegetation studies provide a good local and regional perspective of flora and vegetation in the project area. They are in line with EPA Position and Guidance Statements for flora and vegetation survey.	Noted with thanks	
1	OEPA, Terrestrial Ecosystems Branch	Western Botanical (April 2010)	1.03	Western Botanical report provides a good local and regional perspective of flora and vegetation in the project area. The main limitation impacting the flora and vegetation surveys is the lack of rainfall in 2007 and 2008.	Noted. The 2009 rainfall season was significant and a series of further surveys were conducted following this rain period, including infill surveys at the mine and along the rail corridor.	
1	OEPA, Terrestrial Ecosystems Branch	Western Botanical Appendix 9	1.04	Griffin & Trudgen (2009) (Appendix 9 – Western Botanical 2010) stated that many of the communities on the Robe Pisolites landform are restricted and concluded that "the vegetation on the Robe Pisolite is strongly confined to that geological type". The statistical analysis found that the 42 floristic units described in the study area are restricted, uncommon or under sampled. Of the 154 local vegetation types described in the project area, 99 were identified as of conservation interest and 32 of these will have more than 50% of its known extent impacted by the proposal. In some cases this value is 100%.	Refer to item 2.24	
1	OEPA, Terrestrial Ecosystems Branch	Fauna	1.05	Information within the PER and supporting documents is comprehensive and is based on a number of surveys over three years and provides adequate background to assess the environmental impact of the proposal on both terrestrial fauna and troglofauna. Generally the assumptions and conclusions about the likely level of impact on terrestrial fauna are based on a reasonable interpretation of the fauna data presented.	Noted with thanks	
1	OEPA, Terrestrial Ecosystems Branch	Fauna	1.06	The orange leaf nosed bat was recorded and the PER considers that maternity roosts may occur. As this species is difficult to record during conventional survey methods its presence may have been understated in the PER. Information in the fauna reports and summarised in the PER on this species should be reviewed by an appropriate DEC scientist (e.g. Norm McKenzie) familiar with survey of this species. Methodologies for the targeted survey proposed should also be peer reviewed.	API engaged a competent and highly regarded specialist to undertake field investigations into the orange leaf-nosed bat. The standard methods utilised during the surveys between 2007 and 2009, included harp trapping and call recording using Anabat II detector units coupled to CF ZCaim recording units (Churchill 2009). These methods recorded six individual animals from both cave entrances and near water bodies. One site (AQMANA01) was located within the disturbance footprint at the Trinity Bore resource area. The balance were recorded within the general area of the proposal and, in some instances, areas exhibiting more favourable characteristics for orange leaf nosed bat habitat (i.e. such as on the edge of the Hamersley Ranges east of the Kens Bore deposit). For further information, refer to Section 1.3.1 of the Response to Submissions Report	x
1	OEPA, Terrestrial Ecosystems Branch	Troglofauna	1.07	Long term certainty about the amount of habitat needing to be retained post-mining is questionable. Although the supporting study 7.1 indicates that troglofauna communities can be sustained in significantly less post-mining habitat than that proposed to be left in the Kens Bore palaeodrainage system, there are no data presented on how long this fauna which has survived 10 years post-mining will continue to survive. The issue of attrition over time has not been considered. The precautionary principle should require the retention of a significant area of habitat where there are known restricted species.	There is little data available in this emerging field with which to predict long term persistence of troglobitic species, which would rely on extended studies of population dynamics, or at least very long periods of post mining remnant habitats. The PER reports two examples of troglofauna communities existing in remnant habitat over ten (Mesa K) and twenty (Mesa 2402E) years after the cessation of mining (PER, Table 7.14, p 99). Based on terrestrial schizomid (Rowland, 1972) and Pseudoscorpion life cycles, these periods post mining could provide for approximately 3-4 generations (10 years) and 6-8 generations (20 years). The inference of multiple, successive generations post mining suggests a capacity of the remnant habitat to sustain troglofauna populations. In both examples, the remnant habitat is at the most 10 – 15 % of the habitat proposed to be retained at the Kens Bore Habitat Unit. For further information refer to Section 4.1.1 of the Response to submissions report	x

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2	DEC (Environmental Management Branch)	Troglofauna	2.01	The potential for major variability in the type and quality of troglofauna habitat within palaeochannel habitat areas (particularly at Kens Bore and Upper Cane deposits) is not adequately addressed in the risk assessment. Based on currently available information, the current mine pit design at this deposit poses an apparent high risk to conservation of some troglofauna species	The geological stratigraphy of the channel iron deposits was modelled using data from over 3,000 drill holes (PER, p 182). Over 2,000 troglofauna samples were used to evaluate the vertical and horizontal distribution of troglofauna and the results reported against mineralogical units in Table 7.8 (PER, p 81). A number of winzes (vertical shafts) in each orebody were logged to assist in characterising the mineralogical strata (PER, p 79). API has, conservatively, defined the distribution of potential troglofauna habitat to the greatest extent practicable given the available data. It is clear from drill cores, drill logs and winze inspections that at least three of the mineralogical strata (hardcap, hard zone and mixed zone exhibit the void space and 'vugginess' necessary to host troglofauna. It is also clear that, while the exploration drill holes increase the vertical mobility of troglofauna, appropriate humidity levels occur throughout the majority of these strata (as evidenced by the range of positive records). For further information, refer to Section 4.1.1 of the Response to Submissions Report.	x
	DEC (Environmental Management Branch)	Troglofauna	2.02	The proponent addresses uncertainties regarding the extent and quality of troglofauna habitat by providing greater detail on the information used in habitat modelling (i.e. drill core information). The proponent to demonstrate more conclusively that suitable volumes and types of troglofauna habitat, comparable to areas proposed for mining, exist throughout the proposed remnant Channel Iron Deposit (CID). Specifically, the proponent to investigate and report to the EPA on the vertical and horizontal distribution of troglofauna within the CID, to enable assessment of the various grades of habitat quality within the CID prior to approval of mining at Kens Bore and Upper Cane. In order for DEC to assess and provide advice on the extent of habitat which should be maintained at Kens Bore and Upper Cane, information on the three dimensional distribution of habitat types be provided.	Refer to item 2.01	x
2	DEC (Environmental Management Branch)	Troglofauna	2.03	The effectiveness of proposed risk treatment measures for troglofauna has not been demonstrated and further protection measures need to be considered.	API will implement a range of risk treatment measures to avoid, minimise, rectify and reduce potential impacts on troglofauna (PER, Section 7.3.3). The risk treatment measures described in the PER are consistent with industry standards, and in some instances surpass measures committed to at approved projects in Western Australia.Many of the management measures, such as tight control of ground disturbance activities, blast management and hydrocarbon management are sensible, industry standard practices. For further information, refer to Section 4.1.3 of the Response to Submission Report	x
2	DEC (Environmental Management Branch)	Troglofauna	2.04	That the proponent clarifies the degree to which avoidance of significant troglofauna habitat was considered and taken into account in mine planning and project design.	API has sampled the channel iron deposits across the project area extensively. Interpreted in conjunction with an understanding of the geological characteristics of the pisolitic deposits, the sampling results suggest all the channel iron deposits are potential troglofauna habitat. Limitations to the distribution of troglofauna within the channel iron deposits include: · outer exposed margins that may be too dry (though could be occupied during wet periods); · channel iron deposit below the water table – recognising a natural seasonal variation in groundwater levels may also create a zone of channel iron formation that is seasonally inhabited; and · strata with limited or no interconnected voids – such as clay bands. The moisture retaining properties of the clay may have a role in regulating microclimate conditions – in particular humidity levels in adjacent pisolitic material that are conducive to troglofauna habitation. For further information, refer to Section 4.1.4 of the Response to Submissions Report.	x
2	DEC (Environmental Management Branch)	Troglofauna	2.05	That the residual risk scores for troglofauna habitat and pit dimensions to address residual risk be revised on the basis of more realistic estimations of the troglofauna habitat based on known variations in habitat quality and potential edge effects.	As detailed under item 2.01 (above), the assessment of troglofauna habitat is as realistic as practicably possible and API considers any finer assessment beyond the limitations of available, or obtainable, data and to the point of presenting an 'unreal assessment'. The limitations to the definition and quantification of troglofauna habitat are discussed within the PER. The assessment of risk to troglofauna was based on the proportional loss of habitat (PER Table 6.11, p63 and Table 7.13, pp97 – 98). The same errors that apply to the definition of the pre-mining troglofauna habitat also apply to the definition of remnant habitat. That is, while the absolute volumes of the estimated habitat may vary, the proportional loss of habitat is not affected to the same degree. For further information, refer to Section 4.1.2 of the Response to Submissions Report.	x

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2	DEC (Environmental Management Branch)	Troglofauna	2.06	If the estimated extent of troglofauna habitat cannot be better justified based on empirical data, the proponent, in consultation with DEC, modifies the currently proposed pit boundaries at the Kens Bore and Upper Cane deposits to provide an appropriately conservative amount of comparable troglofauna habitat that will minimise the potential risk of species extinction.	The estimated extent of troglofauna habitat is based on extensive empirical data (as discussed in Section 4.1.2 of the Response to Submission Report). The nature and fine scale complexities of troglofauna habitat have not, and could not, be meaningfully incorporated into the analysis evaluating hundreds of millions of cubic metres of geological strata. The level of analysis and results is commensurate with the data sets and appropriate for a risk based environmental impact assessment. A degree of conservatism (i.e. under estimation of the extent of pre-disturbance habitat) was applied to the analysis (PER, p 182). Subsequent to the publication of the PER additional troglofauna sampling and geological information has enabled extension of the Kens Bore Habitat Unit. With at least 50% of estimated troglofauna habitat within each habitat unit retained, the risk of species extinction as a consequence of the proposal is low.	x
2	DEC (Environmental Management Branch)	Troglofauna	2.07	Following the initial provision for troglofauna conservation to address risk and uncertainty as recommended here, it may be possible to apply a staged mining approach at Kens Bore (with an emphasis on full profile habitat retention), with further mining being approved when there is additional information on troglofauna habitat distribution and potential risks associated with mining. It is recommended that the proposed methodology for obtaining this information be presented within a Troglofauna Monitoring and Management Plan which is agreed to by the OEPA and DEC.	API applied a conservative approach to estimating the extent of troglofauna habitat (as discussed in Section 4.1.2 of the Response to Submissions Report). The most probable outcome of further monitoring and research, which API is committed to, is either confirmation of the adopted habitat extent or the identification of additional habitat beyond the boundaries adopted for the impact assessment. As a minimum of 50% of each habitat unit will be retained post mining, the EPA objective to "maintain the abundance, diversity, geographic distribution and productivity of fauna at species and ecosystem levels through the avoidance or management of adverse impacts and improvement in knowledge" will be met.	x
2	DEC (Environmental Management Branch)	Troglofauna	2.08	As this mining proposal will have a major impact on natural in situ troglofauna habitat and the potential for successful re-establishment of viable troglofauna habitat and populations through backfilling of mined-out areas is unknown, it is recommended that this activity be carefully planned in consultation with DEC and operated as an adaptive management trial, with operational procedures and subsequent outcome well documented and publicly available.	API will keep DEC informed and utilise results of monitoring to update operating procedures as required. Data will be made available through Condition 5 of the PER and also through the *Mining Act 1978* reporting requirements. API plans to conduct trials and implement monitoring and will keep DEC informed of outcomes.	
2	DEC (Environmental Management Branch)	Troglofauna	2.09	Survey for troglofauna has not been undertaken in the area identified for a quarry north of Cardo Bore East.	The quarry will be used to provide competent rock material for construction aggregate and rail ballast. The site was selected on the basis of presence of a suitable rock type for this purpose. The rock is dolerite (a basic sub-volcanic igneous rock) with the following characteristics: non-porous; fine-grained; holocrystalline; unweathered; hard; and strong (Geochempet Services, 2009). All these characteristics indicate that the likelihood of the existence of interconnected void space that could support troglofauna is extremely low. In addition to the lack of voids, as the rock is non-porous, there is no ability for the downward percolation of water or nutrients into the formation, as is necessary to sustain troglofauna. It is the very characteristics that render the rock suitable as a construction material, and therefore a nominated quarry site, that cause it to be highly unsuitable, if not impossible, for troglofauna to exist within it.	x
2	DEC (Environmental Management Branch)	Troglofauna	2.10	That the proponent provides an assessment of the potential impact of the quarry on troglofauna using drill core information and troglofauna sampling where appropriate.	Refer to item 2.09	x
2	DEC (Environmental Management Branch)	Groundwater	2.11	The area of vegetation to be affected by dewatering at Red Hill Creek near Kens Bore to be documented in the PER and appropriately managed.	The area of vegetation at Red Hill Creek predicted to be affected by dewatering part of the Kens Bore deposit is described on page 183 and 184 of the PER. The communities along Red Hill Creek have been characterised and groundwater dependent vegetation delineated in the PER (PER, Section 13.2.2, Figure 13.6 and Supporting Study 13.4). Table 13.6 (PER, p 183) presents the area of vegetation relative to predicted drawdown around the Kens Bore deposit. Figure 13.12 (PER, p 184) depicts the groundwater dependent vegetation and predicted drawdown contours at the Kens Bore deposit. The vegetation on Red Hill Creek is characterised as a high dependency base flow groundwater dependent ecosystem, based on ephemeral water bodies in the area (PER, Section 13.3.2, p 188). This type of vegetation is characteristic of wide open major creek systems that consist of mature Eucalyptus camaldulensis and E. victrix with moderately dense *Acacia* spp. with *Triodia* spp. and *Cyperus vaginata*. Within the predicted groundwater drawdown around the Kens Bore deposit, 125 ha of vegetation on Red Hill Creek are considered to have a High level of dependency on groundwater. Of this vegetation, 41 ha (32%) is predicted to experience groundwater drawdown less than 5 m. A total of 60 ha (48%) and 24 ha (19%) will experience a drawdown of 5-10 m and 10-15 m respectively. For more information, refer to Section 3.1.1 of the Response to Submissions Report.	x
2	DEC (Environmental Management Branch)	Groundwater	2.12	That the proponent characterises the ecological communities of Red Hill Creek, delineates the extent of groundwater dependent vegetation and identifies the values (i.e. significant mature tree stands) that warrant protection during the dewatering operations.	Refer to Item 2.11	x

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2	DEC (Environmental Management Branch)	Groundwater	2.13	Proposed actions and commitments relating to excess water are unclear.	Hydrological investigations and groundwater modelling have indicated that the environmental risk associated with the dewatering of parts of the Kens Bore and Cardo Bore East deposits is low, and manageable. The water table is not encountered by mining until 2019, around 6 years after the commencement of mining, which provides significant opportunity to gather extensive empirical data on which to develop and test a Water Management Plan (PER, Table 8.4, p 111). This includes evaluation of techniques for the disposal of excess water. For this reason there is little merit in prescribing in detail water management actions in the PER, which may prove in time, to be restrictive and/or sub-optimal. For more information, refer to Section 3.1.2 of the Response to Submissions Report.	x
2	DEC (Environmental Management Branch)	Groundwater	2.14	Given that the PER does not have a clear strategy for the management of excess water from dewatering, the Water Management Plan (which is not included as part of the PER) be developed in consultation with the Department of Water and DEC. It is recommended that the management plan includes a strategy for managing dewatering and excess water issues, as well as contingencies in the event that dewatering requirements exceed current predictions. Sharing of water between mine sites is an important strategy for inclusion in the Water Management Plan and adoption if possible to minimise impacts of dewatering and discharge.	Refer to item 2.13	x
2	DEC (Environmental Management Branch)	Groundwater	2.15	If discharge to creeklines is to be included in the range of options that may be employed as part of this proposal, an effective process be developed to determine suitable discharge locations to avoid and minimise environmental impacts, in consultation with DEC. Any discharges to creeklines be to those supporting groundwater dependent vegetation and the design of the discharge scheme be such that water is delivered through a subsurface irrigation system with numerous outlets.	Refer to item 2.13	x
2	DEC (Environmental Management Branch)	Groundwater	2.16	If large quantities of water are required for discharge, this water be piped to the Robe River where Rio Tinto has been discharging for many years and the ecology of the system has already been altered. Alternatively the proponent may consider reinjection into the CID downstream of the mine operation.	Studies have indicated the required abstraction volumes for dewatering are at least an order of magnitude less than at other mine sites in the Pilbara. After the maximisation of consumption in operations, a pipeline to discharge surplus water 30km to the Robe River is very unlikely to be warranted or justified. Surplus water is best utilised to mitigate the effects of local groundwater drawdown, if this can be achieved without substantial 'side effects' for the local ecology. The alternative suggested is not feasible given the distance between API's mine site and Rio Tinto's discharge to the Robe River. API will transfer water 6km from the dewatering area to supply process water to the central ore processing facility, and may, subject to improved certainty on volumes and feasibility investigations, pipe water further afield to supply other parts of the project. API will continue to evaluate the feasibility of discharging surplus water into the channel iron deposit downstream of mining operations. This could be achieved through reinjection or discharge to complete mine pits.	x
2	DEC (Environmental Management Branch)	Groundwater	2.17	Impacts on vegetation as a result of surface water discharge do not appear to have been assessed in the PER.	Refer to item 2.13	x
2	DEC (Environmental Management Branch)	Groundwater	2.18	If discharge of excess water to creeklines is included as a possible water management option, a full assessment of the conservation and ecological impacts of discharge be undertaken prior to its approval.	Refer to item 2.13	x
2	DEC (Environmental Management Branch)	Groundwater	2.19	This issue is not addressed in the PER. Discharging excess water to natural creeks has the potential to significantly alter the riparian ecosystem through the permanent addition of water to a typically ephemeral environment, resulting in the proliferation of species (notably weeds) that respond well to additional water, and the decline of plants that are not adapted to a more permanent water source. When discharge ceases, there is potential for further change to the community as species adapt back to an ephemeral environment. In order to avoid such impacts, as mentioned above, alternative measures should be considered in preference to the discharge of excess water to creeks, such as sharing water between sites. If the option of discharging to creeks is retained, it is recommended that the proponent ensures that receiving creeks are of a sufficient size and support groundwater dependent vegetation (e.g. river gums, coolabah).	Refer to item 2.13	x

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2	DEC (Environmental Management Branch)	Stygofauna	2.20	The potential for wider distribution of the four stygofauna species found only within the Kens Bore impact area requires further clarification.	Four species of stygobitic fauna, Hexabathynella sp., *Pilbaracandona rosa*, *Guineaxonopsis* sp. (PSS) and *Pilbaraphreatoicus platyarthricus*, were recorded solely from the within the potential area of groundwater drawdown around the Kens Bore deposit during baseline surveys. The latter three species have been recorded outside of the Proposal area., and in the case of *P. rosa* (Karanovic 2007) and *P. platyarthricus* (Knott and Halse 1999), described from records outside of the proposal area. *P. rosa* and *Guineaxonopsis* sp. (PSS) were recorded during the Department of Environment and Conservation Pilbara Biological Surveys (Eberhard et al 2009). For more information, refer to Section 4.2.1 of the Response to Submissions Report	x
2	DEC (Environmental Management Branch)	Stygofauna	2.21	That further information be provided regarding the potential for wider distribution of the single specimen stygofauna species recorded only within the impact area at Kens Bore.	Refer to item 2.20	x
2	DEC (Environmental Management Branch)	Terrestrial and Aquatic Fauna	2.22	Impacts on terrestrial fauna as a result of trenching activities for the mine and rail corridor are not clearly described in the PER, leading to uncertainty on whether they will be suitably addressed.	Trenches will be required at the mine area and central facilities areas to bury the gas pipeline, high voltage and medium voltage cables, optical fibre communication cables and potable water (PER, Section 2.5.4, p 21). The gas pipeline may be as deep as 2m, whilst other trenches will not exceed 1m in depth. The need to manage the risk of impact to fauna arising from open trenches is acknowledged and reflected in management measures referenced in Table 12.8 (p 154) and Table 26.3 (p 251) of the PER (and reiterated in Tables 37.1 & 37.2) for the mine area and transport corridor respectively. Management measures include inspecting trenches regularly, providing ramps to assist fauna to exit trenches and relocating trapped fauna using trained fauna handlers. Trenching associated with the gas pipeline and associated fauna management requirements will also be controlled under the Petroleum Pipelines Act 1969, which requires an environmental management plan to the approved by the Department of Mines and Petroleum prior to commencement of construction. API will consult with the Department of Conservation and Environment to finalise procedures for the management of potential fauna impacts associated with open trenches.	x
2	DEC (Environmental Management Branch)	Terrestrial and Aquatic Fauna	2.23	That prescribed measures for managing impacts of trenching activities on fauna and preventing unacceptable levels of fauna mortalities are warranted for this proposal and be included in a project fauna management plan which should be developed to the requirements of DEC.	Refer to item 2.22	x
2	DEC (Environmental Management Branch)	Vegetation and Flora	2.24	The proposed impacts on the *Triodia* sp. Robe River assemblages of mesas of the Robe Valley priority ecological community (PEC) are not adequately described or addressed in the PER.	API has had surveyed over 32,000 ha across the mine area over three years. The vegetation surveys have been extensive and detailed, as evidenced by the fine scale vegetation mapping completed. This detailed mapping resulted in the delineation of 141 vegetation units, with many of these units occupying less than 10 ha in total and individual areas of one to five ha delineated on numerous occasions. Table 5.1 summarises the size distribution of the mapped vegetation units and provides an insight into the fine scale of the vegetation mapping. API has undertaken considerable analysis to evaluate the impact of the proposal on native vegetation. This has included several meetings with the Department of Environment and Conservation (29 January and 18 February 2010) which resulted in the identification of a number of vegetation units of interest, which are presented in Table 13.5 of the PER (p178). The majority of these units (i.e. 11 of 13) were identified partly or entirely by the presence of the Priority 3 species *Triodia* sp. Robe River and are therefore part of the Priority 3 Ecological Community described as "*Triodia* sp. Robe River assemblages of mesas of the Robe Valley". For more information, refer to Section 5.1.1 of the Response to Submissions Report.	x
2	DEC (Environmental Management Branch)	Vegetation and Flora	2.25	That the proponent identifies each of the vegetation assemblages forming part of the PEC and attempts to identify the extent and conservation significance of impacts on these units.	Refer to 2.24	x
2	DEC (Environmental Management Branch)	Vegetation and Flora	2.26	That the proponent provides vegetation maps and descriptions of the areas of *Triodia* sp. Robe River units outside the project impact area to substantiate the proposition that additional areas of these units occur outside the project impact area.	Refer to 2.24	x

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2	DEC (Environmental Management Branch)	Vegetation and Flora	2.27	That the proponent commits to pursuing protective measures for vegetation units that comprise the PEC and contributes to the establishment and/or management of conservation areas that contain these units (if these can be demonstrated to occur outside the impact area) within the reserve system.	On the basis of the information obtained to date, and described under Section 5.1.1 of the Response to Submissions Report, the *Triodia* sp. Robe River PEC is not restricted to specific geology or landform and is broadly distributed across the West Pilbara. Notwithstanding the minimal impact, API remains committed to design and implement the proposal to minimise impacts on the species *Triodia* sp. Robe River and the PEC to the greatest extent practicable (PER, p 191). API has also committed to undertaking further studies into, among other things, the distribution and ecology of *Triodia* sp. Robe River (PER, p 191). API confirms its commitment to contribute to the identification of the biodiversity values of the west Hamersley Ranges which would assist in State planning of conservation estate (PER, p 212).	x
2	DEC (Environmental Management Branch)	Vegetation and Flora	2.28	Propagating *Triodia* sp. Robe River has limited value as a management strategy for mitigating impacts on communities that may be habitat dependent.	*Triodia* sp. Robe River does not appear to be dependent on geology, having been recorded on pisolitic, banded iron and alluvial/colluvial substrates (Astron, 2010). This indicates the species is not habitat restricted, has a capacity to inhabit a variety of ecological niches and, with proper planning, suggests good prospects for its establishment on reconstructed landscapes. API has commenced research into the propagation and rehabilitation requirements of *Triodia* sp. Robe River. Work completed to date demonstrates the ability to propagate the species vegetatively and from seed. API considers it appropriate to set objectives for rehabilitation at the outset of the project. The establishment of *Triodia* sp. Robe River on reconstructed landscapes is one such objective arising from the baseline studies and environmental impact assessment. API has not committed to the replication of existing vegetation assemblages in rehabilitation, which API considers unrealistic and unwarranted (given the minimal impact to *Triodia* sp. Robe River). With the information to hand API is more confident about achieving an objective of establishing the species within a self-sustaining vegetation community which would contribute in some way to mitigating the impact of the proposal on the species and associated PEC.	x
2	DEC (Environmental Management Branch)	Vegetation and Flora	2.29	Remove emphasis on propagating *Triodia* sp. Robe River as a primary management strategy for preserving this species and the associated community.	Refer to item 2.28.	x
2	DEC (Environmental Management Branch)	Conservation Areas	2.30	The PER description of proposed rehabilitation does not recognise that areas disturbed may ultimately be included in the proposed West Hamersley Range Conservation Park.	API understands that the previously proposed West Hamersley Range Conservation Park is not part of current government planning. Irrespective, the western boundary of the park, as previously proposed (which overlapped with part of the proposal footprint) appeared to be arbitrarily set based on land tenure (unallocated crown land) as opposed to the protection of biodiversity values (PER, pp 211- 212). API has committed to environmental surveys that would assist in the identification of the biodiversity values of the west Hamersley Ranges and could inform the planning of conservation estate (PER, p 212). API is committed to a high standard of rehabilitation and has documented rehabilitation objectives within the PER (p285). Rehabilitation will be guided by post-mining land use and API has acknowledged the potential that some areas may, in time, be incorporated into conservation estate (PER, p 285). The high standard of rehabilitation to which API aspires will optimise compatibility with this potential land use. API will consult with the Department of Environment and Conservation and the Department of Mines and Petroleum, among others, in the development of rehabilitation plans and rehabilitation performance criteria.	x
2	DEC (Environmental Management Branch)	Conservation Areas	2.31	At the completion of mining, any areas disturbed within the proposed reserve be rehabilitated with the view that the land may be incorporated into a conservation reserve and managed by DEC. It is recommended that rehabilitation requirements and completion criteria for these areas be developed in consultation with, and to the requirements of, DEC.	Refer to item 2.30	x
2	DEC (Environmental Management Branch)	Vegetation and Flora (Transport)	2.32	There needs to be provision for management of mesquite along the transport corridor.	API has developed weed management procedures as part of its Environmental Management System (EMS). Provision within these procedures for the specific control of mesquite during the construction and operational phases of the project will developed by API in consultation with the Department of Agriculture and Food (DAF), the Pilbara Mesquite Management Committee (PMMC), and relevant landholders. Borrow pit locations will be selected using a number of criteria, including the presence/absence of mesquite. API would intend to avoid mesquite infested areas wherever possible. Subject to rigorous controls on the movement of material from infested areas to areas free of mesquite, it may be appropriate to use construction material sourced from borrow pits within infested areas in adjacent sections of railway also within mesquite infested areas.	x
2	DEC (Environmental Management Branch)	Vegetation and Flora (Transport)	2.33	It is recommended that the proponent consult with the Department of Agriculture and Food (DAF) and Pilbara Mesquite Management Committee (PMMC) regarding the development and implementation of specific weed management strategies for mesquite during both construction and operational phases of the transport corridor.	Refer to item 2.33	x

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2	DEC (Environmental Management Branch)	Vegetation and Flora (Transport)	2.34	It is recommended that borrow pits are only located in areas that are known to be free from mesquite.	Refer to item 2.33	x
2	DEC (Environmental Management Branch)	Surface Water and Vegetation (Transport)	2.35	Management of surface water along the transport corridor requires consideration and attention to detailed design for the rail formation and borrow pits to avoid impacts on dependent communities.	API has undertaken a robust risk assessment of the proposed construction of the railway on surface water dependent vegetation communities and is committed to appropriate rail design to minimise the risk to these communities (PER, pp 230-231). API will consult with the Department of Environment and Conservation in the design of culverts and other drainage measures in areas of sheetflow dependent vegetation traversed by the railway.	x
2	DEC (Environmental Management Branch)	Surface Water and Vegetation (Transport)	2.36	That the location of culverts and other drainage management measures in areas of surface water dependent vegetation communities, particularly mulga, are developed in consultation with DEC. It is considered industry best practice to construct culverts every 50 metres where sensitive vegetation has been identified and could be impacted by changes in surface water flow.	Refer to item 2.35	x
2	DEC (Environmental Management Branch)	Surface Water and Vegetation (Transport)	2.37	Given the considerable borrow requirements for this development, it is recommended that a borrow pit management procedure be developed, in consultation with DEC, that explains the application of suitable strategies to be implemented to ensure environmental impacts are minimised due to the construction and management of borrow pits. The procedure should consider the location, design, management, ongoing use and rehabilitation of borrow pits.	API has identified borrow target areas, within which borrow pits will be located. The target areas have been surveyed for flora and vegetation and will be refined and reduced in size following on-ground geotechnical investigations and heritage surveys (PER, p 19). API has developed a procedure for the management of borrow pits as part of its Environmental Management System. Some of these principles are presented under Section 34.5.6 of the PER (p 290). API will review its procedures for the management of borrow pits in consultation with the Department of Environment and Conservation. Given that material is extracted from borrow pits for construction purposes, there may be instances depending on the location of the borrow pit in the landscape, where it is very difficult to achieve a completely free draining final surface. The citing in the profile will be a consideration in borrow pit location, and the depth of excavation and rehabilitation techniques can be employed to minimise the risk, and extent of any surface ponding.	x
3	DEC (Contaminated Sites Branch)	Groundwater	3.01	DEC considers that the risk of mining causing environmental harm is greatest at the deposits where dewatering will be required, and where pit lakes will be formed in the mined areas after mining has ceased. This is because there is a significant risk that lowering of the water table, caused by dewatering, will trigger oxidation of aquifer sediments and the release of metals and metalloids into groundwater. After dewatering has ceased, contaminated groundwater could continue to discharge into pit lakes where metal and metalloid concentrations may be further concentrated by evaporation from the lakes, and pose a risk to the health of wildlife populations that may use the lakes as sources of food or water.	API has made the commitment to backfill mine pits to above the post-mining groundwater level at the resource areas where dewatering is required (Cardo Bore East and Kens Bore deposits) to avoid exposed groundwater (PER, Section 8.3.2, p 110 & Section 24.5.4, p 288). As a result of this commitment, no pit lakes will remain post mining and there is no risk of associated impacts such as metal and metalloid contamination.Geochemical assessments of the materials within the orebodies are summarised at pp 288 – 289 of the PER. The materials are classified as non-acid forming and have metal and metalloid concentrations well within National Environmental Protection Council health based guideline criteria for soils. The risk of metal mobilisation is considered negligible. These assessments are consistent with the geological history of the palaeochannel deposits.	x
3	DEC (Contaminated Sites Branch)	Groundwater	3.02	Although this risk is typically highest when acidic conditions are produced by mine dewatering, recent international literature indicates that concentrations of some elements can reach high concentrations in water in mining environments, even when groundwater has near-neutral or alkaline pH values. In particular, metalloids like selenium can reach high concentrations in water due to evaporative concentration at some mines sites, and can cause significant impacts to bird populations that use water bodies affected by groundwater discharge from these sites.	Refer to item 3.01	x
3	DEC (Contaminated Sites Branch)	Groundwater	3.03	The risk that mining at the Ken's Bore and Cardo Bore East deposits will cause adverse changes to groundwater and pit lake quality at these sites has not been assessed in the PER. DEC recommends that representative rock materials from below the water tables at these sites are subject to appropriate kinetic leaching tests to determine the changes that are likely to take place in groundwater as a result of mine dewatering.	Refer to item 3.01	x
3	DEC (Contaminated Sites Branch)	Groundwater	3.04	DEC also recommends that geochemical modelling is undertaken to determine how the concentrations of potentially harmful chemical constituents in groundwater will change over time with discharge to, and evaporative concentration within, pit lakes. This information will help determine whether these lakes are likely to cause adverse impacts on wildlife health and, if necessary, to develop management strategies to minimise these impacts.	Refer to item 3.01	x

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4	Department of Mines and Petroleum	Rehabilitation & Closure;	4.01	The preliminary rehabilitation and closure commitments stated within the document provide sufficient information for this stage of the project, detailing the general approach towards rehabilitation for each proposed disturbance type. The commitment to design specific plans and schedule to ensure the appropriate placement of materials for each individual landform is acknowledged by the Department. Furthermore, it is noted that previous comments provided by this Department relating to rehabilitation trials have been considered and included within the document.	Noted with thanks. API will continue to work with the Department of Mines and Petroleum in the development of relevant project plans and a Mining Proposal.	x
4	Department of Mines and Petroleum	Waste Characterisation;	4.02	It is noted within the document that preliminary estimates of the clay proportions within the overburden range from as little as 1% to as much as 40% across the project. Based on the information submitted within the document, the Department is satisfied with the level of detail regarding the chemical and physical properties provide at this stage of the project. It is noted however that more comprehensive information regarding the characterisation test work, as well as the management of overburden material will be required as part of the Mining Proposal assessment under the Mining Act 1978. This has been acknowledged by API Management Pty Ltd within Section 34.5.3, whereby it is stated that "these management requirements will be developed through more detailed mine planning and presented in mining proposals submitted under the Mining Act".	Material characterisation completed to date indicates there is a low risk of acid leachate generation or metal leaching from overburden dumps. Similarly the generally benign clay materials are able to be managed within the reconstructed landscapes without impacting on rehabilitation performance (PER, p 288). This work was reported in the PER to the level commensurate with the risk assessment. More comprehensive materials information and analysis, along with more detailed mine plans and rehabilitation plans will be incorporated into the Mining Proposal to be assessed by the Department of Mines and Petroleum under the *Mining Act 1978*.	x
4	Department of Mines and Petroleum	Proposed Environmental Conditions;	4.03	Suggested amendment to proposed Condition No. 8-1 (Closure Plan) is noted to have occurred. The condition appears to have been amended to include consultation with the CEO of the DMP.	Refer to item for 4.01	x
5	Department of Health	General	5.01	WA Health has commented previously on this proposal. The proponent identified that Department of Health as a stakeholder. It is therefore disappointing that where the proponent has addressed the WA Health feedback in this document, it has been somewhat superficial and thus difficult to determine if the management options developed will protect the health and well being of local communities and the workforce in the accommodation village. Similarly, other information provided has not been addressed at all. If these are being dealt with via some other forum, no indication has been given of where or how this is occurring.	API has not received any feedback from the Department prior to this letter, but will address issues outlined below.	
5	Department of Health	Mosquitoes	5.02	The proponents work with the Shire of Ashburton (prior to finalising location of accommodation facilities and other areas where workers will spend considerable periods of time) to identify natural breeding sites in the vicinity of the proposed development. This infrastructure should be located as far away as possible from natural breeding sites of mosquitoes and biting midge.	API has, and will continue to work with both the Shire of Ashburton and the Shire of Roebourne on a wide range of aspects relating to the Proposal, including location and form of infrastructure, building and planning approvals (PER, Section 4, p 43).	x
5	Department of Health	Mosquitoes	5.03	An integrated program is developed to manage mosquitoes and other nuisance insects. This should include appropriate location, design and maintenance of project infrastructure, monitoring programme, control programme (such as chemical and other), and provision of advice.	Should the circumstances warrant, API will investigate and implement in consultation with the relevant regulatory authorities appropriate measures to control mosquitoes and the risk to employees from mosquito borne disease at the Proposal site.	x
5	Department of Health	Potable water	5.04	The proponent should comply with the Australian Drinking Water Guideline 2004, establish drinking water quality reporting procedures with WA Health, establish a Drinking Water Quality Management Plan for each site with a water treatment plant (or storage tanks) including the temporary construction camps, establish a Drinking Water Quality Management Plan for each site with a water treatment plant (or storage tanks) including the temporary construction camp.	API will comply with all regulatory requirements with regards to the provision of potable water.	x
5	Department of Health	Wastewater	5.05	Wastewater to be managed under the Health (Treatment of Sewage and Disposal of Effluent and liquid Wastes) Regulations and in accordance with the (draft) Guidelines for the Use of Recycled Water in Western Australia April 2009.	API will comply with all regulatory requirements with regards to waste water management. This will include obtaining a Part V licence under the EP Act, and approvals from Local Government/Department of Health.	x
5	Department of Health		5.06	Part 5, Section 34 Rehabilitation and Closure, of the PER, refers to recoverable materials being sold or recycled when the sites are eventually closed. Consideration must be given to the hygienic handling and disinfection of any materials used in wastewater treatment or disposal. The proponent should also consider how residual sewage treatment by-products in Wastewater Treatment Plants will be disposed of and how waste water ponds (if any) will be decommissioned. The decommissioning processes for the temporary construction camps should also be addressed.	API considers these matters are readily managed and will attend to them in closure plans and in the decommissioning of temporary construction camps.	x

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5	Department of Health		5.07	Queries about drinking water, lodging applications for sewage treatment, effluent disposal and/or effluent recycling may be directed to the Water Unit of the Department of Health.	Noted	
5	Department of Health	Pest Control	5.08	The proposal indicates that feral pest control was recommended as a community initiative but no response to this has been included in the document. Should the proponent undertake any form of pest control using pesticides, it must comply with Health (Pesticides) Regulations 1956, including the adoption of a pest management plan, pesticide handling and management.	API is committed to the implementation of feral animal control measures (PER, p154) and weed control measures (PER, p 190) as part of the proposal. The detail of these measures will be developed in consultation with the Department of Agriculture and Food and the Department of Environment and Conservation. API will comply with all regulations regarding the use of pesticides.	x
5	Department of Health	Air Quality	5.09	The proponent should consider the impacts of dust on the accommodation site. A dust management plan will be required if the village is close enough to be subject to elevated dust impacts.	Given that the permanent village is approximately 5.5 km east of the closest resource, expert advice suggests that the village would not be impacted by any significant dust emissions from the mining operations (Environ, pers. comm., September 23, 2010).	
5	Department of Health	Workforce	5.10	The draft PER indicated that the proponents recognised the importance of community initiatives, However, no detail has been provided on what these might have been apart from a list of suggestions arising from community consultation and how they might be included in development strategies for the proposal.	As stated in the API Environmental Policy (PER, Section 5.1.2, p 50), API recognises the opportunity presented in a greenfield development to balance social, economic and environmental aspects from project inception. API sees its self as a member of the local community and will continue to liaise and work with the community in identifying and implementing initiatives to the benefit of all parties. This includes strategies that maximise employment of local service providers, sponsorship of local community groups, upgrade and maintenance of local roads and provision of water bores for local pastoral stations.	
5	Department of Health		5.11	The proposal indicates there will be a construction workforce of approximately 2,500 but there is no indication of the duration of construction. During this period there may be impacts to local communities and on provision of services such as the Health Sector. It would be appropriate for consideration to be given to issues associated with this increase in population numbers on the local region.	Construction is expected to take place over a 24 month period (PER, Section 2.3, p 15). The construction and operation workforce will be accommodated in a permanent village or construction camps, suggesting a fly-in-fly-out work workforce (PER, Table 2.1, p 9). As such, there will be limited (if any) impacts on local services such as the health sector.	
5	Department of Health		5.12	Similarly, as previously indicated the proponent has agreed to initiate education programmes for the workforce on local flora, fauna and Indigenous heritage to minimise adverse workforce impacts on these and the impacts to local Indigenous communities. It would also be appropriate to provide education programmes to the workforce on potential adverse impacts on local non-Indigenous communities.	Other than the Red Hill and Mt Stuart station homesteads, there are no local non-indigenous communities in the vicinity of the Proposal. Nonetheless API will provide education (through inductions) to the workforce on the need to respect all elements of the community. Particular reference to this is given in Section 9.3.2 (p 119) of the PER. The risk treatment measures state that API will implement an induction program that contains information on: significance of Aboriginal heritage and the potential impacts of the project; procedures to report potential new sites and skeletal material; obligations under the *Aboriginal Heritage Act 1972*, and requirements for the protection of known Aboriginal heritage sites.	
5	Department of Health	Closure	5.13	The proponent has identified that it should ensure the cost of closure is adequately represented in company accounts, that the community is not left with a liability and that communities have involvement in community planning. The scope of community involvement has not been elaborated.	As it has done to date, API will continue to engage with stakeholders during the design, construction, operation and closure phases of the proposal. This will include consultation with interested and relevant stakeholders in the development of closure plans (PER, p285).	x
5	Department of Health	Disaster Preparedness and Emergency Management	5.14	The proponent should develop an Emergency Medical Response Plan (EMRP) that plans for the health impacts of applicable incidents identified in the "Critical Infrastructure Emergency Risk Management and Assurance Handbook" (Emergency Management Australia, 2nd Ed May 2004,	API has developed a safety management plan for the current exploration and feasibility phase, which includes provision for emergency medical response. Once the Proposal is in implementation phase, the safety management plan will be further developed to comply with all regulatory requirements with regards to mine safety.	
6	Department of Indigenous Affairs	Consultation with Traditional Owners	6.01	On p40 of the PER document it states that consultation and heritage surveys with Native Title groups with interests in the area of the transport corridor, the Ngarluma Aboriginal Corporation and the Yaburara Mardudhuner are in progress. It also states that Wong – Goo – Tt – Oo were consulted prior to their Native Title Claim being dismissed by Federal Court. DIA recommends that in the process of undertaking consultation, that the lessee consult with all people who hold knowledge on the area's Aboriginal cultural values. Such people may include the registered native title holders for the area, known site informants for Aboriginal heritage sites in the nearby vicinity and anyone holding knowledge of the area's Aboriginal cultural values. This could arguably include the Wong – Goo – Tt – Oo group.	API will continue to consult with all appropriate people, and is not confined to Native Title groups, as part of its programme to assess Indigenous Cultural Heritage values. API has sought further advice from the Department of Indigenous Affairs regarding consultation.	x
6	Department of Indigenous Affairs	Impacts on registered / unregistered sites	6.02	The proposed transport corridor extends over more than 285 km and intersects numerous DIA registered sites (p235). It is also possible that there are sites that have not yet been reported to the DIA and entered on the Register. As you may be aware, the DIA is responsible for the administration of the AHA and all Aboriginal sites are protected under the AHA, whether they are registered with the DIA or not.	API is currently conducting detailed ethnographic and archaeological surveys with Traditional Owners along the transport corridor which will provide for a full and comprehensive assessment of cultural heritage beyond the sites registered with the Department of Indigenous Affairs and enable compliance with the *Aboriginal Heritage Act 1972*.	x

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6	Department of Indigenous Affairs	Progress of heritage surveys	6.03	Archaeological surveys to date focussing on areas associated with exploration and investigation identified isolated artefacts and artefact scatters within the Proposal area (p117). These do not appear to be identified in Figure 9.1, the map of Recorded indigenous heritage sites at the mine area (p118), The PER also identified ethnographic significance associated with some major watercourses in the Pilbara region as associated with cultural and ceremonial practices and that are registered as sites (p117). These are also not identified in maps in the PER.	Detailed archaeological and ethnographic surveys are currently being conducted and the results of those surveys are being assessed. API intends to apply for Ministerial consent to use the land on which heritage sites are located under Section 18 of the Aboriginal Heritage Act 1972 should disturbance of the sites be unavoidable. The final heritage survey reports will be submitted (with consent from Traditional Owners) as part of that process. API respects the position of Traditional Owners in seeking their consent for the submission of final heritage survey reports and cultural information to the Department of Indigenous Affairs. API will consult with Traditional Owners regarding sites identified within the project footprint.	x
6	Department of Indigenous Affairs	Progress of heritage surveys	6.04	Further archaeological and ethnographic surveys of the project footprint, were to be completed, as well as surveys associated with the proposed mining and transport corridor operations. It was expected that more detailed survey work would identify potential sites within the orebody footprint areas, despite there being no DIA registered sites within the area. It was commented that there was limited flexibility to avoid sites located on or immediately adjacent to the orebodies, but API would endeavour to avoid sites in locating other mine infrastructure (p119). According to the summary of indigenous cultural heritage investigations, surveys were not expected to be completed until early 2011. No surveys appear to have been submitted to DIA. Therefore DIA cannot comment definitively on the effect that the proposal will have on sites. It is possible that the rail alignment may need to be routed outside the nominated transport corridor, so further survey work may be required (p236). If API wishes to obtain definitive comment from DIA regarding the impact on sites, shape files of the proposed impact areas should be sent to DIA.	Refer to item 6.03	x
6	Department of Indigenous Affairs	Cultural Heritage Management Plan/s	6.05	The PER indicates that a Cultural Heritage Management Plan (CHMP) will be developed in consultation with Traditional Owners (p119). However, it may be that a number of CHMPs may be required to be negotiated with the different identified Traditional Owner groups.	API intends to develop and implement a CHMP in consultation with each of the native title groups. API will develop an overarching company strategy, taking into consideration the variations of each group requirements regarding cultural heritage management. API is committed to developing and implementing, in consultation with Kuruma Marthudunera, a detailed CHMP to manage the protection of Aboriginal heritage sites and which addresses the include salvage and culturally appropriate storage of artefacts. API anticipates that the CHMPs to be developed in consultation with Traditional Owners will be the subject of binding, comprehensive agreements to be negotiated under the processes of the Native Title Act 1999.	x
6	Department of Indigenous Affairs	Risk treatment measures	6.06	The risk treatment measures (Table 9.3, Table 23.2) identified by API appear to be generally sound. For both the mining area and transport corridor, they clearly intend to survey the area with the Traditional Owners to identify potential sites, avoid significant sites where practicable and to seek approval to disturb sites under s18 of the Aboriginal Heritage Act 1972 (AHA) where an impact is unavoidable (p121, p238). It is our preference that any development plans are modified to avoid damaging or altering any site. If it is not possible and in order to avoid a breach of Section 17 of the AHA, the land owner should submit a Notice in writing under Section 18 of the AHA to the Aboriginal Cultural Material Committee, seeking the prior written consent of the Minister for Indigenous Affairs' to use the land. A form to lodge a Notice under Section 18 is available from the DIA.	In accord with the position of the Department of Indigenous Affairs, API confirms a preference to avoid disturbance to heritage sites through infrastructure design in the first instance. Where sites cannot be avoided, API will apply, following consultation with Traditional Owners, for Ministerial consent to use the land under s18 of the *Aboriginal Heritage Act 1972*.	x
6	Department of Indigenous Affairs	Risk treatment measures	6.07	For the mining area, the CHMP will implement procedures if a new site is detected. Qualified heritage site monitors will monitor clearing and earthworks activities and Traditional Owners will be briefed about proposed works and work schedules and involved in heritage management throughout the life of the project (p121). It is not quite clear why the risk treatment Table for the Transport Corridor (on p121) contains less steps than the risk treatment table for the Mining Area (p238).	This risk treatments detailed for the mine area (PER, p121) and the transport corridor (PER, p238) are consistent, though greater detail is provided for the mine area. To confirm, API proposes to manage the risks to indigenous cultural heritage in consultation with Traditional Owners the same way for the mine area and transport corridor. It is possible Cultural Heritage Management Plans agreed with the separate Traditional Owner groups may vary slightly.	x
6	Department of Indigenous Affairs	Risk treatment measures	6.08	It is noted that Table 9.3 states that there is to be a policy of no disturbance outside the footprint area unless authorised by the Project Manager or Mining Manager. However, there should be no disturbance outside an area nominated under a s18 application in order to avoid prosecution under the AHA. Table 9.4 discusses Mine pit dewatering and discharge of surplus water (p123). It is also stated that there may be some compromising of integrity (through possible contamination) of Aboriginal heritage sites associated with watercourses (p236) and it was noted that major watercourses have a level of ethnographic significance as they are a focus of camping, material and ceremonies. It should also be noted that if there were to be	API notes the need for Ministerial consent under s18 of the *Aboriginal Heritage Act 1972* for any anticipated indirect impacts to heritage sites.	x

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				indirect impact of sites through modified water action within the area that a Section 18 may be required in order to avoid a breach of Section 17.		
7	Yamatji Marlpa - Aboriginal Corporation	Relationship with API	7.01	The KM native title claim group has developed a positive relationship with API Management Pty Ltd ('API'). YMAC welcomes API's commitment to negotiate with the KM and our clients look forward to concluding a substantive agreement. We also acknowledge the hard work that has gone into the heritage surveys that have taken place to date.	API recognise the positive relationship with the Kuruma Marthudunera Native Title Claimant Group and is committed to continue developing this relationship on a long term basis.	
7	Yamatji Marlpa - Aboriginal Corporation	Aboriginal Cultural Heritage	7.02	The Environmental Protection Authority's stated goal regarding Aboriginal heritage is: 'to ensure that changes to the biophysical environment do not adversely affect historical and cultural associations and comply with relevant heritage legislation' (pp. 115 and 235 PER). YMAC appreciates the EPA's perspective, but respectfully suggests that this conceptualization of impact to heritage is more limited than the view held by our clients. Under our clients' traditional laws and customs, sites and places of significance can be impacted upon even if there is no change to the physical environment (i.e. the entry of unauthorised persons to such places is forbidden by KM law and custom).	API acknowledges the views of the Kuruma Marthudunera and considers there is no substitute to consulting with Kuruma Marthudunera to address these and other matters. The commitment of API to consultation and the development of a CHMP to manage the protection of Aboriginal cultural heritage within and around the proposal area can occur under processes provided for under the Aboriginal Heritage Act and *Native Title Act 1993*.	x
7	Yamatji Marlpa - Aboriginal Corporation	Heritage Surveys, Consultation and Heritage Management	7.03	The PER sets out API's proposal to consult with the KM and other traditional owner groups to determine how to manage culturally sensitive areas (pp. 116 and 238 PER). On behalf of its clients, YMAC advises that a plan for salvage and culturally appropriate storage of artefacts may also be required.	Refer to item 6.05	x
7	Yamatji Marlpa - Aboriginal Corporation	Heritage Surveys, Consultation and Heritage Management	7.04	The PER states that API will consult with traditional owners to develop a Cultural Heritage Management Plan (p. 117 PER), and references to the Plan are found throughout the section on 'Indigenous Cultural Heritage'. YMAC appreciates this commitment, but notes that it is our clients' preference to have all heritage requirements contractually binding on the proponent. As a CHMP is intended as the 'primary tool for managing impacts on indigenous cultural heritage', it is important that the KM are able to mandate compliance with it. We therefore advise that it is appropriate that the Plan be incorporated into a comprehensive agreement with our clients. The PER also states that 'management of indigenous cultural heritage is primarily driven by API corporate-level policy and associated management plans and procedures' (p. 119 PER). Again, such policies are appreciated by YMAC and its clients; however, we note that commitments relating to heritage policy will need to be incorporated within a written agreement with the KM.	Refer to item 6.05	x
7	Yamatji Marlpa - Aboriginal Corporation	Heritage Surveys, Consultation and Heritage Management	7.05	YMAC notes that API undertakes to 'establish a cultural heritage database system with GIS records of indigenous heritage site locations within the Proposal area' (p. 122 PER). On behalf of its clients, YMAC requests that any sections of the database that relate to the KM claim area be provided or made available to our clients.	API will ensure that heritage sites recorded by Kuruma Marthudunera and API archaeologists and anthropologists within the Kuruma Marthudunera claim area will be made available. API's position is that all Kuruma Marthudunera cultural information remains the intellectual property of Kuruma Marthudunera.	x
7	Yamatji Marlpa - Aboriginal Corporation	Heritage Surveys, Consultation and Heritage Management	7.06	YMAC notes API's undertaking to see to avoid significant sites where practicable (p. 122 PER), and asks that guidance be provided as to the meaning of 'practicable' in this context.	The term 'where practicable' in the context of seeking to avoid heritage sites needs to be applied on a case by case basis. For example, in some instances it may not be practicable to avoid heritage sites located on orebodies, though mine pits may be able to be redesigned to avoid heritage sites located near the edge of orebodies. There is some flexibility to locate infrastructure such as roads, laydown areas and buildings, etc so as to avoid heritage areas, though less flexibility with a railway which is subject to more design criteria to ensure safety and operability. For example, depending on the required deviation, tens of kilometres of railway may need to be realigned, avoiding other heritage areas and topographical and environmental constraints, and continuing to meet engineering requirements for gradients and railway geometry (i.e. rail curvature). Depending on the particular circumstance there could be many factors involved when considering amendments to project design. API will genuinely examine each case in consultation with Traditional Owners.	x

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7	Yamatji Marlpa - Aboriginal Corporation	Section 18 Approvals	7.07	The grant of approvals to damage or destroy Aboriginal heritage sites under section 18 of the Aboriginal Heritage Action 1972 (WA) is a serious concern for our clients. The KM note API's commitment to prepare its section 18 notice process ' in consultation with the Traditional Owners' (p. 117 PER), and advise that our clients' preferred method of s18 consultation is as follows: the company conducts a site-identification survey with KM participants; the company consult with the KM working group (or the community, is appropriate) before it makes its application, with the meeting funded by the company; KM members are given the opportunity for a site visit to the relevant area; after the consultation, the company sends the KM a copy of its application, including the KM's comments in it so their accuracy can be checked; and the KM reserve their legal right to object to the application.	API supports the preferred method of the Kuruma Marthudunera for consultation regarding Section 18 (*Aboriginal Heritage Act 1972*) applications.	x
7	Yamatji Marlpa - Aboriginal Corporation	Cultural Awareness Training	7.08	The PER commits API to ensuring that all its personnel are aware of obligations under the Aboriginal Heritage Act and understand the significance of indigenous cultural heritage. In particular, the company commits to provide cultural awareness training to all its personnel (p. 120 PER). On behalf of our clients, YMAC advises that it is important that any cultural awareness training or inductions that take place on, or relate to, the KM claim area be delivered by KM members. We also advise that contractors, as well as employees, will require such training.	API confirms its intention to develop a programme of cultural awareness training and inductions applicable to the Kuruma Marthudunera claim area in consultation with Kuruma Marthudunera and would welcome the involvement of Kuruma Marthudunera members in the delivery of the training to contractors and employees.	x
7	Yamatji Marlpa - Aboriginal Corporation	Environmental Impacts	7.09	We advise that although all impacts on their country are of concern to our clients, the KM are particularly concerned to protect waterways and permanent pools.	API will assess each major watercourse and any permanent pools intersected by the project in detail with Kuruma Marthudunera and will minimise, if not avoid, impacts to these areas.	x
7	Yamatji Marlpa - Aboriginal Corporation	Impacts on Fauna	7.10	YMAC notes the sections in the PER referring to terrestrial fauna (pp. 35-38 and 245-253) and advises that any impacts to fauna need to be considered in light of consequent effects on the KM native title claim group. YMAC advises that the right to hunt is among its clients' registered rights and interests, and that the KM also have cultural obligations to manage and protect flora and fauna within their claim area.	API acknowledges the position of Kuruma Marthudunera with regard to vegetation and fauna. API will implement monitoring and management measures as part of the proposal aimed at minimising impacts on endemic fauna and native vegetation.	x
7	Yamatji Marlpa - Aboriginal Corporation	Native Title Act Agreements	7.11	The PER states that 'agreements to be negotiated under the Native Title Act are anticipated to include compensatory provisions for impacts on Native Titles interests' (p. 121 PER). On behalf of its clients, YMAC welcomes this acknowledgment; we agree that compensation is appropriate and important. YMAC further suggests other provisions that could assist in alleviating the Project's impacts on our clients' native title rights and cultural heritage, including: comprehensive protection of our client's access to country the subject of Project operations (with entry only restricted for legitimate health and safety purposes); involvement of the KM in the planning; engagement of KM members as rangers and monitors within those area of the Project that affect the KM claim area; holistic protection regimes for particularly important sites and places.	API welcomes the suggestions of the Kuruma Marthudunera as to the scope of negotiations for an agreement under the *Native Title Act 1990*.	x
8	Ngarluma Aboriginal Corporation	rights as Tos	8.01	NAC describe its relationship with country and its rights as native title holder	API accepts and acknowledges that the Ngarluma Aboriginal Corporation (NAC) is the holder of the Ngarluma People's native title rights and interests recognised by the Federal Court and that part of the proposal rail corridor crosses this area. API notes that the map attached as Annexure A to the NAC submission depicts the area put to the Federal Court for consideration but not the area over which native title rights were ultimately held to exist. In particular, native title was not found to exist in the whole of the area enclosed by the seaward boundary of the application, the Burrup Peninsula, land within town sites and on various other land holdings. API has identified the NAC as a key stakeholder and its engagement with NAC is summarised under Section 6.1.1 of the Response to Submissions Report.	x
8	Ngarluma Aboriginal Corporation	Protection of Heritage by EPA	8.02	NAC highlights that cultural heritage is included within the broader definition of environment within the EP Act and asserts it is to be protected as such. NAC asserts that the EPA must consider Aboriginal heritage and ensure that the Proponent has properly addressed it.	The EPA Guidance Statement No 41 circumscribes when Indigenous Cultural Heritage will constitute a relevant environmental factor when undertaking an assessment of a proposal. The Department of Indigenous Affairs has not raised any specific concerns that cannot be addressed by the ongoing heritage investigation process, development of appropriate Cultural Heritage Management Plans and applications for relevant statutory approvals.	x
8	Ngarluma Aboriginal Corporation	Consultation	8.03	NAC notes that it is one of the stakeholders listed in the PER, but states that it has not been consulted. The response also asserts that The EPA has an expectation that the impact assessment is supported by a thorough public consultation process.	API does not agree with the assertion that it has not consulted with the Ngarluma Aboriginal Corporation (NAC). Table 7.1 of the Response to Submissions Report summarises main items of engagement with NAC in recent times.	x
8	Ngarluma Aboriginal Corporation	Consultation	8.04	NAC notes that relevant mining and infrastructure industry standards include those developed by the Minerals Council of Australia (Enduring Value: Guidance for Implementation, July 2005) and would like to see these adopted by API.	API is aware of various guidelines published to assist proponents engage effectively with Indigenous stakeholders, including the Mineral's Council of Australia document. API maintains that it has demonstrated best practice in its engagement to date, as evidence by the positive comments submitted on behalf of another of the WPIOP's Indigenous stakeholder groups.	x

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8	Ngarluma Aboriginal Corporation	Conditions	8.05	The submitter requests that the EPA include a number of recommended conditions for the Proposal. These are as follows: prior to the commencement of any works for the Project, the Proponent and NAC must have developed together a Cultural Heritage and Environmental Management Plan ("CHEMP") including, among other features; all subsidiary Proponent management plans and the creation and ongoing operation of a joint environmental management board comprising the Proponent; NAC environmental and heritage consultants and NAC and Ngarluma people representatives.	API considers that the conditions proposed by the Ngarluma Aboriginal Corporation deal with matters beyond the scope of the environmental impact assessment process, make compliance contingent upon the input of (in part unidentified) third parties, imposes unquantifiable additional costs on the project and requires API to agree at large to the outcomes of processes in which it may have limited input. API is also of the view that imposition of the proposed conditions may act to the detriment of other Indigenous stakeholders unless confined in operation to the Ngarluma determination area (which raises further question as to practical implementation). API has previously indicated to the Ngarluma Aboriginal Corporation's nominated legal representative that, in the company's opinion, the imposition of the proposed conditions through the environmental impact assessment process is inappropriate and unacceptable.	x
8	Ngarluma Aboriginal Corporation	Conditions	8.09	The Proponent is to engage (as consultants) up to 4 Ngarluma people, as nominated by the NAC Board from time to time, to operate as Environmental Monitors attending environmental surveys, inspections and audits with respect to all of the socio – economic, marine and terrestrial aspects of the Project (during its construction, implementation, rehabilitation and closure).	It is API's strongly held preference to undertake heritage surveys in consultation with Traditional Owners. The involvement of Ngarluma people can be provided for by agreements to be reached under heritage and *Native Title Act 1993* processes. API notes that the West Pilbara Iron Ore Project Stage 1 Public Environmental Review does not encompass any activities that will impact on marine ecosystems and the imposition of conditions relating to protecting the marine environment is outside the scope of the proposal, and inappropriate in any event.	x
8	Ngarluma Aboriginal Corporation	Conditions	8.10	The Ngarluma Environmental Monitors and NAC Board (or nominee) must be included by the Proponent in the planning, consultation and Proponent's decision making process associated with all environmental surveys, management and protection, including all environmental audits and inspections and preparation of environmental reports to Government agencies.	API does not accept that it is appropriate for the Ngarluma Aboriginal Corporation to be included in project environmental management and reporting processes in the manner proposed but has committed to ongoing consultation with all Traditional Owners. API is also of the view that imposition of the proposed condition may act to the detriment of other Indigenous stakeholders by focusing solely on NAC's preferred consultants and processes.	x
8	Ngarluma Aboriginal Corporation	Conditions	8.11	All reports and management plans arising out of these processes are to be provided by the Proponent and its consultants in draft to NAC for input and approval prior to finalisation by agreement between the Proponent and NAC.	API does not accept that it is appropriate for the Ngarluma Aboriginal Corporation to be included in project environmental management and reporting processes in the manner proposed. API is also of the view that imposition of the proposed condition may act to the detriment of other Indigenous stakeholders by focusing solely on NAC's preferred consultants and processes.	x
8	Ngarluma Aboriginal Corporation	Conditions	8.12	The Proponent must implement the CHEMP in partnership with NAC during the construction, operation, rehabilitation and closure of this Project. The Proponent must construct, operate, rehabilitate and close the Project carrying out any recommendations of NAC, through the NAC Board (or NAC Board nominee). The Proponent is to meet on a six monthly basis with the NAC Board (or the NAC Board's nominees) to review the construction, operation, rehabilitation and closure of the Project.	API reiterates that as outlined in the PER (pp 236 – 238), it is committed to developing a CHMP in consultation with the Traditional Owners and seeking to enter into native title agreements. API does not accept that it is appropriate for the Ngarluma Aboriginal Corporation to have the level of control over project environmental management and reporting processes that the proposed condition would afford it. In particular, the proposed condition making compliance contingent upon the input of (in part unidentified) third parties imposes unquantifiable additional costs on the project and requires API to agree at large to the outcomes of processes in which it may have limited input. API is also of the view that imposition of the proposed condition may act to the detriment of other Indigenous stakeholders by focussing solely on NAC's preferred consultants and processes.	x
8	Ngarluma Aboriginal Corporation	Conditions	8.13	The Proponent must resource the costs of compliance with, and operation and implementation of, these conditions including the cost for NAC and its cultural heritage, environmental, legal and other advisors and consultants.	API considers that the condition proposed by the Ngarluma Aboriginal Corporation deals with matters beyond the scope of the environmental impact assessment process and seeks to impose unquantifiable additional costs on the project. API will fully resource its environmental management programmes.	x
9	Wildflower Society of Western Australia (Inc.)	Geodiversity	9.01	This is an enormous project and we are unable to comment in detail on the various aspects of the project. However there is one major area of concern. That is, the impact on the landform and geodiversity unique to the West Pilbara. The Society was represented at the Risk Assessment Workshop held on 16th June 2009. At this workshop we raised the issue of the impact of the proposal on the unique landforms of the West Pilbara. The residual risk to the landform and geodiversity of the area is rated at medium, page xvii of the PER.	Implementation of the Proposal will result in the removal of an estimated 2.6% of palaeochannel landform within the Pilbara region. This was considered a minor consequence, using the criteria (PER, p 63) applied at a stakeholder risk assessment workshop during the scoping phase of the impact assessment process (PER, p 55).	x
9	Wildflower Society of Western Australia (Inc.)	Geodiversity	9.02	It is good to see the Blandford Report, An investigation into the Geodiversity of Palaeo Channel Systems August 2009, however we don't believe this goes far enough. It is our understanding that there is none of the "mesa type" landforms either in or proposed to be included in the conservation estate. If this proposal proceeds in the form proposed more than 2.6% of the estimated length of landform will be destroyed and it is estimated the total length impacted in the current mining boom is 8.3%. What is not certain is the accuracy of this assessment bearing in mind at least 5.7% has or will be lost.	The work commissioned by API to assess impacts on landform and geodiversity has contributed substantially to the knowledge base and therefore evaluation of the potential impacts on this factor. The investigations comprised: discussions with geologists familiar with the area and definition of channel iron deposits; field studies of the presence and range of palaeochannel landforms within and around the proposed mine area, including helicopter surveys, observations and measurement of slope angles and landforms; a desktop review and census of palaeochannel landforms across the greater Pilbara area, and an assessment of the relative loss of palaeochannel landforms that will be caused be the proposed mining activities. The studies have documented the approximate ages, genesis and morphology of the key landforms in the Proposal area and enabled a sound understanding of the mesa-type landforms and channel iron deposits that host the resources that underpin the proposal. for more information, refer to Section 8.1.2 of the Response to Submissions Report.	x

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9	Wildflower Society of Western Australia (Inc.)	Geodiversity	9.03	Submitter noted that there has been no assessment of the values of the sites with respect to their tourism potential.	The mine area is located predominantly on pastoral leases, remote from public roads and access to the area is limited. API considers there are many varied factors that contribute to tourism appeal and some will value the landscape values present in sections of the mine area. These values are well represented across the Pilbara region. The proposal will result in the removal or part removal of mesa-type landforms, though as indicated through the geodiversity studies, these mesa-type landforms will continue to be represented within the mine area and across the West Pilbara region.	x
9	Wildflower Society of Western Australia (Inc.)	Geodiversity	9.04	The EPA should be taking a lead in recommending a whole of government approach be made to assessing the values of the West Pilbara Region particularly with respect to biodiversity, geodiversity and landforms. If this does not take place we will continue to have the demolition of individual mesas and landforms as each project goes through the Environmental Impact Assessment Process.	Refer to item 9.02	x
9	Wildflower Society of Western Australia (Inc.)	Geodiversity	9.05	It is apparent to our members that the mesas like those associated with the Catho Well, Upper Cane and Cochrane and Jewel proposed mines also have very high tourism appeal. It is recognised that it is not possible to incorporate all sites into say a National Park the first steps need to be taken before some of what may be regarded as the key assets are gone forever. We owe at least this small step to future generations.	Refer to item 9.03	x
9	Wildflower Society of Western Australia (Inc.)	Video Footage	9.06	The company, API has available some hours of video footage of the landscapes of the region. This has been shot from a helicopter. A minute or so of footage representative of each proposed mine sites was shown at the Risk Assessment Workshop and following a request to the company made available to the Wildflower Society. We believe at least this amount of video should be shown to the EPA but preferably a more extensive viewing so they can see the potential impacts of the project.	The footage referred to will be provided to the EPA. The Office of EPA assessment officers have visited the site and flown around the mesas. The EPA will also be given the opportunity to visit the site.	x
10	Department of Water	Water Resource Risk Management	10.01	The department would expect that a Water Management Plan be produced to address potential impacts, and should include: life of mine water balance, construction and operating water requirements; Monitoring approach; review and improvement mechanisms to show how monitoring results will be used to improve water management; an updated groundwater model; water use efficiency strategies, contingency responses for impacts on GDEs, discharge strategies; and recognition and management of impacts on other users.	API has committed to the development and implementation of a Water Management Plan to optimise water management and incorporating an operating strategy and quality monitoring programme (PER, Section 8.3.2, p 110). The Water Management Plan will address the matters raised in this submission.	x
10	Department of Water	Groundwater dependant ecosystems (GDE)	10.02	No discussion on the impacts of discharge of excess water to the creeks. The predicted drawdown contours at Kens Bore indicate drawdown within Redhill Creek. This area supports a rich groundwater dependant vegetation community and has important indigenous cultural values. Uncertainty exists with regards to modelling in this area.	Refer to item 2.13	x
10	Department of Water	Rail corridor	10.03	A large volume of water is required for the 2 year rail construction period. The proponent faces a considerable corporate risk should environmental management issues arise as a result of hydrogeological investigations.	API acknowledges and accepts this risk	
10	Department of Water	Closure	10.04	The department will review the rehabilitation and closure plans with respect to surface water and groundwater management, and considers adaptive management conditions can be built into the Water Management Plan to allow for changes in life of mine and closure planning.	Noted	
10	Department of Water	Risk-based approach	10.05	The department believes that the risks identified through the risk-based assessment are manageable through effective water planning that identifies the key water resource risks, prescribes strategies to manage these risks, and is underpinned by good monitoring and adaptive management.	Noted with thanks	
10	Department of Water	Consultation	10.06	The department would expect early and ongoing consultation with the proponent before the final mining schedule is determined, to ensure the water management plan is consistent with the environmental approvals and is manageable under the RIWI Act.	Agreed. API will continue to work with the Department of Water on water management and approval issues.	