Fire & Rescue NSW

File Ref. No: BFS16/1870 (11427)
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Contact: Station Officer C. Wheatley

The Department of Planning & Environment
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7 November 2016

Dear Ms Hawkeswood

**Environmental Impact Statement - Exhibition**
**Jemalong Solar Farm Project (SSD 6588)**
**Wilbertroy and Naroo Lanes Jemalong**

I refer to your correspondence dated 25 August 2016, inviting Fire and Rescue NSW (FRNSW) to provide comment on the above development proposal's Environmental Impact Statement (EIS). The EIS has been prepared by Jenny Walsh and Brooke Marshall of NGH Environmental Pty. Ltd. and Anthea Fawcett of Vast Solar dated 12 August 2016. The EIS has been reviewed and approved by Nick Graham-Higgs.

The review undertaken by FRNSW has included the following Appendices documentation which was made available as part of the submission:

- EIS – Jemalong Solar Station 30MW Concentrating Solar Thermal Power Plant August 2016 - Final.
- Appendix A – Secretary's Environmental Assessment Requirements (SEARs).
- Appendix B – Consultation.
- Appendix C – Specialist Investigations:
  - Biodiversity Assessment – Part A;
  - Biodiversity Assessment – Part B;
  - Aboriginal Cultural Heritage Assessment;
  - Preliminary Hazard Analysis (PHA);
  - Hydrology Report (Including Flooding);
  - Glare and Glint; and
  - Visual Impact Assessment.
- Appendix D – Environmental Constraints Map.

In addition to the EIS, the Jemalong Solar Station PHA prepared by Scott Lister Document Reference HL20160225A – Revision 2, dated 25 February 2016

(Appendix C), was reviewed. The findings contained within the report and study have been utilised within the review undertaken by FRNSW. In addition to the aforementioned documentation, FRNSW have also included information provided within several FRNSW reports which were compiled following the Jemalong Solar Station – Sodium fire and Hazardous Material incident (HAZMAT Incident) which commenced on 13 June 2015. FRNSW involvement in the HAZMAT Incident was concluded on 18 June 2015.

Based on the above reviews, the following comments and recommendations are submitted to the Department of Planning and Environment (the Department) for consideration:

**Comments/Recommendations**

1. FRNSW is unaware if a Fire Safety Study (FSS) has been prepared on the existing Vast Solar 6MW pilot solar plant at Jemalong. However, in the event of development consent being granted for the 30MW Jemalong Solar Farm Project, it is FRNSW recommendation that a FSS is developed for the site and that the FSS is undertaken in accordance with the recommendations detailed in Hazardous Industry Planning Advisory Paper No.2.

   It is also recommended that the FSS be approved by FRNSW to ensure its operational requirements are met, prior to any operational or additional changes being undertaken at the existing 6MW solar plant.

2. Taking the EIS, PHA and the HAZMAT incident into consideration, it is recommended that the above FSS include the following FRNSW concerns and any proposed controls/implementation measures for assessment. FRNSW concerns include the following:

   a) It is documented within section 2.2.13 of the EIS that minor upgrades to Wilbertroy and Naroo Lanes, the intersection of Wilbertroy Lane and Lachlan Valley Way is proposed. However, the EIS does not define what a minor upgrade would consist of. Access tracks to and around the site are proposed to remain unsealed. Provisions for emergency vehicle access to the site and also within the site to access the solar farm infrastructure is a critical requirement to enable a safe and able passageway for FRNSW crews/vehicles, should another incident occur at the site. FRNSW recommends that all-weather access roads be provided to ensure FRNSW vehicle access is assured to the major components of the solar farm, including the thermal storage tanks, heat exchanges, air cooled condenser/s, steam turbine and Liquid Petroleum Gas (LPG) storage tanks.

   b) During the HAZMAT Incident at the existing 6MW solar plant, FRNSW access to the area of origin was hampered as a result of the flange location in the design and pipework layout associated with the solar plant. FRNSW recommends that the configuration of the solar farm pipework and critical flange/valve locations be designed in a manner that permits adequate access to any major component of the solar farm. It is acknowledged that knowing where a fault may arise in the system may be difficult. However,

the proposed 30MW solar farm project should be designed in a manner that offers the greatest accessibility for emergency services to the system's major components, such as thermal storage tanks, heat exchanges, air cooled condenser/s and steam turbine, in order to undertake any appropriate emergency measures to manage an incident involving the products contained within the proposed 30MW solar farm project. This should include appropriate pipework layout design.

c) FRNSW is unclear as to whether or not the pipework incorporated throughout the solar farm is provided with the ability to isolate any part of the solar farm pipework, such as a series of pipework isolation valves. Should isolation valves or the like be provided within the system design, it would enable a damaged section of pipework to be closed off and greatly reduce any subsequent HAZMAT Incident.

d) The bulk LPG tank supply is recommended to be monitored by Lower Explosive Limit detection to provide the sodium solar infrastructure with an additional risk control measure from an LPG explosion.

e) An adequate supply of Soda Ash was not on hand at the Vast Solar existing 6MW solar plant for FRNSW crews to utilise during the HAZMAT Incident. Additional supplies of Soda Ash were required to be located and transported to the site for immediate use during the incident. The required additional supplies of Soda Ash were not only needed to be transported extensive distances to the site but also required the assistance of multiple emergency service agencies to ensure the product was obtained for use in the incident.

   It is detailed in section 6.6.1 of the EIS that 20 tonnes of Soda Ash is estimated to be stored at the proposed 30MW solar farm project. The increased quantity of Soda Ash estimated to be stored on site will assist in preventing a repeat of the measures required during the HAZMAT Incident. FRNSW recommends that sufficient justification on the quantity of Soda Ash to be stored on-site at the proposed 30MW solar farm project and the method of Soda Ash storage to be used should be provided within the FSS for FRNSW to further assess.

   An emergency supply arrangement for additional Soda Ash in excess of the estimated 20 tonnes should be incorporated within the FSS. The proposed 30MW solar farm's emergency supply arrangement should also be capable of supply to the site within 6-8 hours.

   A management plan should also be undertaken to ensure the Soda Ash stored on site remains usable and does not solidify in the proposed storage arrangement located at the solar farm.

f) Subject matter experts (SME) are expected to be available 24/7 for on-site consultation with FRNSW during an incident. FRNSW does not expect that SMEs remain on site at all times, however a travel time of 30 minutes from a SME residence to the facility is considered to be the maximum travel time permitted. This is because the arrival of SME within 30 minutes of an

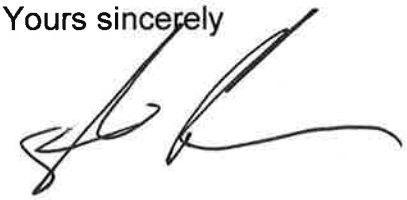
incident will afford FRNSW incident management teams the best opportunity to develop appropriate incident management strategies and implement tactics in a timely and effective manner. Immediate access to a list of the Solar Farm SME contact details would be an essential FRNSW requirement.

NOTE: Contact details for the emergency supply arrangement for additional Soda Ash, as detailed above {see FRNSW item number 2 e)}, should be captured with the list of the Solar Farm SME contact details.

g) Security of the entire site should be undertaken to ensure localised vandalism is prevented i.e. damage to solar farm major components and pipework as a result of firearms or other malicious acts. A minimum restricted access zone should be investigated, taking a potential range from a firearm into consideration and implemented to prevent a random malicious act to be performed on any part of the solar farm. For example, should it be identified that preventing such a malicious act would require an additional secure, restricted access zone of 1 kilometre in distance from any part of the 30MW Jemalong Solar Farm Project's 165 hectare site (contained within the 15,478 hectare Jemalong Station), then FRNSW would recommend this measure to be implemented.

For further information please contact Cameron Wheatley of the Fire Safety Assessment Unit, referencing FRNSW file number BFS16/1870 (11427). Please ensure that all correspondence in relation to this matter is submitted electronically to bfs@fire.nsw.gov.au.

Yours sincerely



Inspector Stephan Parkins
Acting Manager
Fire Safety Assessment Unit